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Termiz Davlat universiteti Biologiya yo'nalishi talabalari

BIOKIMYO FANIDAN UGLEVODLAR MAVZUSINI O'QITISHDA INNOVATSION USULLARDAN FOYDALANISH

Annotatsiya: Ushbu maqolada uglevodlarning turlari (monosaxarid disaxarid va polisaxarid), funksiyalari va ularning ahamiyati bayon etilgan.

Kalit so'zlar: Monosaxarid, disaxarid, polisaxarid, glukoza, talabalar, fanlararo integratsiya, biokimyo, modul, reyting tizimi, nazorat

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USE OF INNOVATIVE METHODS IN TEACHING THE SUBJECT OF CARBOHYDRATES IN BIOCHEMISTRY

Annotation: This article describes the types of carbohydrates (monosaccharides, disaccharides and polysaccharides), their functions and their importance.

Key words: monosaccharide, disaccharide, polysaccharide, glucose, students, interdisciplinary integration, biochemistry, module, rating system, control

Kirish. Biologik kimyo muhim biologik moddalarning tuzilishini ular bajaradigan funksiyalari bilan bog'liq holda, bu birikmalarning molekulyar, hujayra, to'qima va organizm darajasida o'zgarishini o'rganadi. Bular orasida uglevodlar biokimyosi muhim o'rin tutadi. Barcha tirik organizmlarning muhim tarkibiy qismi uglevodlardir. Uglevodlar o'simlik olamida ko'p tarqalgan organik birikmalar bo'lib, ular hayotda muhim ahamiyatga ega. Uglevodlar asosan C, H₂, O₂ atomlaridan tashkil topgan bo'lib, shuningdek ular tarkibida boshqa elementlar uchraydi, masalan, aminoshakarlar tarkibida azot (N) bo'ladi. Uglevodlarning ko'pchiligi o'simliklarda zahira modda sifatida to'planadi. Masalan, paxta tolasini, kanop po'stlog'ini asosan, selluloza tashkil qiladi. Uglevodlar kimyoviy tuzilishiga ko'ra, ko'p atomli spirtlarning aldegidi yoki ketoni hisoblanadi. Ular turli xususiyatlarga ega: suvda eriydigan va suvda erimaydigan moddalar, kichik va katta molekulyar massaga ega bo'lgan birikmalar, qaytaruvchilik xususiyatiga ega bo'lgan va ega bo'lmagan birikmalar va hakoza. Uglevodlar 3 ta asosiy

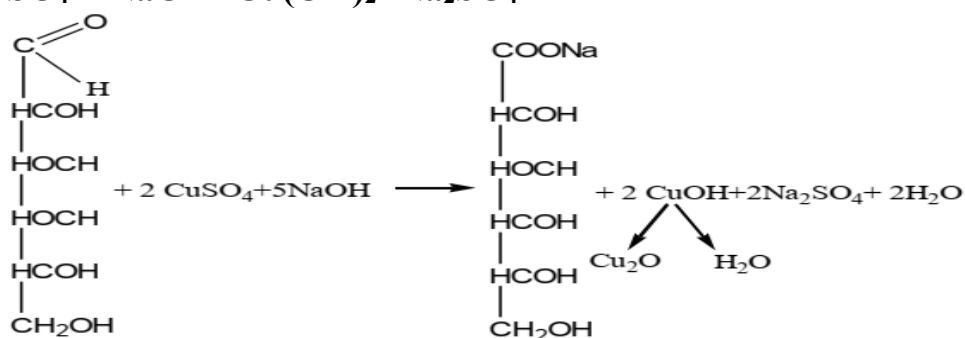
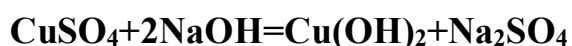
guruhga bo'linadi: monosaxaridlar, oligosaxaridlar(disaxaridlar) va polisaxaridlar:

Monosaxaridlar. Monosaxaridlar tarkibida keton va aldegid guruhlari bilan bir qatorda spirtli (-oksi) guruhlari ham mavjud. Tarkibida aldegid guruhlari bo'lgan monosaxaridlar aldozalar, keton guruh bo'lgan monosaxaridlar ketozalar deb ataladi. Monosaxaridlar tarkibidagi karbonil guruhning joylashishiga qarab ikki xil izomer, aldoza va ketoza izomerini hosil qiladi.

Monosaxaridlar hosilalari. Shakarlarning fosforli efiri. Monosaxarid kislotalar bilan reaksiyaga kirishib, murakkab efir hosil qiladi. Bu efirlarning ko'pchiligi moddalar almashinuvi jarayonida muhim ahamiyatga ega. Monosaxaridlarning fosfat kislotalar bilan hosil qilgan fosforli efirlari ayniqsa katta ahamiyatga ega bo'lib, ularga quyidagi birikmalar kiradi.

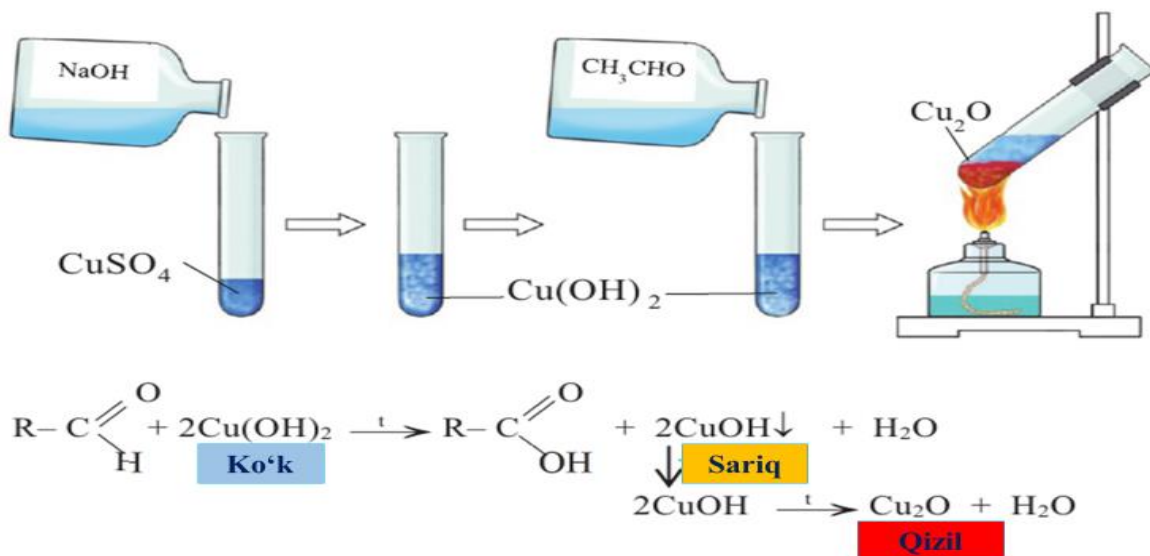
Trommer reaksiyasi

Monosaxaridlar ishqoriy muhitda mis (II)- gidroksidni mis (I)- oksidgacha qaytaradi, bu reaksiya natijasida reaksiya uchun olingan aldozalarga mos kelgan kislotalar hosil bo'ladi:



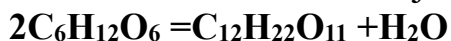
Reaksiya mahsuloti sifatida qizil rangli mis (I)-oksid hosil bo'ladi. Bu reaksiyaning kamchiligi shundaki, agar tekshirilayotgan eritmada shakar juda oz bo'lsa, ortiqcha miqdorda hosil bo'lgan mis (II)-gidroksid qizdirilganda parchalanib, qora rangli mis (II)-oksidiga aylanadi. Natijada juda oz miqdorda hosil bo'lgan qizil rangli mis (I)-oksidi hosil bo'ladi

Ishning bajarilishi: Probirkaga 1 % li glukoza eritmasidan 1-2 ml quyib, uning ustiga teng hajmda 10% li NaOH eritmasi qo'shiladi. Aralashmaga chayqatib turilgan holatda tomchilatib 5% li mis sulfat eritmasidan 1 ml qo'shiladi. So'ngra ohistalik bilan probirkadagi suyuqlik qizdiriladi. Avval sariq rangli loyqa paydo bo'lib (CuOH), vaqt o'tishi bilan qizil rangli Cu₂O hosil bo'ladi



Trommer reaksiyasi

DISAXARIDLAR. Murakkab qand bo'lib, har bir molekulasida gidrolizlanganda ikki molekula monosaxaridlarga parchalanadi. Inson va hayvonlar ozuqasida disaxaridlar asosiy uglevodlar manbai hisoblanadi. Disaxaridlar glikozidlar bo'lib, ikki molekula monosaxaridlarning glikozid bog'lar orqali bog'lanishidan hosil bo'ladi. Ikkita monosaxarid molekulasidan bir molekula suv ajralib chiqishi natijasida disaxarid hosil bo'ladi.



POLISAXARIDLAR. Yuqori molekullari murakkab uglevodlar bo'lib, ularning molekullari monosaxaridlarning juda ko'p qoldig'idan tuzilgan ular suvda erimaydi yoki kolloid eritma hosil qiladi. Bir xil monosaxariddan iborat polisaxaridlar gomopolisaxaridlar, har xil monosaxariddan iborat bo'lsa geteropolisaxaridlar deyiladi. Sellyuloza o'simliklar tarkibida ko'p bo'lib, ular hujayra devorining asosini tashkil qiladi. Sellyuloza suvda erimaydi. Ayrim kislotalar ta'sirida qisman gidrolizlanadi. Uning molekulyar massasi 300000 dan 1000000 gacha bo'ladi.

Xulosa: Uglevodlar organizmimiz uchun juda muhim ozuqaviy moddalardir. Ular energiya manbai sifatida xizmat qiladi, tananing ko'plab funksiyalarini ta'minlaydi va sog'lig'imizni saqlashga yordam beradi. Uglevodlarni o'rtacha va to'g'ri iste'mol qilish sog'lom turmush tarziga erishishning muhim omillaridan biridir. Uglevod sanoat va xalq xo'jaligi, farmatsevtika va tibbiyot, oziq-ovqat sanoati va boshqa sohalar uchun xam muhim xom ashyo manbaidir. Bijg'ish mahsulotlari, o'nlab xil kislotalar, dori-darmonlar, to'qimachilik sanoatining asosiy xom ashyolari sellyuloza, qog'oz, tolalar, plastmassalar ham uglevoddan foydalanib tayyorlanadi. Portlovchi moddalar, kinotasmalar, pergament, gummiarabik va boshqa ham shular jumlasiga kiradi. Uglevoddan organizm uchun zarur bo'lgan glyukoza, fruktoza, askorbin kislota, antibiotiklar, yurak glikozidlari va boshqa olinadi. Uglevodlar odam organizmning moddalar va energiya almashinuvida, o'sib

rivojlanishlanishida, asosiy va qoshimcha oziq moddalarga bo'lgan talabning yetarli darajada qondirilib borilishida juda katta ahamiyatga ega.

FOYDALANILGAN ADABIYOTLAR

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AZOTNING O'SIMLIK HAYOTIDAGI O'RNI VA TA'SIR JARAYONI

***Annotatsiya:** Ushbu maqola azotning o'simliklarning o'sishidagi ahamiyati va biologik ta'sir mexanizmlarini tahlil qiladi. Azot o'simliklar uchun asosiy oziqa elementlaridan biri bo'lib, ular tomonidan aminokislotalar, oqsillar va boshqa organik birikmalar sintezida qo'llaniladi. Tadqiqot natijalariga ko'ra, tuproqdagi azot miqdorining yetarli bo'lishi o'simliklarning normal o'sishi va rivojlanishini ta'minlaydi. Maqolada azotning tuproqdan o'simliklarga o'tish jarayoni, uning metabolizmi va o'simliklarda azot etishmovchiligi oqibatlari muhokama qilinadi.*

***Kalit so'zlar:** Azot, o'simlik fiziologiyasi, azot aylanishi, o'simlik o'sishi, tuproq oziqlanishi, azot etishmovchiligi, azot manbalari.*

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THE ROLE OF NITROGEN IN PLANT LIFE AND THE PROCESS OF ITS ACTION

***Annotation:** This article analyzes the importance of nitrogen in plant growth and the mechanisms of its biological action. Nitrogen is one of the main nutritional elements for plants, which is used by them in the synthesis of amino acids, proteins and other organic compounds. According to the results of the study, a sufficient amount of nitrogen in the soil ensures the normal growth and development of plants. The article discusses the process of nitrogen transfer from soil to plants, its metabolism and the consequences of nitrogen deficiency in plants.*

***Keywords:** Nitrogen, plant physiology, nitrogen cycle, plant growth, soil nutrition, nitrogen deficiency, nitrogen sources.*

Kirish. Azot – o‘simlik hayotida muhim ahamiyatga ega bo‘lgan asosiy oziqa elementlaridan biridir. Azot aminokislotalar, oqsillar, nuklein kislotalar va boshqa muhim organik birikmalar tarkibiga kirib, o‘simlikning to‘g‘ri o‘sishi va rivojlanishini ta‘minlaydi. Azot yetishmasligi o‘simliklar rivojlanishida turli xil muammolar, xususan, barglar sarg‘ayishi, o‘sishning sekinlashishi kabi salbiy o‘zgarishlarga olib kelishi mumkin. Shu sababli, azotning o‘simliklar hayotidagi o‘rni va ta‘sir jarayoni ko‘p yillar davomida tadqiqot mavzusi bo‘lib kelgan. Global tadqiqotlar ko‘rsatadiki, o‘simliklar oziqlanishida azot tuproqning unumdorligiga katta ta‘sir ko‘rsatadi. Bunda har yili qishloq xo‘jaligi maydonlariga qo‘llaniladigan azotli o‘g‘itlar miqdori oshib bormoqda. Statistika ma‘lumotlariga ko‘ra, 2000 yildan 2023 yilgacha jahon bo‘ylab qo‘llanilgan azotli o‘g‘itlar miqdori 30% ga oshgan, bu esa o‘simliklar o‘sishiga ijobiy ta‘sir ko‘rsatmoqda.

Tadqiqot obyekti va uslublari. Mazkur tadqiqotda azotning o‘simlik fiziologiyasiga bo‘lgan ta‘sirini o‘rganish uchun turli tuproq turlari va azotli o‘g‘itlarning ta‘siri ko‘rib chiqildi. Tadqiqotda quyidagi usullar qo‘llanildi:

O‘sishni kuzatish: Turli tuproqlarda yetishtirilgan o‘simliklarning o‘sish dinamikasi kuzatildi.

Kimyoviy tahlil: Tuproqdagi azot miqdori va o‘simlik to‘qimalaridagi azot konsentratsiyasi o‘lchandi.

Fiziologik tahlil: O‘simliklarning aminokislota va oqsil tarkibi tahlil qilindi.

Tuproq tahlillari: Azot darajasi tuproq namunasining Kimyoviy tahlil usuli yordamida o‘lchandi.

Fotosintez tahlili: Azot miqdorining fotosintez jarayoniga ta‘sirini o‘rganish uchun o‘simliklarning chlorofill darajasi va karbon dioksidni o‘zlashtirish tezligi o‘lchandi.

Tuproq tahlillari: Azot darajasi tuproq namunasining Kimyoviy tahlil usuli yordamida o‘lchandi.

Tadqiqot maqsadi

Tadqiqotning asosiy maqsadi o‘simliklar hayotida azotning qanday rol o‘ynashini va uning yetishmasligi yoki ortiqchaligi qanday fiziologik va o‘sish natijalari bilan kechishini tahlil qilishdir. Shuningdek, tuproq va o‘g‘itlarning azot bilan to‘yintirilishining o‘simlik rivojlanishiga ta‘siri ham baholandi.

Tadqiqot natijalari va muhokamasi

Tadqiqot natijalariga ko‘ra, azot o‘simliklar o‘sishi uchun zarur bo‘lgan asosiy elementlardan biri hisoblanadi. Tadqiqot davomida:

1. Azot yetishmovchiligi kuzatilgan o‘simliklarda barglarning sarg‘ayishi va sekin o‘sish kuzatildi.

2. Azot bilan yaxshi ta‘minlangan tuproqlarda esa o‘simliklarning ko‘chat chiqarishi, barglarning yashil rangi va o‘sish sur‘ati yuqori bo‘ldi.

3. Azotning tuproqdagi tabiiy manbalari va azotli o'g'itlarning qo'shimcha manbalari o'simliklarning oziqlanishini yaxshiladi va tuproqdan ozuqa moddalarning optimal o'zlashtirilishini ta'minladi.

O'sish dinamikasi: Azotli tuproqlarda kuzatilgan o'simliklarning o'sishi 1,5-2 barobar yuqoriroq bo'lib, azot etishmovchiligi kuzatilgan o'simliklarga nisbatan ancha yaxshi rivojlangan.

Statistik tahlil: Azot miqdorining ortishi bilan o'simliklarda aminokislotalar sintezi uchun zarur bo'lgan azotli birikmalarning ortishi kuzatildi. Azotli tuproqlarda o'sgan o'simliklar boshqa tuproq turlariga nisbatan 25-30% ko'proq fotosintez samaradorligi ko'rsatdi.

Barg pigmentatsiyasi va energiya almashinuvi: Azot bilan boyitilgan tuproqlarda fotosintez jarayoni tezlashib, o'simliklarda xlorofill miqdori oshdi.

Umumiy tahlil xulosa

1. Azot miqdorining o'simlik hayotiga ta'siri: Azot tuproqdagi asosiy oziqa moddalaridan biri sifatida o'simliklar rivoji va o'sish sur'atlarini sezilarli darajada oshiradi. Yuqori azot miqdori barg pigmentatsiyasini yaxshilab, fotosintez samaradorligini oshiradi.

2. Yetarli azot darajasi kerak: Azot darajasi past bo'lgan sharoitlarda o'simliklar yetarli oziqa ololmaydi, bu esa o'sishda sekinlashuv, barglarda sarg'ayish va fiziologik zaiflikka olib keladi. Shu sababli, tuproqni optimal azot miqdori bilan ta'minlash qishloq xo'jaligi hosildorligini oshirish uchun muhim omildir.

3. Grafik va jadval ma'lumotlari: Ushbu statistik va grafik tahlillar azotning o'simlik hayotidagi o'rnini yaqqol ko'rsatib, azotli o'g'itlardan samarali foydalanishning ahamiyatini tasdiqlaydi. Bu natijalar qishloq xo'jaligi uchun azot resurslarini to'g'ri boshqarish zarurligini isbotlaydi.

Ushbu tahlillar asosida, tuproqdagi azotni doimiy kuzatish va tegishli miqdorda o'g'it qo'llash qishloq xo'jalik mahsuldorligini oshirishga ijobiy ta'sir ko'rsatadi.

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INHERITANCE AND VARIABILITY OF EARLY RIPENING IN F1-F4 HYBRIDS CREATED BY TOPCROSS HYBRIDIZATION OF COTTON

***Abstract:** In the F1-F4 hybrid generations created by the topcross hybridization method of cotton, the heredity and variability of early ripening were observed and analyzed over the years and generations, and early hybrid combinations were distinguished.*

***Key words:** Cotton, hybrid, generation, combination, topcross, heredity, variability, rapid, variation.*

It is known that early ripening is one of the main valuable economic characteristics in the selection of cotton varieties. It is important to collect cotton raw materials before the cold days.

The scientists of our Republic have conducted several scientific researches on the rate of ripening in cotton, including R.Nazarov, Sh.Namazov, and they emphasize that the soil and climate conditions are important in creating varieties with high fiber quality and yield. becomes important. The new varieties created by the scientists of the UzQSSIChM are distinguished by their productivity, quick ripening, high fiber quality, and resistance to diseases and pests, as well as their short-term adaptability to various environments [2; p. 18].

According to E.Matyokubova., M.Khalikova., O.Akhmedov, among the samples of the collection, there are biologically precocious samples compared to the model variety, and it is possible to create new promising early varieties using these samples as a starting source in practical selection processes. The main element of quick cooking is the opening period of the first pod. In the studied F2 plants, it was in the range of 107.3-115.9 days (variation amplitude 4.6-9.4%). According to this indicator, the Termiz-202 x Pima C4 combination was found to be the fastest compared to other combinations (107.3 days). In the variation series, most of the plants were located in the classes between 110.0-113.0 days, which showed that they have high potential in terms of economic maturity [1; pp. 83-86].

In our studies, the rate of ripening in F1 hybrid combinations created by the method of topcross hybridization was 117.0 (F1Andijon-36 x C-6524; F1Andijon-36 x Kelajak; F1Andijon-36 x UzPITI-201) and 123.0 F1(Andijon-36) per day. x Jarkurgan) was in the interval until the day (see Table 1). Among them, in the following combinations F1Andijan-36 x Namangan-34 ($hp=-1.0$) and

F1Andijan-36 x Sultan (hp=-1.0), F1Andijan-36 x Jarkurgan (hp=-0.5), F1Sultan x C-6524 (hp=-0.5), F1Sultan x Namangan-34 (hp=-1.0), F1Sultan x UzPITI-201 (hp=-0.5), F1Sultan x Kalajak (hp=-0.55) and F1Sultan x Andijon-36 (hp=-1.0) combinations showed complete dominance and negative intermediate heterosis at a negative level, showing no rapidity compared to the parents.

F1Sultan x Bukhara-102 (hp=8.0), F1Sultan x Turon (hp=19.0), F1Sultan x Namangan-77 (hp=46.5), F1Andijan-36 x Turon (hp=41.0) in combinations and a positive strong and intermediate level of heredity, i.e. lateness, was shown.

According to the results of the research obtained in 2020, the average maturity in F2 combinations ranged from 117.2 (F2Andijan-36 x UzPITI-201) days to 123.0 (F2Andijan-36 x Jarkurgan) days. Among hybrid combinations, F2Andijan-36 x UzPITI-201 (117.2 days), F2Sulton x C-6524 (118.9 days), F2Sulton x Kelajak (118.7 days) ripened earlier than other hybrids. . It should be noted that some of these hybrids were faster than the indicators of the previous year. Examples include F1Sultan x C-6524 (119.0 days), F1Sultan x Kalajak (119.1 days) and several other hybrids (see Table 1).

| № | Комбинатсия | 2019yil F ₁ | | 2020 yil F ₂ | | 2021yil F ₃ | | 2022yil F ₄ | |
|----|--------------------------|------------------------|------|-------------------------|------|------------------------|------|------------------------|------|
| | | M+m | V% | M±m | V% | M±m | V% | M±m | V% |
| 1 | Andijon-36 x Andijon-37 | 119,0 | 2,41 | 120,0 | 2,19 | 122,6 | 4,00 | 121,2 | 2,54 |
| 2 | Andijon-36 x C-6524 | 117,0 | 1,51 | 119,2 | 2,12 | 120,0 | 1,57 | 119,0 | 1,72 |
| 3 | Andijon-36 x Namangan-34 | 120,0 | 2,00 | 120,1 | 2,56 | 120,1 | 3,99 | 121,0 | 2,38 |
| 4 | Andijon-36 x Namangan-77 | 121,9 | 1,87 | 121,4 | 1,61 | 121,4 | 1,61 | 123,2 | 0,94 |
| 5 | Andijon-36 x Omad | 119,1 | 1,79 | 119,3 | 1,68 | 120,6 | 1,52 | 118,8 | 1,20 |
| 6 | Andijon-36 x Sul-ton | 120,2 | 2,25 | 119,0 | 3,82 | 120,5 | 2,57 | 119,2 | 1,76 |
| 7 | Andijon-36 x Jarqo'rg'on | 123,0 | 2,06 | 123,0 | 3,04 | 120,9 | 2,32 | 122,0 | 3,07 |
| 8 | Andijon-36 x Kelajak | 117,0 | 2,55 | 119,2 | 2,93 | 120,7 | 2,74 | 118,8 | 2,56 |
| 9 | Andijon-36 x Buxoro-102 | 120,1 | 1,82 | 119,4 | 2,13 | 120,7 | 2,71 | 121,2 | 0,88 |
| 10 | Andijon-36 x Turon | 122,1 | 2,10 | 121,5 | 4,02 | 121,2 | 2,39 | 120,0 | 1,71 |
| 11 | Andijon-36 x O'zPITI-201 | 117,0 | 2,55 | 117,2 | 3,73 | 119,3 | 1,12 | 118,2 | 0,89 |
| 12 | Sul-ton x Andijon-37 | 119,4 | 1,64 | 119,6 | 4,85 | 120,2 | 1,79 | 121,4 | 1,03 |
| 13 | Sul-ton x C-6524 | 119,0 | 2,28 | 118,9 | 3,11 | 120,7 | 1,88 | 119,4 | 2,26 |
| 14 | Sul-ton x Namangan-34 | 120,0 | 2,64 | 120,0 | 2,72 | 120,1 | 1,98 | 121,4 | 1,55 |
| 15 | Sul-ton x Namangan-77 | 121,9 | 2,27 | 121,3 | 3,16 | 120,9 | 1,89 | 122,2 | 0,88 |
| 16 | Sul-ton x Omad | 121,0 | 2,78 | 121,5 | 4,17 | 121,1 | 2,32 | 118,4 | 1,10 |
| 17 | Sul-ton x Turon | 121,0 | 2,30 | 121,2 | 3,62 | 120,8 | 2,81 | 122,0 | 2,0 |
| 18 | Sul-ton x Jarqo'rg'on | 121,8 | 2,38 | 120,0 | 3,24 | 120,6 | 2,32 | 121,8 | 1,56 |
| 19 | Sul-ton x O'zPITI-201 | 119,5 | 2,27 | 120,0 | 4,12 | 120,5 | 2,00 | 119,8 | 1,92 |
| 20 | Sul-ton x Kelajak | 119,1 | 2,25 | 118,7 | 3,97 | 119,5 | 2,02 | 120,0 | 1,56 |
| 21 | Sul-ton x Buxoro-102 | 119,3 | 2,13 | 119,1 | 3,18 | 121,1 | 2,00 | 120,0 | 1,48 |
| 22 | Sul-ton x Andijon-36 | 121,0 | 2,43 | 121,2 | 3,92 | 121,5 | 2,03 | 119,4 | 0,98 |
| 23 | Andoza C-6524 | | | | | | | 120,4 | 1,08 |

Inheritance and variability of ripening speed in F1-F4 hybrids

According to the results of the research obtained in 2021, the parameters of the ripening period of 50% of the germination of F₃ plants were analyzed. In these hybrids, we can observe that the indicators of the 50% ripening period from sprout germination ranged from 119.3 F₃Andijon-36 x UzPITI-201 days to 122.6 F₃Andijon-36 x Andijon-37 days (see Table 1).

According to the results of scientific research carried out in 2022, in F₄ hybrids, based on the analysis of indicators of the "50% ripening from sprouting" period,

on average from 118.4 days (F4Sultan x Omad) to 123.2 days (F4Andijon-36 x Namangan-77) were recorded.

When comparing these F4 hybrids to the template variety C-6524 (120.4 days), it was found that there were early selection items from 1 to 2 days from the template. Among the hybrids are F4Andijon-36 x C-6524, F4Andijon-36 x Omad, F4Andijon-36 x Sultan, F4Andijon-36 x Kalajak, F4Andijon-36 x UzPITI-201, F4Sultan x C-6524, F4Sultan x Omad, F4Sultan x Andijan-36 selection materials differed from other hybrids in terms of precocity. Some of the remaining hybrids showed late maturity from 1 to 3 days. Only one F4Andijon-36 x Namangan-77 item stood out among the hybrids for its late maturity.

According to the results of a long-term study, this Andijon-36 x Omad is more fertile than other hybrids over the years (119.1 days in the 1st year, 119.3 days in the 2nd year, 120.6 days in the 3rd year, 4th year 118.8 days), Andijan-36 x UzPITI-201 (117.0 days in the 1st year, 117.2 days in the 2nd year, 119.3 days in the 3rd year, 118.2 days in the 4th year), Sultan x Future (119.1 days in the 1st year, 118.7 days in the 2nd year, 119.5 days in the 3rd year, 120 days in the 4th year) hybrids are more resistant to early ripening than other hybrids, and can be distinguished as material for creating quick-ripening varieties in further selection research. received.

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O'ZBEKISTONDA GEOAXBOROT TIZIMLARI (GIS)DAN FOYDALANISH TARIXI VA RIVOJLANISHI

***Annotatsiya.** Geografik axborot tizimi (GIS) – bu geografik axborotlarni kiritish, saqlash, qayta ishlash, tahlil qilish va tasvirlash uchun xizmat qiladigan apparatli va dasturiy vositalar to'plamidir. Ushbu maqolada geoaxborot tizimlari (GIS) haqida shuningdek ulardan yurtimizda foydalanish tarixi va istiqbollari haqida so'z boradi.*

***Kalit so'zlar.** Geoaxborot tizimi, axborot kommunikatsiya, geodeziya, xaritashunoslik, transport.*

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HISTORY AND DEVELOPMENT OF USE OF GEOINFORMATION SYSTEMS (GIS) IN UZBEKISTAN

***Abstract.** A geographic information system (GIS) is a set of hardware and software tools used to enter, store, process, analyze, and display geographic information. This article talks about geographic information systems (GIS), as well as the history and prospects of their use in our country.*

***Key words.** Geoinformation system, information communication, geodesy, cartography, transport.*

Dunyo miqyosida geoaxborot tizimining barcha rivojlanish davrini tahlil qiladigan bo'lsak, biz kichik ko'lamdagi yechimlardan nisbatan yangi, keng ko'lamdagi platformada ishlash bo'yicha zamonaviy konsepsiyalarga o'tish tendensiyasini kuzatishimiz mumkin. Bunday platformalar ma'lum bir korxonada aniq vazifalarni bajarish, osonlikcha kengayadigan, ishlab chiqarish muammolarini yechish uchun yaratilgan. Geoinformatsion tizimlarni yaratish va ulardan foydalanishning an'anaviy konsepsiyasi "mijoz – server" dasturiy ta'minotini yaratishdan iborat. Server komponentlari sifatida yirik hajmli ma'lumotlar olinadi va ular bilan ishlash vositalari tanlanadi. Mijozning ish o'rnida elektron yoki nashr ko'rinishidagi hisobotlar natijasini tarqatish, vizualizatsiya qilish, tahrirlash va qayta ishlash uchun vositalar to'plami bo'lishi shart. Zamonaviy informatsion texnologiyalar doirasidagi yangiliklar va o'zgarishlar, Internet texnologiyalari, ma'lumotlar bazasidan amaliy va nazariy foydalanishning jadal rivojlanishi, turli mobil qurilmalarning – noutbuk, netbuk, shaxsiy kompyuterlarining paydo bo'lishi va ularning doimiy takomillashib borishi natijasida zamonaviy GISning yangi g'oyalari konsepsiyasining vujudga

kelishiga sabab bo'ldi. Zamonaviy GIS — bu integratsiyalashgan, masshtabli platforma bo'lib, u markazlashgan holda ma'lumotlarni saqlash, ular bilan ishlash imkonini beradi. Ma'lumotlar bilan amallar bajarishni GISning ishchi dasturiy ta'minoti - Web-brauzer, mobil qurilmalar, GIS-logikasiga o'rnatilgan ishchi dasturlari amalga oshiradi. Mobil GISdan ishlab chiqarishni barcha sohalarida, xatto tibbiyot va dizaynda ham foydalanilmoqda.

Geografik axborot tizimlari (GIS) zamonaviy jamiyat va kundalik hayotimizning ajralmas qismiga aylandi. Ular turli sohalarida keng qo'llaniladi, geografik ma'lumotlarni tartibga solish, tahlil qilish va vizualizatsiya qilishda muhim rol o'ynaydi. Ushbu matnda biz GISni qo'llashning asosiy yo'nalishlarini va ularning tegishli faoliyat sohalarini rivojlantirishga ta'sirini ko'rib chiqamiz. GIS qo'llaniladigan asosiy yo'nalishlardan biri bu hududlarni geografik rejalashtirish va boshqarishdir. Geofazoviy tahlillar tufayli GIS shaharsozlik loyihalarini samarali rejalashtirish, yer resurslaridan foydalanishni optimallashtirish va hududiy rivojlanishning turli xil ekologik va ijtimoiy-iqtisodiy oqibatlarini bashorat qilish imkonini beradi. GIS qishloq va o'rmon xo'jaligida ham keng qo'llanilishini topdi. Ular tuproq va iqlim sharoitlarini tahlil qilish, o'g'itlar va pestitsidlardan foydalanishni optimallashtirish, kasalliklar va zararkunandalarning tarqalishini bashorat qilishda yordam beradi. O'rmon xo'jaligida GIS kesishlarni rejalashtirish, o'rmon resurslari va o'rmon yong'inlarini kuzatish va ekotizimlarning barqarorlik darajasini baholash uchun ishlatiladi. GISni qo'llashning yana bir muhim sohasi - bu transport va logistika. Ularning yordami bilan siz transport yo'nalishlarini optimallashtirishingiz, transport oqimlarini boshqarishingiz, infratuzilmani tahlil qilishingiz va yo'l sharoitlarini taxmin qilishingiz mumkin. GIS transport tizimlari samaradorligini oshirish va shahar transportini tashkil etishni takomillashtirishga sezilarli ta'sir ko'rsatadi.

2017-2021-yillarda O'zbekiston Respublikasi yanada rivojlantirishning beshta ustuvor yo'nalish bo'yicha Harakat strategiyasida belgilangan vazifalar, 2017-yil 29-avgustda "Axborot-kommunikatsiya texnologiyalari sohasida loyiha boshqaruvi tizimini yanada takomillashtirish chora-tadbirlari to'g'risida"gi va O'zbekiston Respublikasi Prezidentining 2002-yil 30-maydagi "Kompyuterlashtirish va axborot-kommunikatsiya texnologiyalarini yanada rivojlantirish to'g'risida"gi Qarori va "Kompyuterlashtirish va axborot-kommunikatsiya texnologiyalarini 2002-2010-yillargacha rivojlantirish dasturiga asosan respublikamizda kompyuter va axborot texnologiyalarini rivojlantirish, ularni xalq xo'jaligida samarali qo'llash dolzarb masalaga aylangan. Telekommunikatsiya tarmoqlari, berilganlarni uzatish, Internet xizmatlariga kirish vositalari rivojlanib, takomillashtirilmoqda.

O'zbekiston Respublikasi Davlat yer resurslari, Geodeziya, xaritashunoslik va davlat kadastri qo'mitasi Milliy geografik aqborot tizimini yaratish bo'yicha ishlarni amalga oshirmoqda. «Elektron hukumat» tizimining tarkibiy qismi sifatida shakllantirilgan, sun'iy yo'ldosh geodeziya tarmog'i, davlat kadastri va

ko'chmas mulkni ro'yxatdan o'tkazishning yagona kompyuterlashtirilgan tizimini yaratishni ko'zda tutadi.

Geografik axborot tizimlari (GIS) turli sohalarda keng qo'llaniladi, jumladan:

1. Geografiya va kartografiya: GIS geografik xaritalarni, shu jumladan topografik xaritalarni, erdan foydalanish xaritalarini, raqamli balandlik modellarini yaratish va boshqalarni yaratish va tahlil qilish uchun ishlatiladi.

2. Shaharsozlik va rejalashtirish: GIS shahar infratuzilmasini rivojlantirish, erdan foydalanishni rejalashtirish, transport yo'nalishlari, ob'ektlarning joylashuvi va boshqalarga bo'lgan ehtiyojlarni tahlil qilish va prognoz qilishda yordam beradi.

3. Agronomiya va qishloq xo'jaligi: GIS qishloq xo'jaligi erlarini boshqarishni optimallashtirish, ekin maydonlarini rejalashtirish, iqlim sharoitlarini tahlil qilish va hosildorlik darajasini aniqlash uchun ishlatiladi.

4. Ekologiya va atrof-muhitni muhofaza qilish: GIS ekotizim o'zgarishlarini kuzatish va tahlil qilish, iqlim o'zgarishini o'rganish, ekologik xavflarni rejalashtirish va baholash, qo'riqxonalarni rayonlashtirish va hokazolarda yordam beradi.

5. Transport va logistika: GIS marshrutni rejalashtirish, yuklarni yetkazib berishni optimallashtirish, harakatni tahlil qilish, shahar va viloyat transport tizimlarini tashkil etish va boshqalar uchun qo'llaniladi.

6. Geologiya va geologik tadqiqotlar: GIS minerallar xaritalarini yaratishda, foydali qazilmalarning tarqalishini bashorat qilishda, geologik tuzilmalarni tahlil qilishda va geologik faoliyat bilan bog'liq xavflarni aniqlashda yordam beradi.

7. Geologiya va geologik tadqiqotlar:

GIS minerallar xaritalarini yaratishda, foydali qazilmalarning tarqalishini bashorat qilishda, geologik tuzilmalarni tahlil qilishda va geologik faoliyat bilan bog'liq xavflarni aniqlashda yordam beradi. GIS bevosita har xil ko'rinishdagi ma'lumotlar va bilimlarni mujassamlashtirgan vositasi bo'lib, shahar va hududlarda mavjud muammolarni tahlil qilish va yechimlarini taklif qilishga qaratilgan. GIS texnologiyalar boshqaruvda, rejalashtirishda va xo'jalik ishlarida yagona yondashuvga asoslangan ma'lumotlar bazasini shakllantirish, obyektning xaritada joyini aniq ko'rsatish, geografik hududlarni tanlash, natijalarni vizuallashtirish va chop etish kabi masalalarga qaratilgan.

O'zbekistonda geografik axborot tizimini amalga oshirish bo'yicha qonunqoidalar aynan geografik axborot tizimi uchun ishlab chiqilmagan bo'lsa-da, milliy axborot-kommunikatsiya tizimini shakllantirish, axborot xavfsizligini ta'minlash, elektron hukumat tizimini yaratish, atrof-muhit to'g'risida ma'lumotlar bazasini shakllantirish, ko'chmas mulkni ro'yxatga olish, davlat kadastrlari to'g'risidagi qonunlar qabul qilingan bo'lib, ushbu qonunlar milliy geografik axborot tizimini yaratish uchun asos bo'lib xizmat qila oladi.

Ko‘plab davlatlarda maxsus milliy va viloyat miqyosidagi organlar tuzilgan bo‘lib, ularning vazifalariga geoaxborot tizimi va avtomatlashtirilgan kartografiya, davlat harbiy siyosatini geoinformatikada formallashtirish, milliy rejalashtirish, huquqiy muammolarni o‘z ichiga olgan geografik axborotlarni sir saqlagan holda yig‘ish hamda tarqatish va boshqalar kiradi. O‘zbekistonda 1991–1992-yillarda O‘zdavgeologqo‘mita fondi tomonidan Markaziy Qizilqumning 1:50000 masshtabli kartografik ma‘lumotlar bazasini yaratishni o‘z ichiga olgan geoaxborot tizimi tuzilgan edi. 1996–1999-yillarda “GGP-Qiziltepageologiya” ekspeditsiyasi bilan hamkorlikda Toshkent shahri uchun 1:25000 masshtabda, Farg‘ona vodiysi uchun 1:200000 masshtabda va O‘zbekiston uchun 1:1000000 masshtabdagi raqamli kartalari geoekologik GAT loyihasi uchun; 1997–1998-yillarda esa O‘zbekistonning 1:1000000 va Toshkentning 1:25000 masshtabli raqamli kartalari tuzildi. Hozirgi kunga kelib Toshkent shahrining 1:2000 masshtabli raqamli kartalari Markaziy Aerogeodeziya davlat unitar korxonasi (MADUK) tomonidan to‘liq tuzib bo‘lindi. MADUK va Koreya Respublikasining KOICA agentligi o‘rtasida “O‘zbekiston Respublikasida geoaxborot tizimini yaratish” loyihasi 2006-yil avgust oyida ishga tushdi. Bu loyiha doirasida Toshkent shahri va Toshkent viloyati bo‘yicha geoaxborot tizimi va ma‘lumotlar bazasini tuzish kelishilgan. Albatta, geoaxborot tizimini tuzish juda katta mablag‘ va kuch talab etadi. Bunda esa imtiyozli xalqaro kreditlarning o‘rni katta. O‘zGASHKLITI da qisman Toshkent shahrining geoaxborot tizimi asosidagi raqamli kartasi tuzilgan. Hozirda Birlashgan Millatlar Tashkilotining "Rivojlanish Dasturi" loyihasi doirasida ham O‘zbekiston Respublikasida geoaxborot tizimini yaratish bo‘yicha ishlar boshlangan. O‘zbekiston Respublikasi Prezidentining 2013-yil 25-sentabrdagi “Milliy geografik axborot tizimini yaratish investitsiya loyihasini amalga oshirish choratadbirlari to‘g‘risida” gi PQ-2045-sonli qarori asosida O‘zbekiston Respublikasining barcha hududlarida joriy qilinadigan, asosiy iqtisodiyot tarmoqlari va faoliyat sohalari axborotini qamrab oladigan hamda quyidagilarni o‘z ichiga oluvchi funksional avtomatlashtirilgan kompleks axborot tizimi – Milliy geografik axborot tizimini yaratish va rivojlantirish bo‘yicha ishlar olib borilmoqda. Milliy geografik axborot tizimi (MGAT) yagona tizimga integratsiyalanadigan, vazirlik va idoralar tomonidan ularning vakolatlari va vakolatlarning tarmoqlar bo‘yicha taqsimlanishidan kelib chiqib yaratiladigan axborot resurslari kompleksini o‘zida aks ettiradi.

Geografik axborot tizimlari yer tuzishda, turli tizim kadastrlarida, kartografiyada va geodeziyada keng qo‘llanilmoqda, chunki katta hajmdagi statistik, fazoviy, matnli, grafikli va boshqa ko‘rinishdagi ma‘lumotlarni qayta ishlash hamda ularni tasvirlashni GIS tizimisiz amalga oshirish mumkin emas. Bugungi kunda ilmiy tadqiqotlar va amaliy faoliyatda ko‘plab GISlar ishlatiladi, lekin ular orasida shaxsiy GISlar keng tarqalgan. Jumladan, ularga GeoDraw, GeoGraph (Rossiya Geografiya instituti), AtlasGis, WinGis, ArcInfo, MapInfo (AQSh) va boshqa dasturlarni misol keltirish mumkin. Shunday qilib, geografik

axborot tizimlari hayotimizning turli sohalarida muvaffaqiyatli qo'llaniladi va geografik ma'lumotlarni tashkil etish va tahlil qilishni sezilarli darajada osonlashtiradi. Ulardan foydalanish turli sohalardagi faoliyat samaradorligini oshirishga yordam beradi, shuningdek, hayot sifatini yaxshilash va atrof-muhitni muhofaza qilishga yordam beradi.

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WORMS IN VARIOUS FEEDS MAINTENANCE

***ANNOTATION:** In this article, the development of agriculture in many regions of the Republic of Uzbekistan, the fact that agricultural products are the main source of food and providing the population with high-quality, environmentally friendly products should be the basis of scientific production, in this regard, the soil maintaining fertility, the harm of chemical fertilizers, types of organic fertilizers, the importance of biological natural fertilizers are widely covered.*

***KEY WORDS:** Worms, biotechnology, earthworms, temperature, taking care of, types of reproduction, biochemistry*

INTRODUCTION: The role, biology and physiology of the California red earthworm in increasing soil fertility, the optimal temperature, types of food, etc., in order to acclimatize it to the conditions of our country, were studied, and relevant conclusions and recommendations were developed as a result of the research. The article can be used by professors, teachers, scientific and technical staff, graduate students, farmers and peasants, as well as any interested reader, working in biotechnology, chemical technology, biochemistry, agriculture and other fields. The climatic conditions of Uzbekistan are the most favorable for raising and breeding earthworms. Summers are hot and winters are cold in the northern regions of our republic, summers are hot and winters are warm in other regions. In this climate, the average number of hot days is 270 days a year. It is more convenient to feed worms under these conditions. Earthworms can be kept in basements, barns, sheds, barns, and similar places. In order to increase the number of earthworms raised in indoor heated houses throughout the year, and to save space when earthworms are fed in places where excess biomass (live worms) and biohumus are collected, wooden or plastic cages of size 50x40x15 can be used. 5-6 holes with a diameter of 1.5-2 cm are left at the bottom of the cells for water to flow. For this, if possible, the boxes are filled with horse manure or compost made in the household with a thickness of 10 cm and thoroughly moistened. Then 50 earthworms are sprinkled on the surface. 5-6 rows are picked by putting manure and worm boxes one on top of the other. The moisture content of the manure in the cages should be 75-80%. To determine this, the manure is squeezed into the palm of the hand. It should drip 1-2 drops of water without being massaged. If the temperature in the oven is around 18-25°C, the worms develop well and multiply quickly. The manure in the cages is eaten by worms, and it is gradually put on top of new manure. Together with manure, organic waste from

the farm, leaves, twigs, straw, plant branches and other things are mixed into the cells. Non-biodegradable materials, plastics, polyethylene, metal and bottles are not used as food. In the absence of pre-written materials, it is possible to feed the worms thoroughly moistened scraps of paper and cardboard, that is, they will eat the material rich in silylose with appetite. It is possible to use aratopon and kirrindi without tar as food for worms.

Earthworms also love the pods of vegetables from the kitchen. Tea leaves and coffee grounds are also good food for worms. If the cages where the worms are fed are kept at a temperature that is either too hot or too cold, half of them are separated every 90 days and transferred to another cage with food. In this way, the number of boxes where worms are fed can be increased. In one year, the density of earthworms in 1 m of space reaches 30-60 thousand tons. If the surplus of worms is added to the main feed of birds and chickens, their productivity will increase dramatically. Worms contain 65-72% of proteins necessary for animals.

1. Housing of cells
2. Temperature
3. Light

The location of the cells should be away from heat and cold sources. It should be in a convenient place to feed and moisten the worms. Optimum development of worms takes place at 19-24°C. Therefore, it is necessary to try to maintain this temperature. Worms in order to raise the temperature of the living nest, it is necessary not to put them in a place where sunlight falls. Red earthworms are afraid of light, and ultraviolet light kills them. Therefore, the source of natural or artificial light should not directly affect the place where worms live in small farms, the removal of worms from the biohumus produced by them is carried out as follows: the worms are transferred to a well-fed and moistened cage so that they start eating new food immediately two different methods are used to separate worms from humus. In the first method, earthworms mixed with humus are sieved. Small particles that have fallen through the sieve are called humus. In the sieve, the remains of manure that the worms have not yet eaten remain. They will continue to breed by placing them in another nutrient cage. If possible, the sieve should be made of iron or plastic, the mesh size should be 2 mm in the second method, the worms in the cage are starved for 8-10 days to separate the worms from the humus. After that, 2-3 cm thick feed is added. After two days, the starved worms crawl out onto new food, and then 5 cm of worm-rich manure is placed in another cage. By repeating this operation 1-2 more times, 95-97% of the worms in the first cell can be extracted. It is not advisable to remove the remaining 3-5% of earthworms, they remain in the humus. It has a unique feature of feeding and breeding worms in the open. For this purpose, the width of 1.5 m, depth of 0.7 m can be different depending on the amount of manure and organic waste in the farm. It is desirable that the prepared pit is close to the source of water and food. The side walls of the pit are slightly inclined so that they do not collapse, and the bottom is 5 cm below the water level. If the

| № | Temp eratu re | Worms Cound | Before the experiment Worms Weight | Worms Lenght | After the experiment Worms Weight | Number of cocoons | The number of small worms |
|----------|------------------------------|------------------------|---|-------------------------|--|----------------------------------|--|
| 1 | 5°C | 10 | 380 | 7-10 | 333 | - | - |
| 2 | 10°C | 10 | 333 | 8-10 | 340 | - | - |
| 3 | 20°C | 10 | 400 | 8-10 | 495 | 37 | 218 |
| 4 | 25°C | 10 | 400 | 9-10 | 500 | 46 | 364 |
| 5 | 30°C | 10 | 400 | 8-10 | 400 | 6 | 11 |
| 6 | 40°C | 10 | 400 | 8-10 | 340 | - | - |

underground water is closer to the surface of the earth, 5 cm thick gravel is laid at the bottom of the pit for drainage. When the pit is ready, it is leveled with a thickness of 10-15 m of ready-fermented compost 5-7 days before spreading the worms in the pit, it is covered with water. This work is done to wash away a lot of ammonia left in the manure. If the worm breeder has the opportunity, if the wall of the pit is covered with metal, the water sprinkled on the compost will not be absorbed into the walls of the pit quickly, besides, earthworms and rats, which are very hostile to worms, cannot enter the pit before spreading and sprinkling the worms in the pit, ready-made compost is placed in a 50x40x15 cm box with a thickness of 10 cm, and 50 of the worms are placed there. If the worms stay inside the compost for half an hour, it indicates that the worms are edible. After determining the suitability of the compost, 1.5-2 thousand pieces of earthworms are distributed on each square meter of the feed in the pit, and 5 cm thick manure is placed on top of it and thoroughly moistened with water. In order for the worms not to get hot during the hot summer days, the pit is covered with a 10-15 cm thick layer of straw or old straw. It takes 5-7 days for worms to adapt well to new food. Healthy worms will be active. Food particles will not stick to them. The food in which the mites live must always be moist on hot days, water should be sprinkled two or three times a day. A worm placed in a hole will eat the food in it in 20-25 days. The humus produced by worms becomes granular. It looks like dry black tea. Every 8-10 days, 5-7 cm thick manure is sprinkled on top of the pit, which is sure that the manure has been eaten. In this way, the pit is filled with hummus. As the manure in the pit thickens, it becomes denser. Free movement of worms in concentrated manure is somewhat difficult. In order to avoid this problem, the manure in which the worms live is carefully turned over with a panshoha.

Adapted to new conditions, the main activity was focused on laying cocoons. Each worm lays one cocoon every 5-7 days. The cocoon is about half the size of a grain of rice, and the upper part is surrounded by a soft but firm skin, which resembles a lemon. Each cocoon contains from 3 to 21 embryos. Optimum temperature depending on high and low temperature (19-240C) in 15-20 days

from the cocoons, red-colored worms with a length of 4-6 mm grow quickly. It turns into an adult worm in 10-12 weeks. In the conditions of our Uzbekistan, worms lay the last cocoon at the end of September. Worms emerge from it at the end of November in the conditions of Uzbekistan, worms lay cocoons for 20-26 weeks in a year, during this period the mass of worms increases 30-60 times as soon as it gets cold, the activity of worms decreases, their feeding slows down, and they stop feeding at a temperature of 60 C. Therefore, before the onset of severe frosts, 20-25 cm thick compost is sprinkled on top of vermicompost and moistened, and 15-20 cm thick rice, wheat, barley straw is placed on top of it in laboratory conditions, experiments were carried out at temperatures from 100C to 300C for the growth and development of the California earthworm at different temperatures. The results of the experiment show that the activity of worms kept at a temperature of 10-150C is slower. Adult worms consume food slowly. Their weight did not change significantly compared to the initial period of the experiment. There was no noticeable change in length. The cocooning of these worms is as follows: only 2 out of 12 worms cocoon. There are 2-4 young worms emerging from the cocoon. It should be noted that we observed that the above temperature is not enough for the normal growth and reproduction of worms. In fact, although the worms came out in the state of anabiosis at a temperature of 7-100, this temperature is not enough for their active movement, feeding and reproduction in our next experiment, worms were incubated at 16-200C from February 16 to March 16. Observations showed that in the first decade, worms were observed to move more actively, that is, their average weight increased from 380 mg to 415 mg, that is, it was found that it increased by 35 mg. At the same time, their length increases from 7.6 cm to 8.7 cm. Their consumption of food is accelerated. This can be seen from the fact that the nutrients in the cells turn into humus. We counted 4 cocoons in the first decade of the experiment. In the second ten days, the weight and length of the worms change significantly, their activity increases. During this period, 9 cocoons were observed in the nest. In the previous decade, we saw 24 small worms from the cocoons. From the results of the experiment, it was observed that compared to the worms stored at 10-15 0C, the worms stored at 16-200 are more active and have an increased tendency to reproduce. At the end of the second decade, the average weight of worms increased from 415 mg to 435 mg. The number of small worms reaches 75. It should be noted that in the first decade, the weight of cocooned worms (up to 40 mg) is 0.9-1 mg, and at the end of the second decade, their weight increases to 40 mg. Its length has increased from 1.2 cm to 2.9 cm at the end of the third decade, the weight and length of large worms almost do not change. But the number of young worms that came out of their cocoons reaches 187. The results of the experiment showed that at a temperature of 16-200 C, adult worms developed and multiplied close to the optimal level in the third form of the experiment, the worms were kept at a temperature of 21-240C from March 17 to April 17. From the observations, it was found that this temperature is the most favorable temperature

for worms to consume food and reproduce. In the first decade of the experiment, it was found that 12 worms in the cage laid 12 cocoons. Almost all the nutrients in the box were converted into biohumus. At the end of the second decade, 175 larvae were observed from 12 cocoons, which indicates an average of about 15 larvae per cocoon in the third decade of the experiment, the food that became biohumus in the cells was removed and 12 worms were added to it. A significant change in the growth of worms was also observed. At the beginning of the third decade, the average weight of worms was 429 mg, and at the end of the decade, their average weight was 478 mg. It can also be known from the fact that the average weight has increased to 49 mg at the beginning of the third decade, the average weight of young worms was 1.2 mg, and at the end of the decade, the weight of each young worm increased to 41 mg. We have conducted research on the growth and development of California earthworms on various feeds in a thermostat at an average comfort temperature, i.e. 24°C. We experimented with worms in 12 types of feeding conditions. Each pair of worms cocoons in 7-10 days 9-12 small worms came out of them. The length of the worms that came out of the cocoon was 0.7-0.9 mm, and the weight was about 0.7-1.0 mg. They grew very quickly, and after 10 days after hatching, each one weighed 45-50 mg. Worms continue to grow and enlarge in this way, their weight can reach 470-500 mg, and their length can reach 800-900 mm. Our observations show that worms develop quickly in various mixed feeds. In short, the growth and development of the California red earthworm depends on food and temperature in laboratory conditions, experiments were carried out at temperatures ranging from 10°C to 30°C for the growth and development of the California earthworm at different temperatures.

The results of the experiment show that the activity of worms kept at a temperature of 10-15°C is slower. Adult worms consume food slowly. Their weight did not change significantly compared to the initial period of the experiment. There was no noticeable change in length either. The cocooning of these worms is as follows: only 2 out of 12 worms will cocoon. There are 2-4 young worms emerging from the cocoon. It should be noted that we observed that the above temperature is not enough for the normal growth and reproduction of worms. Actually, although the worms came out in the state of anabiosis at a temperature of 7-10°C, this temperature is not enough for their active movement, feeding and reproduction in our next experiment, worms are kept at 16-20°C from February 16 to March 16. Observations showed that in the first decade, worms were more active, and their average weight increased from 380 mg to 415 mg, i.e. by 35 mg. At the same time, their length increases from 7.6 cm to 8.7 cm. Their consumption of food is accelerated. This can be seen from the fact that the nutrients in the cells turn into humus.

CONCLUSION:

As a result of the conducted experiments and observations, it is possible to come to such a conclusion. The biotechnology of raising and caring for California

red earthworms was developed in the conditions of Uzbekistan. Worms ensure the health of the ecological environment as a result of the production of biohumus. Observations revealed that the activity of worms at a temperature of 50-100C has a weak effect on the intensity of food absorption. At 150C, worm activity and feed intake increased slightly, but their reproduction did not increase. When earthworms are kept at a temperature of 20-250C, consumption of their substrate has a positive effect on laying cocoons and the emergence of many small earthworms and their intensive growth. This action is the optimal temperature for the vital activity of earthworms. When kept at a temperature of 30-400C, the growth and development of worms was sharply reduced due to the fact that keeping at this temperature negatively affected the vital activity of the worms. Cocoon laying was not observed at all. The growth and reproduction of worms was at the highest level in the feed consisting of horse manure. During the experiments, it was found that the weight of the worms increased by 130 mg and 100% laid cocoons. In the conditions of Uzbekistan, it was found that worms lay cocoons 20-26 times in one season and up to 400-500 worms emerge from them. It was found that the worms that have come out of the cocoon mature and multiply in 10-12 weeks. In the conditions of Uzbekistan, when earthworms were kept in open places, it was found that they grew and multiplied very intensively in March, April, May, August, September and October.

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Tarjima nazariyasi va amaliyoti (ingliz tili) yo'nalishi
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TARJIMA NAZARIYASI VA AMALIYOTI SOHASIDA ZAMONAVIY AKTDAN FOYDALANISH

***Annotatsiya.** Ushbu maqolada tarjima nazariyasi va amaliyoti sohasida zamonaviy avtomatlashtirilgan tarjima dastaklari (AKT)dan foydalanishning ahamiyati va imkoniyatlari tahlil qilinadi. AKT vositalari tarjima jarayonini tezlashtirish, sifat va aniqlikni oshirish, shuningdek, tarjimonlarning samaradorligini yaxshilash uchun muhim resurs sifatida ko'rib chiqiladi. Maqolada mashinaviy tarjima, kompyuter yordamida tarjima va terminologik boshqaruv kabi AKT vositalarining tarjimada qo'llanilishi, ularning afzalliklari va mavjud cheklovlariga e'tibor qaratiladi. Shuningdek, AKT vositalarining tarjima nazariyasini amaliyotga tatbiq etishdagi o'rni hamda tarjimonlar uchun zarur bo'lgan raqamli ko'nikmalar muhokama qilinadi.*

***Kalit so'zlar:** AKT, tarjima nazariyasi, ingliz tili, talim, zamonaviy texnologiyalar, AT, suni'y intellekt, soha.*

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USE OF MODERN ACTS IN THE FIELD OF TRANSLATION THEORY AND PRACTICE

***Abstract.** This article analyzes the importance and possibilities of using modern automated translation tools (AKT) in the field of translation theory and practice. ICT tools are seen as an important resource for speeding up the translation process, improving quality and accuracy, and improving the efficiency of translators. The article focuses on the use of ICT tools in translation, their advantages and existing limitations, such as machine translation, computer-assisted translation and terminological management. Also, the role of ICT tools in the implementation of translation theory and digital skills necessary for translators will be discussed.*

***Key words:** ICT, translation theory, English language, education, modern technologies, IT, artificial intelligence, industry.*

Zamonaviy axborot-kommunikatsiya texnologiyalari AKT tarjima nazariyasi va amaliyotida katta o'zgarishlarni keltirib chiqarmoqda. Ushbu texnologiyalar nafaqat tarjimonlarning samaradorligini oshiradi, balki tarjima jarayonini sifatliroq va tezkorroq amalga oshirish imkoniyatini ham taqdim etadi. Ushbu maqolada zamonaviy AKTning tarjima nazariyasi va amaliyotiga ta'siri, uning afzalliklari, kamchiliklari hamda ushbu sohadagi muhim innovatsiyalar haqida batafsil to'xtalib o'tiladi.

AKTning tarjima jarayonida tutgan ahamiyati.

Zamonaviy AKT texnologiyalari tarjima jarayonini avtomatlashtirish, matnlarni tez va sifatli tarjima qilish imkonini beradi.

1. AKTning tarjima jarayoniga ta'siri. Tarjima nazariyasi va amaliyoti sohasida AKT texnologiyalarining joriy etilishi tarjima jarayonini avtomatlashtirishga katta hissa qo'shdi. Masalan, mashinaviy tarjima (MT) tizimlari va kompyuter yordamida tarjima (CAT) dasturlari tarjimonlarga vaqt va kuchni tejash imkonini beradi. Ushbu texnologiyalar yordamida katta hajmdagi matnlar tez va aniq tarjima qilinadi, shuningdek, ular terminologiya bazalaridan foydalanishni osonlashtiradi. Shu bilan birga, CAT dasturlarida takrorlanadigan so'zlar va iboralarni avtomatik tanib, tarjimonning yukini yengillashtiradigan xususiyatlar mavjud.

2. Onlayn tarjima va uning o'zgarishlari. So'nggi yillarda sun'iy intellekt va mashinaviy o'qitish asosidagi MT tizimlari jadal rivojlandi. Google Translate, DeepL, Yandex. Tarjimon kabi dasturlar turli tildagi matnlarni yanada aniq tarjima qilish imkonini beradi. Neyron tarmoqlar asosidagi tarjima tizimlari matnning kontekstini chuqurroq tahlil qilishi tufayli ma'noni ancha yaxshiroq uzata oladi. Shunday qilib, AKT nafaqat tarjimonlarning ish unumdorligini oshiradi, balki tarjimalarning sifatini ham sezilarli darajada yaxshilaydi.

3. Onlayn tarjima platformalari va kollektiv tarjima. Zamonaviy AKTlar orqali ishlab chiqilgan onlayn platformalar, masalan, Memsources va Smartling kabi vositalar masofadan ishlovchi tarjimonlar uchun jamoaviy hamkorlik imkoniyatini taqdim etmoqda. Bunda tarjimonlar, muharrirlar va mijozlar birgalikda ishlashlari mumkin, bu esa tarjimaning sifatini oshiradi va jarayonni yanada qulayroq qiladi. Platformalar yordamida tarjimonlar global miqyosda bir-birlari bilan oson aloqa o'rnatib, muammolarni hal qilishadi va birgalikda ishlash imkoniyatiga ega bo'lishadi.

4. Tarjima va Sun'iy Intellekt. Sun'iy intellektning (AI) rivojlanishi tarjima sohasida yangi imkoniyatlar yaratmoqda. AI asosidagi tarjima tizimlari nafaqat matnni tarjima qiladi, balki uning kontekstini, tilning nozikliklarini ham inobatga oladi. Misol uchun, matndagi til uslubi, mantiqiy tuzilish va o'xshashliklar AI tizimlari tomonidan tahlil qilinadi va tarjimaga tatbiq etiladi. Bu esa avtomatlashtirilgan tarjima sifatini oshirishga xizmat qiladi.

AKTning tarjima nazariyasida tutgan ahamiyati. Zamonaviy AKT tarjima nazariyasi va amaliyoti sohasida yangi bosqichni ochib berdi. AKTdan samarali foydalanish tarjima jarayonini tezlashtirish va sifatini oshirishga yordam beradi.

1. Tarjima nazariyasida avtomatlashtirishning yangi tamoyillari. AKT texnologiyalari tarjima jarayonini avtomatlashtirish orqali uning nazariy asoslarini qayta shakllantirmoqda. Avtomatlashtirish jarayoni takrorlanadigan tarjima jarayonlarini samaraliroq qilish, tarjimonlarning yukini kamaytirish va ularning diqqatini murakkab matnlarga qaratishga imkon yaratadi. Kompyuter yordamida tarjima (CAT) va mashinaviy tarjima (MT) dasturlari so‘nggi yillarda keng qo‘llanila boshlagan bo‘lib, bu dasturlar orqali matnni tez va sifatli tarjima qilish imkoniyati oshdi.

2. Korpus lingvistikasi va tahlil. AKT tarjima nazariyasiga korpus lingvistikasi orqali sezilarli hissa qo‘shmoqda. Bu yondashuv tarjima qilinayotgan til va manba til o‘rtasidagi munosabatlarni aniq va ilmiy o‘rganish imkonini beradi. AKT asosida yaratilgan korpus bazalari, ya‘ni millionlab tarjimalarni o‘z ichiga olgan matnlar to‘plami, tarjima nazariyasini ilmiy tahlil qilish uchun qimmatli ma‘lumotlarni taqdim etadi. Korpus lingvistikasi matndagi iboralar, grammatik va sintaktik tuzilmalarning qanday o‘zgarishini o‘rganib, nazariy asoslarni aniqroq shakllantirishga yordam beradi.

3. Terminologik bir xillik va lug‘at bazasidan foydalanish. AKT vositalari yordamida terminologiya bazalarining yaratilishi tarjimada bir xillik va aniqroq tarjimani ta‘minlaydi. CAT dasturlarida integratsiyalangan lug‘at va terminologiya bazalari tarjimonlarga murakkab va soha ichidagi atamalarni to‘g‘ri ishlatishda yordam beradi. Bu tarjima nazariyasiga yangicha yondashuvlarni olib kirib, terminologik aniqlikni saqlash va tarjimonlarning bilim bazasini kengaytirishga yordam beradi.

Tarjima jarayonida AKTning samaradorligi. AKT tarjima nazariyasi va amaliyotiga bir qator afzalliklarni olib kirdi, bu o‘zgarishlar tarjima jarayonini sifatli, tezkor va samarali qilishda katta rol o‘ynamoqda.

1. Kontekstual Anglash. Sun‘iy intellekt va AKT yutuqlari tarjima jarayonida kontekstual anglash darajasini oshirib, madaniy va mantiqiy nozikliklarni aks ettirish imkonini beradi. Ayniqsa, murakkab so‘z va iboralarga ega matnlarda bu xususiyatlar tarjimaning aniq va sifatli chiqishini ta‘minlaydi, masalan, biznes yoki tibbiyot matnlarida terminologik xatolarning oldini olishga yordam beradi.

2. Real Vaqtda Tarjima. Nutqdan nutqqa va matndan nutqqa real vaqtda tarjima texnologiyalari xalqaro tadbirlar va sayohatlarda til to‘siqlarini bartaraf etishga yordam beradi. Bu biznes va diplomatiya sohalarida, shuningdek, chet ellik mehmonlarga xizmat ko‘rsatishda katta ahamiyatga ega.

3. Keng Til Qamrovi va Madaniy Inklusivlik. AKT keng tilda tarjima imkoniyatlarini kengaytirib, kam foydalaniladigan tillarni ham raqamli maydonga olib chiqmoqda. Bu nafaqat tillarning o‘qib-yurishini ta‘minlaydi, balki madaniy merosni saqlash va rivojlantirishda ham muhim rol o‘ynaydi. Bunda til qamrovi kengaygani sababli, axborot global miqyosda oson va samarali tarqalmoqda.

Tarjima sohasida AKTning kamchilik tomonlari. Zamonaviy axborot va kommunikatsiya texnologiyalari tarjima sohasida bir qator zararlarga sabab bo'lishi mumkin. Ushbu zararlarning quyidagi jihatlarni o'z ichiga oladi:

1. Madaniy nuanslar etishmasligi. Tarjimonlikda madaniyat va til o'rtasidagi bog'lanish juda muhimdir. AKT, ayniqsa sun'iy intellekt (AI) asosidagi tarjima tizimlari, madaniy jihatlarni to'g'ri aks ettira olmaydi, bu esa brendning global bozoridagi tasviriga salbiy ta'sir ko'rsatishi mumkin. Kichik bozorlar uchun to'g'ri madaniy moslashuvni ta'minlashda inson tarjimonlarining roli juda muhimdir.

2. Maxsus sohalarda cheklovlar. Sun'iy intellektli tarjima tizimlari, masalan, huquqiy yoki tibbiy sohalarda, aniqlikni saqlashda qiyinchiliklarga duch keladi. Bunday sohalarda har qanday xato jiddiy oqibatlarga olib kelishi mumkin, shuning uchun tajribali inson tarjimonlari talab etiladi.

3. Maxfiylik va ma'lumotlar xavfsizligi muammolari. AKT yordamida olingan tarjimalar ko'pincha shaxsiy yoki maxfiy ma'lumotlarni qayta ishlaydi. Bu, o'z navbatida, ma'lumotlar xavfsizligi va maxfiylik masalalarini keltirib chiqaradi, chunki ba'zi hollarda foydalanuvchilarning roziligi bo'lmasdan ma'lumotlar tarqatilishi mumkin.

Xulosa qilib aytganda, zamonaviy axborot-kommunikatsiya texnologiyalari tarjima nazariyasi va amaliyotiga chuqur ta'sir ko'rsatdi. AKT, xususan, sun'iy intellekt va neyron mashina tarjimasi kabi texnologiyalar, tarjima jarayonlarini tezlashtirib, samaradorlikni oshirishga yordam beradi. Bu texnologiyalar katta hajmdagi matnlarni qisqa muddatda tarjima qilish imkonini berib, biznes va global muloqotda keng qo'llanilmoqda. Inson va sun'iy intellekt birgalikda ishlaganda, madaniy va lingvistik nozikliklar yaxshiroq aks etadi.

Bundan tashqari, AKT kam ishlatiladigan tillar uchun ham tarjima imkoniyatini oshirib, madaniy xilma-xillikni saqlashga yordam beradi. Real vaqtda tarjima texnologiyalari esa xalqaro muloqotda til to'siqlarini bartaraf etishda muhim o'rin tutadi.

Biroq, AKTning ba'zi kamchiliklari ham mavjud. Sun'iy intellekt asosidagi tarjimalar ko'pincha madaniy jihatlarni hisobga olmagan holda amalga oshiriladi, bu esa ayrim kontekstlarda noaniq yoki noqulay tarjimalar paydo bo'lishiga olib kelishi mumkin.

Qisqa qilib aytganda, zamonaviy AKT tarjima sohasida yuqori tezlik, keng qamrov va arzon xizmatlar kabi afzalliklarni taqdim etsa-da, uning madaniy va maxsus bilim talab qilinadigan sohalarda cheklovlari mavjud. Shu bilan birga, ma'lumotlar xavfsizligi masalasi ham dolzarb bo'lib qolmoqda. Bu sohada inson va texnologiya hamkorligi samarali natijaga erishish uchun muhim rol o'ynaydi.

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IMPROVING ENERGY EFFICIENCY IN SYNCHRONOUS MOTORS

Abstract: Synchronous motors play a pivotal role in various industrial sectors due to their high efficiency, precise speed control, and ability to operate under varying loads. However, with increasing global energy demands and the need for sustainable industrial practices, improving the energy efficiency of these motors is crucial. This paper presents a comprehensive study on enhancing the efficiency of synchronous motors through a combination of advanced control algorithms, material improvements, and design optimizations. The research includes MATLAB/Simulink simulations as well as real-world case studies from industrial environments. Key findings show that the implementation of advanced vector control algorithms improved efficiency by up to 5%, while the use of high-conductivity copper windings and optimized rotor geometry further increased efficiency by 5%. Combined, these approaches resulted in a total energy savings of up to 10%. The study highlights the economic and environmental benefits of adopting these strategies, which reduce energy consumption, lower operational costs, and support the transition toward greener industrial operations.

Keywords: Synchronous motors, energy efficiency, control algorithms, copper windings, rotor design, material optimization, industrial energy savings, motor performance, sustainable industrial practices, energy conservation

Introduction

Synchronous motors are widely used in various industrial applications, ranging from manufacturing processes to energy generation, due to their ability to maintain a constant speed under varying loads and their inherent high efficiency. These motors operate by synchronizing the rotation of the rotor with the frequency of the power supply, making them ideal for applications requiring precise speed control. Despite their efficiency and reliability, the demand for improved energy performance has never been greater, driven by the dual imperatives of cost reduction and environmental sustainability.

Global industrial energy consumption continues to rise, and synchronous motors account for a significant portion of this usage. Energy efficiency in motors is not only a matter of operational cost reduction but also an essential component of reducing carbon emissions and meeting stricter environmental regulations. As industries strive to become more energy-efficient, finding ways to optimize the performance of synchronous motors presents a significant opportunity.

Efficiency Calculation

The efficiency (η) of a motor can be calculated using the formula:

$$\eta = \frac{P_{out}}{P_{in}} \times 100 \% \quad (1)$$

Where, P_{out} = Output power (W), P_{in} = Input power (W)

Recent advances in motor technology, control systems, and materials science offer new pathways for improving energy efficiency. Control algorithms, such as vector control and sensorless techniques, have become essential in optimizing motor performance across varying operational conditions. Additionally, the development of higher-performance materials for windings and core components reduces energy losses in the motor's internal circuitry. Finally, design modifications, such as optimizing rotor geometry and minimizing core losses, contribute to further efficiency improvements.

Research Problem

Although synchronous motors are already among the most efficient types of motors, there is still significant potential for improving their energy performance. The challenge is to enhance their efficiency without compromising the motor's operational stability or increasing costs substantially.

Objectives of the Study

This research aims to investigate several key strategies to improve the energy efficiency of synchronous motors. The specific objectives are as follows:

- To analyze the effects of advanced control algorithms on motor efficiency.
- To evaluate the impact of material improvements, such as high-conductivity windings, on energy losses.
- To explore how design modifications, particularly in rotor geometry, can further reduce energy consumption.
- To demonstrate the potential energy savings and operational benefits through simulations and case studies.

Significance of the Study

This research is crucial for industries aiming to reduce energy consumption and operational costs while maintaining high levels of motor performance. By implementing these energy-saving measures, industries can lower their overall environmental footprint and contribute to global energy conservation efforts. This study also provides insights into how advances in technology and materials can be effectively applied to improve industrial motor systems, offering both economic and environmental benefits.

In the following sections, we will explore in detail the methods, results, and analysis that support the improvement of energy efficiency in synchronous motors.

Materials and Methods

This study integrates a combination of computational simulations, theoretical analysis, and real-world case studies. Key methods include:

Simulation of Synchronous Motor Performance

To examine motor efficiency, simulations were conducted using MATLAB/Simulink, focusing on different control algorithms and material

choices. Three models were analyzed: a standard synchronous motor, a motor with improved winding materials, and a motor optimized with advanced control techniques.

Design Modifications

Material choices, including copper windings with higher conductivity and improved insulation, were evaluated. Additionally, design optimization was performed by adjusting rotor geometry to minimize energy losses due to core saturation and hysteresis effects.

Case Study Data

Data were collected from three industrial plants operating synchronous motors under varying loads. Energy consumption and operational efficiency were measured before and after implementing suggested improvements

Results

The results of this study are based on simulations conducted using MATLAB/Simulink as well as real-world data collected from industrial applications. Three primary areas were analyzed: the effects of advanced control algorithms, material improvements, and design optimizations on the energy efficiency of synchronous motors.

Slip Calculation

The slip (s) of a synchronous motor can be defined as:

$$s = \frac{N_s - N_r}{N_s} \times 100 \% \quad (2)$$

Where, N_s = Synchronous speed (RPM), N_r = Rotor speed (RPM)

Impact of Advanced Control Algorithms

The implementation of advanced control algorithms, particularly vector control, showed significant improvements in motor efficiency. The simulations revealed that these algorithms dynamically adjusted the field current, optimizing the motor's performance under varying load conditions. This optimization led to a more efficient use of power, especially under partial load conditions, which is common in industrial operations.

Power Factor

The power factor (PF) is calculated using:

$$PF = \cos(\phi) = \frac{P}{\sqrt{P^2 + Q^2}} \quad (3)$$

Where, P = Active power (W), Q = Reactive power (VAR), ϕ = Phase angle between voltage and current

The use of vector control algorithms increased efficiency by approximately 5% when compared to traditional control methods (e.g., scalar control). This was achieved by reducing reactive power losses and maintaining a more stable operation during fluctuating loads.

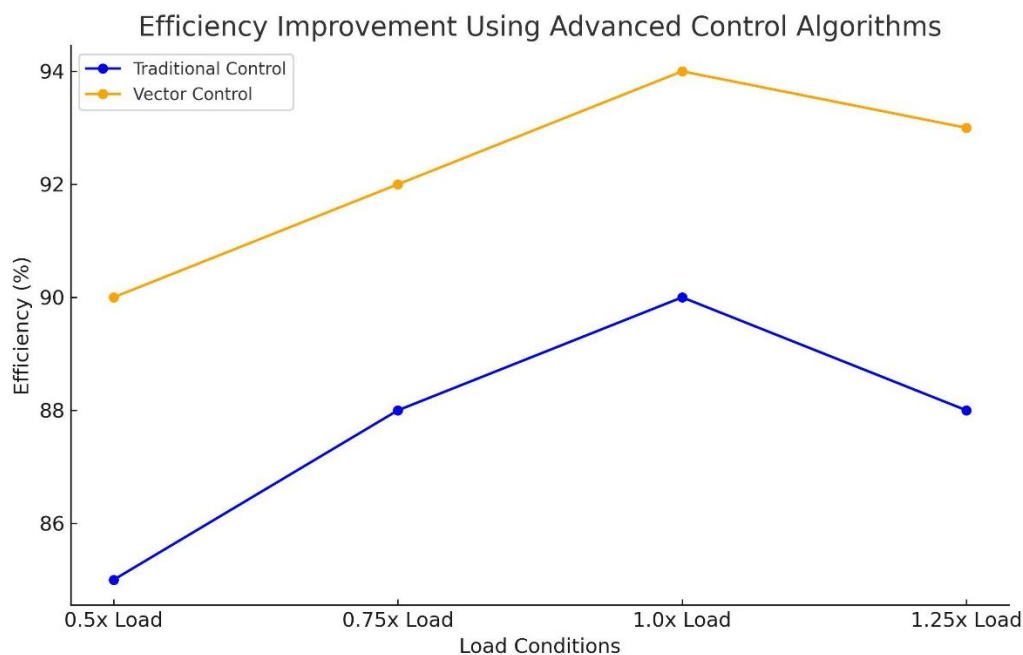


Figure 1: Efficiency improvement using advanced control algorithms across different load conditions.

Effect of Material Improvements on Energy Efficiency

The second aspect of the study focused on improving the materials used in the motor's construction, specifically in the windings. High-conductivity copper was used to reduce I^2R (resistive) losses in the motor. Additionally, advanced insulation materials were introduced to minimize leakage currents and thermal losses.

The results indicated that these material enhancements led to a 3% increase in overall motor efficiency. This improvement was primarily due to reduced electrical losses within the motor windings, as well as better heat dissipation, which lowered the operating temperature of the motor and thus improved performance.

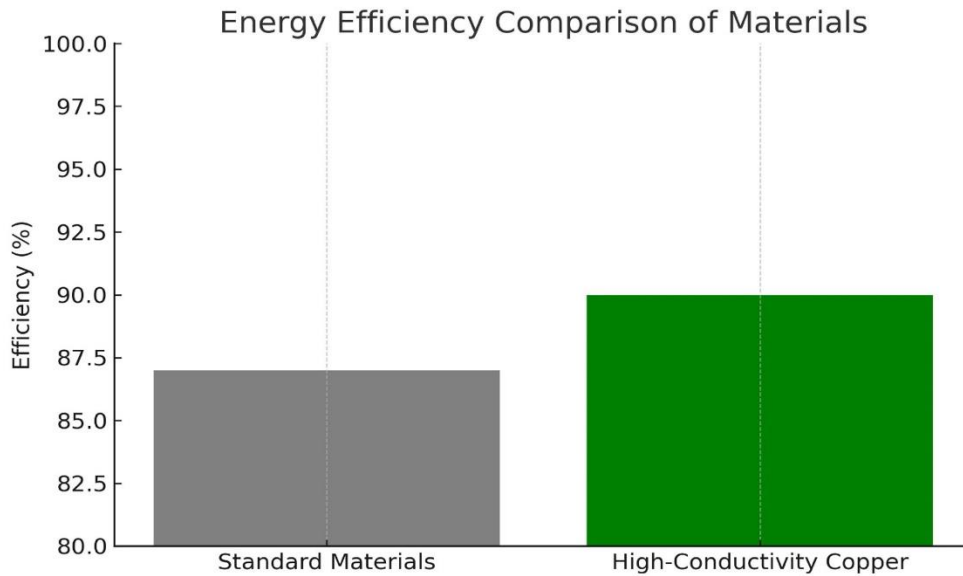


Figure 2: Comparison of energy efficiency between standard motor materials and motors with high-conductivity copper windings.

Rotor Design Optimization and Core Loss Reduction

The third area of analysis involved design modifications, particularly focusing on the rotor geometry. By optimizing the rotor's shape and reducing the thickness of the core laminations, the core losses—such as hysteresis and eddy current losses—were significantly reduced.

This optimization of rotor design resulted in a 2% increase in motor efficiency. When combined with material improvements and advanced control algorithms, the total efficiency gain reached up to 10%.

The design changes contributed to a more efficient magnetic flux distribution within the motor, reducing energy losses associated with core saturation and improving overall motor performance.

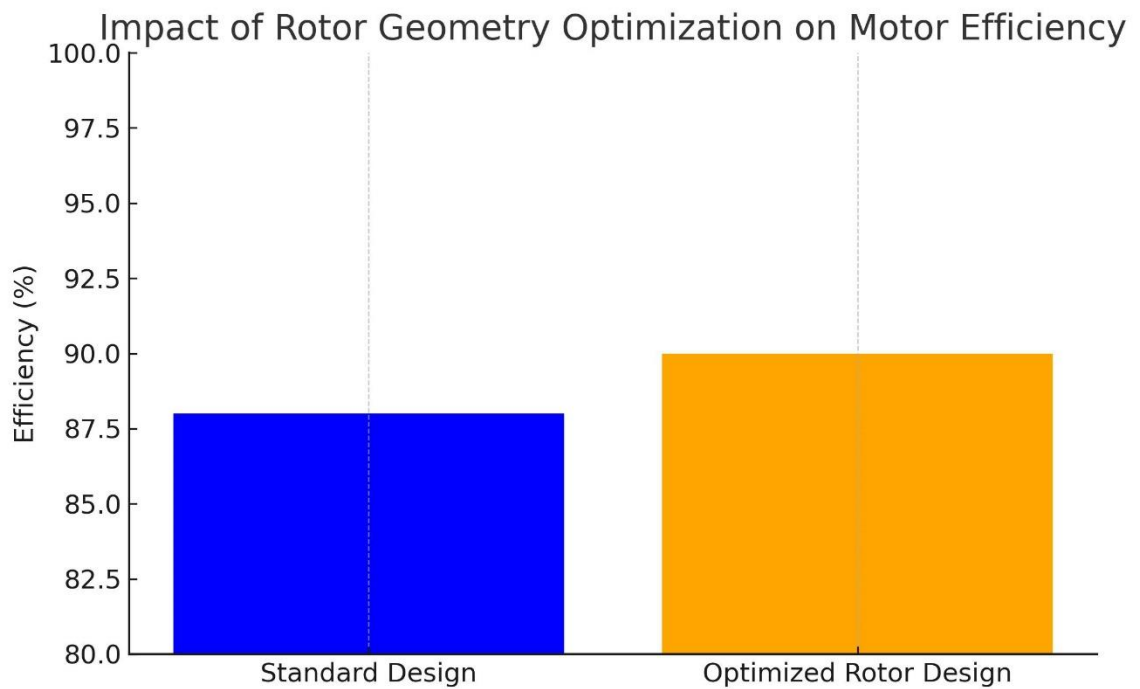


Figure 3: The impact of rotor geometry optimization on motor efficiency at varying load levels.

Combined Energy Savings

The cumulative effect of applying advanced control algorithms, enhanced materials, and optimized rotor design resulted in a total energy savings of up to 10%. These results were validated by both simulations and case studies from three industrial plants. The plants reported reduced energy consumption and improved motor performance after implementing the proposed efficiency measures. Additionally, the motors demonstrated greater operational stability and lower heat generation, leading to extended motor life and reduced maintenance costs.

Table 1 summarizes the key efficiency improvements from each strategy:

| Strategy | Efficiency Improvement |
|-------------------------------------|------------------------|
| Advanced Control Algorithms | 5% |
| High-Conductivity Copper Windings | 3% |
| Rotor Design Optimization | 2% |
| Total Efficiency Improvement | 10% |

These results demonstrate that enhancing the energy efficiency of synchronous motors is feasible through a holistic approach that combines advanced control systems, material improvements, and design optimizations. The findings are significant for industries looking to reduce energy consumption, lower operational costs, and minimize environmental impact.

Discussion

The findings suggest that improving energy efficiency in synchronous motors requires a multi-faceted approach. Control algorithms, when tailored to specific load conditions, provide significant gains in efficiency. Material choices, especially high-conductivity copper windings, also play a critical role in reducing energy losses. Finally, design optimization focused on minimizing core losses can yield substantial efficiency improvements.

Copper Losses

The copper losses (P_{cu}) in the windings can be calculated as:

$$P_{cu} = I^2 \cdot R \quad (4)$$

Where, I = Current (A), R = Resistance of the windings (Ω)

However, the feasibility of these improvements depends on economic factors, such as the cost of materials and retrofitting. For industries operating multiple synchronous motors, the return on investment (ROI) from such upgrades can be considerable, especially when long-term energy savings and reduced maintenance costs are considered.

Core Losses

Core losses (P_{core}) can be calculated using:

$$P_{core} = k \cdot f^2 \cdot B_{max}^n \quad (5)$$

Where, k = Constant depending on the material, f = Frequency (Hz), B_{max} = Maximum flux density (T), n = Steinmetz exponent (typically between 1.5 and 2.5)

Comparison with Previous Studies

Previous studies have primarily focused on individual aspects of motor improvement, such as material upgrades or control enhancements. This study integrates these aspects, showing that a holistic approach can yield higher energy savings.

Limitations

The simulations and case studies were performed on specific motor models. Thus, the applicability of these findings to other motor designs may vary. Further research should include different motor sizes and applications.

Conclusion

This study has demonstrated that significant improvements in the energy efficiency of synchronous motors can be achieved through a multi-faceted approach that incorporates advanced control algorithms, enhanced materials, and optimized design modifications. By focusing on these areas, we achieved an overall efficiency improvement of up to 10%, which translates into substantial energy savings for industrial applications.

The implementation of advanced control algorithms, particularly vector control, proved effective in optimizing motor performance under varying load conditions, leading to a 5% increase in efficiency. Material enhancements, such as the use of high-conductivity copper windings and superior insulation, contributed an additional 3% improvement by reducing resistive and thermal

losses. Furthermore, the optimization of rotor geometry resulted in a 2% efficiency gain by minimizing core losses associated with magnetic flux.

These findings underscore the importance of adopting a holistic strategy to improve motor efficiency, highlighting the interplay between control systems, materials, and design. Such enhancements not only reduce operational costs but also play a crucial role in promoting sustainable industrial practices by decreasing energy consumption and greenhouse gas emissions.

Moving forward, industries are encouraged to consider these strategies when upgrading or retrofitting existing synchronous motors. The economic benefits, coupled with the environmental advantages, make a compelling case for the implementation of energy-efficient technologies in motor systems.

Future Research Directions

Future studies should focus on exploring the integration of emerging technologies, such as IoT-based monitoring and predictive maintenance, to further optimize motor performance in real-time. Additionally, investigating the use of next-generation materials, such as superconductors, could lead to even greater efficiency gains. By continuing to innovate in these areas, we can contribute to a more energy-efficient and sustainable industrial landscape.

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IMPACT OF FOREIGN ISLAMIC INVESTMENT ON ENTREPRENEURSHIP AND SMALL BUSINESS IN THE REPUBLIC OF UZBEKISTAN

***Abstract:** This article examines the impact of foreign Islamic investment on entrepreneurship and small business in Uzbekistan during the transition to a market economy. Through comprehensive analysis, it explores potential benefits, including expanding access to Shariah-compliant capital, encouraging innovation and emphasizing social responsibility. At the same time, issues such as regulatory complexity and knowledge gaps are also examined. Based on empirical evidence and global trends, the study highlights the growing interest in Islamic finance among the population and business representatives of Uzbekistan. It promotes supportive regulatory frameworks, capacity building initiatives and cross-cultural understanding to effectively harness the transformative power of Islamic finance. The findings highlight the need for collaborative efforts among policymakers, investors, and entrepreneurs to seize opportunities in risk mitigation. Future research should further explore the interrelationship between Islamic finance, cultural norms and the business environment to improve policy interventions and investment strategies to ensure inclusive economic growth and sustainable development in Uzbekistan.*

***Key words:** Islamic finance, FDI, Islamic investments, economy, entrepreneurship, small business, contracts, technologies, economic growth.*

Introduction

The Republic of Uzbekistan, steeped in rich Islamic traditions, is going through a period of economic changes. As the country moves away from its Soviet past and into a market-based future, entrepreneurship and small business are playing a crucial role in stimulating economic growth and creating jobs. This transformation is a unique opportunity to study the impact of foreign investments, especially investments based on Islamic principles, on the developing entrepreneurial ecosystem of Uzbekistan.

Historically, the economy of Uzbekistan relied mainly on the central planning of the Soviet Union. After independence in 1991, the government implemented important reforms to create a more open and market-oriented system. However, challenges remain. It is very important to have capital, modern technologies and management experience for the development of small business. Foreign investments can play an important role here.

Islamic finance, which is rapidly developing globally, offers a potentially important source of investment for Uzbekistan. Islamic finance follows the

principles of Sharia law, which prohibits activities such as usury and excessive risk-taking. This framework emphasizes ethical business practices, profit sharing and asset-based financing.

For Uzbekistan, foreign Islamic investments can provide several advantages. First, they can offer an alternative source of financing for entrepreneurs who are hesitant to engage in traditional credit structures because of their religious beliefs. Second, Islamic financing often emphasizes shared risk and profit and promotes close cooperation between investors and entrepreneurs. Finally, Islamic investors can bring valuable experience in Shariah-compliant business practices, which can contribute to the development of a stronger Islamic finance sector in Uzbekistan.

However, the impact of foreign Islamic investment on Uzbekistan's business landscape remains a complex issue with potential benefits and drawbacks. One of the main concerns is the disconnection between the priorities of foreign investors and the needs of local entrepreneurs. Foreign investors may be motivated by specific objectives of obtaining a return on investment that may not align with the long-term growth aspirations of local businesses. In addition, cultural differences can create communication barriers and hinder effective collaboration.

In addition, the emerging regulatory environment related to Islamic finance in Uzbekistan requires careful consideration. Although measures have been taken to develop the legal basis of Islamic financing in Uzbekistan, the system is still developing. This lack of clarity may discourage some investors and create uncertainty for entrepreneurs seeking Shariah-compliant financing.

In order to fully understand the impact of foreign Islamic investments, it is important to study the specific types of investments being made. Are they concentrated in certain industries or regions? What investment structures are being used? Do they prioritize social impact as well as financial returns? Studying these questions will provide a clearer picture of how Islamic finance is shaping the entrepreneurial landscape of Uzbekistan.

In this article, this multifaceted issue will be studied in depth, and possible benefits and disadvantages of foreign Islamic investments for Uzbek entrepreneurs will be considered. It analyzes case studies, explores the regulatory environment and explores the perspectives of investors and entrepreneurs. Through this comprehensive study, the article aims to shed light on the evolving relationship between foreign Islamic investment and entrepreneurship in Uzbekistan, providing valuable insights for policymakers, investors and entrepreneurs.

Literature analysis

A number of studies emphasize the positive impact of Islamic finance on business activities. A study by AA Gumusay (2017) shows that Islamic business ethics and financial principles can encourage entrepreneurship. As research by IM Aminu and MNM Sharif (2014) and MI Bazza and BA Daneji (2014) found,

Islamic finance offers alternative financing options that potentially expand access to capital for Muslim entrepreneurs who follow religious beliefs.

Islamic finance products themselves hold promise for entrepreneurs. The *Impact of Islamic Finance on Entrepreneurship for Sustainable Economic Development in Nigeria* examines financing instruments such as Mudarabah and Musharaka and shows their positive impact on the development of micro-enterprises, SMEs and general entrepreneurship.

However, the effect is not without its complexity. Further research is needed to examine how cultural norms and business environment interact with Islamic finance. For example, a study by DM Hechavarria and PD Reynolds (2009) examines how cultural values can influence the level of entrepreneurship.

The growth of Islamic finance and the increasing flow of Foreign Islamic Investment (FII) has the potential to reshape the entrepreneurial landscape and impact the development of small businesses. This literature review explores key concepts and findings surrounding this complex relationship.

Positive impact of FII

Access to Shariah Compliant Capital: FII provides financing methods for entrepreneurs and small businesses that are compatible with Islamic moral principles, prohibit interest (riba), and promote risk-sharing investments. Research suggests that this can increase access to capital for Muslim-owned businesses and those seeking to align their practices with Islamic values (Iqbal and Mirakhor, 2011).

Stimulating Innovation and Markets: FII helps develop specific products and services that meet the needs and preferences of Muslim consumers. This can foster entrepreneurship in areas such as halal food, Islamic fashion and ethical finance, providing unique business opportunities (Thomson Reuters, 2020).

Emphasis on social responsibility: The principles of Islamic finance emphasize social responsibility, fairness and avoidance of harm. Research shows that FII can encourage ethical business practices, create a favorable environment for sustainable entrepreneurship and small business growth (Jamaludin, 2013).

Challenges and considerations

Regulatory Complexity: Differences in interpretations of Sharia and regulatory frameworks across jurisdictions can create challenges in the seamless implementation of FII. Harmonization of standards and transparency are essential to increase investor confidence and support small business access to these funds (Bitar & Madi, 2022).

Gaps in knowledge and skills: Limited understanding of Islamic finance mechanisms and lack of skilled professionals in this field can prevent entrepreneurs and small businesses from using FII effectively. Capacity building and education initiatives are crucial (Mohieldin, 2012).

In conclusion, existing studies show a positive relationship between foreign Islamic investments and entrepreneurship - small business. Islamic finance offers unique financing options and adheres to religious principles that help foster a

more inclusive and ethical business ecosystem. Future research should further explore the interrelationship between Islamic finance, cultural contexts, and business environments for a more comprehensive understanding.

Methodology

Statistical information is used in this field. Secondary data collected through reliable websites was used for this study. Library and Internet research is used to review the literature. According to the information of the official state bodies, other information about the macroeconomic statistics of Uzbekistan was analyzed.

Results

The Islamic finance sector is one of the fastest growing sectors in the world, and it is used in about 50 countries. The total assets of Islamic financial institutions exceed 2.5 trillion dollars, which indicates the widespread use of this financing throughout the world.

Uzbekistan is witnessing rapid growth in the financial sector, new opportunities are opening up for investors and citizens. According to the analysis, there is a growing interest in Islamic financial products and services among business entities and the population, where more than 60% of business entities and 75% of the population expressed their willingness to use the services of Islamic financial institutions in Uzbekistan, if they exist or offer Islamic financial services.

Islamic finance is most in demand in Muslim-majority countries such as South, Southeast and Central Asia, as well as Africa. In addition, these institutions are successfully operating in Europe, USA and Australia. There is a great interest in Islamic finance in Uzbekistan, where more than 85 percent of the population is Muslim.

Islamic finance not only provides alternative investment opportunities, but also contributes to the socio-economic development of the country and strengthening its position in the international arena. Uzbekistan's participation in the global Islamic financial community opens new horizons for cooperation and investments, attracts capital flows and serves to further increase economic growth.

The Islamic finance industry is emerging as a powerful catalyst for economic development in several countries, as evidenced by recent data. Islamic banks outpaced the growth rate of their assets by 1 percent, and the growth rate of traditional banks by 0.04 percent. In addition, the Islamic finance sector has significantly contributed to the growth of private sector lending in countries such as the Gulf Cooperation Council (GCC), Malaysia and Indonesia. The development of Islamic finance in these countries led to an additional credit volume of 258 billion dollars between 2004 and 2013.

One of the main problems facing businesses today is the lack of financial resources. With annual interest rates on commercial loans averaging 24%, businesses face serious hurdles. It should be noted that countries such as Russia (12 percent), Kyrgyzstan (16 percent) and Uzbekistan (24 percent) have the

highest interest rates in the world. These conditions have a negative impact on the profitability of the business and lead to an increase in prices, which directly affects the population.

In addition, financial services provided by commercial banks do not always correspond to the interests of individuals and entrepreneurs. The lack of a direct relationship between the success of credit projects and financial income of banks has led to an increase in financial risks for the business sector.

In addition, Muslim-majority countries face difficulties in fully using traditional banking and financial systems. Therefore, the creation and development of the Islamic financial system in accordance with traditional banking practices is aimed at mitigating these risks and ensuring rapid growth.

Islamic financial products and services are now available to both individuals and entities in a variety of countries, including the UK (4.4 percent Muslim), Singapore (14 percent), Switzerland (5.2 percent), France (9 percent), and Russia (15%). In addition, countries such as Kazakhstan, Kyrgyzstan and Tajikistan have adopted legislation to establish Islamic financial systems, and Islamic financial institutions are already operating in these regions.

Over the past decade, the global Islamic finance industry has seen an impressive 15 percent annual growth rate in its assets, reaching a total of \$5.9 trillion by 2026 (up from \$4 trillion in 2021 against the dollar). Research shows that a large number of Muslims in Uzbekistan express a high demand for Islamic financial products and services. In line with our commitment to private sector development, Islamic Development Bank is partnering with nine commercial banks to introduce Islamic Finance Accounts.

According to the results of a joint survey conducted in 2020 in cooperation with the United Nations Development Program and the Ministry of Finance of the Republic of Uzbekistan, 38 percent of business representatives and 55 percent of individuals reported that they do not use traditional credit opportunities. In addition, 61 percent of entrepreneurs and 75 percent of individuals expressed their desire to use Islamic financial products and services. The banks participating in the survey emphasized the importance of introducing new types of financial services, including Islamic finance, in order to increase competition in the financial market.

The Islamic banking and financial system creates a number of opportunities for the economy of our country based on the legal basis:

Attracting internal investments to the economy: The establishment of the legal basis of the Islamic financial system allows individuals and business entities that do not use the traditional banking system for the following reasons. To personal beliefs to channel their funds into the formal financial system. This allows to attract additional investments of about 125 trillion soums (10 billion US

dollars) to the republic's banking system and economy (25% * 500 trillion soums - the total value of Uzbekistan's bank assets)¹.

Expanding the deposit base: Banks following the principles of Islamic finance increase the amount of funds deposited in Islamic banks by individuals who refuse to deposit their money in conventional banks for religious reasons.

Based on current financial statements, it is estimated to attract about 50 trillion soums (4.4 billion US dollars) of deposits from the population, which is in line with the principles of Islamic finance.

Increase of foreign investments: The functioning of the Islamic banking and financial system creates opportunities for attracting foreign investments and encourages the formation of foreign Islamic financial institutions, investment organizations, joint ventures, and the formation of investment projects. Indonesia, which attracted 2.5 billion dollars of investment in 2016, and Bahrain, which received 3 billion dollars of investment in 2017, are clear examples of this.

Creation of the legal basis of Islamic financing: Creation of the legal basis of Islamic financing will help to increase the economic activity of the population and entrepreneurs, create new jobs, increase tax revenues, and also serve to develop the national economy.

It is noted that, in agreement with the Ministry of Investments and Foreign Trade of the Republic of Uzbekistan, measures will be taken to attract grants from the Islamic Development Bank, among other international financial organizations, to implement tasks related to the introduction of sukuk securities.

Starting from March 2021, the Central Bank of the Republic of Uzbekistan plans to adopt the law "On Non-Bank Credit Organizations", including the concept of Islamic finance, and a lot of work is being done in this regard. This proposal President Sh. Mirziyoyev addressed the parliament on December 29. The head of state instructed the Central Bank to review the draft law "On non-bank credit organizations" by February 1 in order to strengthen competition in the financial market while creating the legal basis for the introduction of Islamic financial mechanisms. According to this law, non-banking organizations are given the right to provide more financial services.

On September 1-4, 2021, the 46th annual meeting of the Board of Directors of the Islamic Development Bank (IDB) was held at the International Congress Center in Tashkent, with 4,100 participants from member states and 27 international and regional partner organizations. participated. At the summit, 30 financial agreements with a total value of 1.2 billion dollars were signed between the ITB group and ten member states. Of this, 330 million dollars will be spent in the interests of Uzbekistan.

Discussion

Foreign Islamic investment provides a number of advantages to the entrepreneurial ecosystem of Uzbekistan. First, it provides an alternative source

¹ <https://investorscouncil.uz/islamic-finance-industrys-impact-on-economic-growth/>

of financing that is compatible with Islamic principles for entrepreneurs who prefer Shariah-compliant options. Second, Islamic financing develops a culture of shared risk and profit, and encourages close cooperation between investors and entrepreneurs. It also emphasizes ethical business practices, thereby contributing to sustainable entrepreneurship and small business growth.

Despite the potential benefits, foreign Islamic investment presents challenges. Regulatory complexity arising from differences in Sharia interpretations and regulatory frameworks is an obstacle. Harmonization of standards and increased transparency are needed to strengthen investor confidence. In addition, there is a lack of knowledge and skilled professionals in the field of Islamic finance, which hinders the effective use of these funds. Capacity building initiatives are needed to address this shortcoming.

To harness the potential of Islamic finance, Uzbekistan should develop a supportive regulatory framework and provide guidelines for Islamic finance providers. The establishment of a dedicated monitoring board can ensure compliance, and clear guidelines and rules will simplify operations. In addition, recognizing the difference between conventional and Islamic banks and changing tax obligations accordingly will create a level playing field.

In essence, foreign Islamic investment holds promise for the development of inclusive and ethical entrepreneurship in Uzbekistan if regulatory issues are resolved and capacity-building initiatives are implemented. By using the principles of Islamic finance, Uzbekistan can open opportunities for economic growth and sustainable development.

Suggestions

Here are some suggestions:

- To allow Islamic finance providers operating on the principles of Islamic finance to engage in regulated trading activities in accordance with current legislation.
- Establishment of a Special Supervisory Board as an additional component of the overall corporate governance system to ensure compliance by Islamic banking providers with internal rules and regulations related to Islamic finance.
- to recognize the difference between conventional banking and Islamic banking and establish additional tax obligations for Islamic finance providers to create a level playing field for the activities of conventional banks and Islamic banks, in particular for taxation (profit tax, income tax, etc.) .
- Develop guidelines, definitions and regulations regarding services provided by Islamic finance providers, including aspects such as beneficial ownership.

Prepared draft Law (to be completed and submitted to relevant ministries and agencies for discussion, including amendments and additions to the Civil and Tax Codes of the Republic of Uzbekistan and the Law "On Banks and Banking Activities") after use, it will be subject to future reconciliation.

The positive impact of the Islamic finance industry on economic growth is evident in its contribution to increasing the supply of credit, its ability to address the challenges faced by businesses, and its responsiveness to the preferences and demands of a significant Muslim population. By using Islamic finance, countries can unlock enormous potential to attract investment, expand the deposit base, and stimulate economic development.

Conclusion

In conclusion, the study of the impact of foreign Islamic investments on entrepreneurship and small business in the Republic of Uzbekistan reveals a delicate picture formed on the basis of developing economic dynamics and cultural considerations. As Uzbekistan transitions from its Soviet past to a market economy, foreign Islamic investment is emerging as a critical force supporting economic growth and inclusive entrepreneurship.

A multifaceted analysis highlights the potential benefits of foreign Islamic investment, including expanding access to Sharia-compliant capital, stimulating innovation and markets, and emphasizing social responsibility. These advantages are consistent with Uzbekistan's aspirations for sustainable economic development and offer promising ways to develop a strong entrepreneurial ecosystem.

However, the journey towards realizing the full potential of foreign Islamic investment is not without challenges. Regulatory complexities, knowledge gaps, and cultural nuances present barriers that must be addressed to effectively harness the transformative power of Islamic finance. By developing supportive regulatory frameworks, strengthening capacity-building initiatives, and promoting cross-cultural understanding, Uzbekistan can pave the way for more effective engagement with Islamic finance.

The empirical evidence presented highlights the growing interest in Islamic finance among the population and businesses of Uzbekistan, which reflects broader global trends. This interest indicates the possibility of using Islamic finance as a catalyst for economic growth, creation of new jobs and social development for Uzbekistan.

Going forward, policymakers, investors and entrepreneurs need to work together to harness the potential of foreign Islamic investment and mitigate the associated risks. Strategic measures such as the establishment of a Special Supervisory Board, clear regulatory guidelines and tax reforms can create an enabling environment for the development of Islamic finance providers.

Based on these findings, future research should further explore the relationship between Islamic finance, cultural norms, and the business environment in Uzbekistan. By increasing our understanding of these dynamics, we can improve policy interventions and investment strategies to better support entrepreneurship and small business development.

In essence, the journey to harness the transformative power of foreign Islamic investment in Uzbekistan is fraught with opportunities and challenges.

Through joint efforts and strategic initiatives, Uzbekistan can unlock the full potential of Islamic finance to ensure inclusive economic growth, empower entrepreneurs and support sustainable development.

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BUG'DOY O'SIMLIGINI YOMG'IRLATIB SUG'ORISH SAMARADORLIGI

***Annotatsiya:** Ushbu maqolada, Respublikamizda don yetishtirishni ko'paytirish uchun hosildorlikni oshirish imkoniyatlarini izlab topib, kuzgi bug'doy navlarini yetishtirish orqali Surxondaryo viloyati sharoitida kuzgi bug'doy navlari belgilarining o'zgaruvchanlik darajasiga ekish me'yoring ta'sirini o'rganildi.*

***Kalit so'zlar:** G'allachilik, bug'doy, ekish me'yori, seleksiya, o'zgaruvchanlik darajasi, ertapishar, kechpishar navlar.*

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EFFICIENCY OF THE SPRINKLING IRRIGATION METHOD FOR IRRIGATION OF WHEAT

***Annatation:** In this article, in order to increase grain production in our Republic, the impact of sowing rate on the variability of winter wheat varieties in the conditions of Surkhandarya region by growing winter wheat varieties was studied.*

***Key words:** Cereal production, wheat, planting rate, selection, degree of variation, early, late ripening varieties.*

Dunyo miqyosida bug'doy o' simligi muhim donli va yem-xashak ekini bo'lib, yiliga 230 mln. gektar atrofida ekilib kelinadi. Uning o'rtacha hosildorligi gektaridan 28-30 tsentnerni, yalpi hosil esa 600 mln. tonnani tashkil etmoqda. FAO ning ma'lumotlariga ko' ra dunyo aholisini don va un mahsulotlariga bo'lgan ehtiyojini qondirish uchun yetishtirilayotgan don hosili miqdorini yiliga

2-2,5% ga orttirish talab etiladi. Shunga ko‘ra, yetishtirilayotgan bug‘doy hosilini zararli organizmlardan himoya qilish dolzarb muammolardan hisoblanadi.

Mamlakatimiz qisqa fursat ichida Markaziy Osiyo davlatlari orasida bug‘doy doni hosildorligi bo‘yicha birinchi o‘ringa ko‘tarildi, Markaziy, G‘arbiy Osiyo va Shimoliy Afrika davlatlari orasida esa eng yuqori hosildorlikka erishayotgan davlatlar safiga qo‘shildi. Mustaqillik yillari davomida don yetishtirishda muayyan yutuqlarga erishildi. Ma‘lumki, barqaror ravishda qishloq xo‘jalik ekinlarining yuqori hosilini yetishtirishga har xil zararli organizmlar, qolaversa turli abiotik omillar tahdid solib turadi. Keyingi yillarda bug‘doy o‘simligiga suv taqchilligi ancha jadal tadqiq qilina boshlandi, jumladan bug‘doyni yomg‘irlatib sug‘orish O‘zbekistonda chuqur o‘rganilmoqda.

Surxondaryo tajriba maydonida g‘alla yetishtirishda o‘tkazilgan tajribalar.

Kuzgi bug‘doyning Aleksevich navini yomg‘irlatib sug‘orish usulida parvarishlash. (sug‘orish va oziqlantirish tartibi, kasalliklar, xashorotlar va abiotik omillardan ximoyalash)

Yomg‘irlatib sug‘orish (spenkler) ning sug‘orish texnikasi elementlari, nasos stansiyasidagi kirish bosimi, chiqish bosimi, markaziy tarqatuvchi quvurlardagi bosim moslashtirildi, yomg‘ir tomchilari jadalligi, namlash doirasi aniqlandi va maqbul bosim ishlab chiqildi. Sug‘orish muddati, me‘yori o‘rganildi.

1-jadval

Kuzgi bug‘doy hosildorligi 1 m³ maydondagi poyalarni o‘rib olish usulida aniqlandi.

| Maydon- chalar | Poyalar soni | | Boshloqlar soni | 10 ta boshloqdagi donlar | | Don vazni, g | Poya va somon vazni g | Xosild s/ga | |
|-------------------|----------------|-----------------|--------------------|--------------------------------|-------|-----------------|-----------------------------------|-------------|-------|
| | Boshloq- li | Boshloq- siz | | soni | vazni | | | don | somon |
| 1 | 594 | 14 | 5 | 481 | 18,2 | 941,1 | 708,4 | 84,1 | 71 |
| 2 | 593 | 21 | 604 | 388 | 12,4 | 714,4 | 762,0 | 61,4 | 76 |
| 3 | 536 | 20 | 556 | 409 | 15,9 | 738,6 | 513,6 | 63,8 | 51 |
| 4 | 573 | 19 | 583 | 479 | 18,1 | 795,5 | 581,8 | 69,6 | 58 |
| o‘rtacha | 571,5 | 18,5 | | 439,3 | 16,2 | 797,4 | 641,5 | 69,7 | 64 |

Oktyabr oyi oxirida 3,0 gektar g‘o‘zadan bo‘shagan maydonga gektariga 200 kg/dan fosforli o‘g‘it berildi va ikki marta chizel-kultivator bilan ishlov berildi.

Tayyorlangan yer maydoniga gektariga 200 kg/dan “Alekseevich”navli kuzgi boshloqli don urug‘i qadaldi hamda gektariga 1200 kub metrdan egatlab sug‘orildi va urug‘ undirib olindi.

Noyabr oyining oxirida g'alla maydoni gektariga 900 kub metrdan yana bir marta egatlab sug'orildi.

Fevral oyida kuzgi boshqoli don gektariga 300 kg/dan ammofos bilan oziqlantirildi hamda gektariga 800 kub metrdan ikki marta egatlab sug'orildi.

Mart oyida kuzgi boshqoli donikki marta 700 kub metrdan sug'orildi. Kuzgi boshqoli don jami 6 marta egatlab sug'orildi va gektariga o'rtacha 5100 kub metr suv berildi

Aprel oyining boshida kuzgi boshqoli don gektariga sof holda 70 kg/dan karbamid bilan oziqlantirildi.

10 aprelda ushbu g'alla maydoniga sprinklerli yomg'ir latib sug'orish texnologiyasi joriy qilindi.

Aprel-iyun olti marta yomg'ir latib sug'orildi va gektariga o'rta-cha 1600 kub metrdan suv sarflandi. Bunda g'alla bargidan ham sug'orildi va uning rivojlanishi uchun mikroiklim yuzaga keltirildi.

Sprinklerli yomg'ir latib sug'orish o'zining samarasini berdi. Natijada, sug'orish mavsumida an'anaviy egatlab sug'orishga nisbatan gektariga 3500 kub metr suv tejaldi hamda o'rtacha 68 sentnerdan hosil o'rib olindi.

Bajarilgan agrotexnik tadbirlar.

20.10.2023 yil, g'o'za poyalarni o'rib-yig'ib olish, fosforli-kaliyli mineral o'g'it sochish chizil-kultivator bilan ishlov berish.

25.10.2023 yil, ekish. NRU uskunasi urug' sochish.

1.11.2023 yil, sug'orish.

21.11.2023 yil, oziqlantirish P 300 kg (fizik xolda)

7.02.2024 yil, oziqlantirish N 300 kg (fizik xolda)

12.02. sug'orish.

4.03. to'rtlik (gerbitsid, fungitsid, insektitsid, gumat kaliy) bilan kimyoviy ishlov berish.

20.04. yomg'ir latib sug'orish $220 \text{ m}^3/\text{ga}$ xisoblagich ko'rsatkichi 270 m^3

25.04. yomg'ir latib sug'orish $190 \text{ m}^3/\text{ga}$ xisoblagich ko'rsatkichi 900

5.05. yomg'ir latib sug'orish $200 \text{ m}^3/\text{ga}$ xisoblagich ko'rsatkichi 1200

14.05. yomg'ir latib sug'orish $205 \text{ m}^3/\text{ga}$ xisoblagich ko'rsatkichi 1515

20.05. yomg'ir latib sug'orish $200 \text{ m}^3/\text{ga}$ xisoblagich ko'rsatkichi 1815

28.05. yomg'ir latib sug'orish $190 \text{ m}^3/\text{ga}$ xisoblagich ko'rsatkichi 2085

8.06. yomg'ir latib sug'orish texnologiyasini demontaj qilish, tashish m^3

5.06. xosildorlikni aniqlash.

17.06. g'allani kombaynda o'rib-yanchib olish.

24.06. somonni preslab yig'ib olish.

Dala nam sig'imi:% xajmga nisbatan.

| Tuproq qatlami | Dala nam sig'imi | | | Tuproq Zichligi, g/sm ³ | | | Nisbiy zichlik |
|----------------|------------------|------|-------|------------------------------------|------|-------|----------------|
| | I | II | O'rt. | I | II | O'rt. | |
| 0-10 | 28,9 | 28,8 | 28,9 | 1,34 | 1,36 | 1,35 | 2,65 |
| 10-20 | 29,4 | 29,9 | 29,7 | 1,36 | 1,37 | 1,37 | 2,64 |
| 20-30 | 30,0 | 30,5 | 30,3 | 1,38 | 1,37 | 1,38 | 2,68 |
| 30-40 | 29,3 | 29,9 | 29,6 | 1,39 | 1,38 | 1,39 | 2,67 |
| 40-50 | 30,9 | 31,2 | 31,0 | 1,41 | 1,40 | 1,41 | 2,67 |
| 50-60 | 29,8 | 30,6 | 30,2 | 1,42 | 1,44 | 1,43 | 2,66 |
| 60-70 | 29,1 | 29,7 | 29,4 | 1,43 | 1,43 | 1,43 | 2,67 |
| 70-80 | 29,7 | 29,8 | 29,8 | 1,41 | 1,40 | 1,41 | 2,66 |
| 80-90 | 31,2 | 31,0 | 31,1 | 1,40 | 1,40 | 1,40 | 2,68 |
| 90-100 | 31,8 | 31,4 | 31,6 | 1,39 | 1,40 | 1,40 | 2,66 |

O'tgan yarim yilda kuzgi bug'doyzorda tarqalib ketgan hamda katta zarar keltirgan begona o't-qushqo'nmasni yo'qotish uchun shu kungacha qo'llanilgan gerbesidlardan samara olishmagan. 2024 yilda Termiz, Jarqo'rg'on va Sariosiyo tumanlari fermer xo'jaliklari qushqo'nmas bosib olgan dalalariga "Finizan" hamda "Starani premium" gerbesidlari bilan qushqo'nmasning chin barg fazasida ishlov berilganda samarasi yuqori bo'lganligi aniqlangan

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O'ZBEKISTON SHAROITIDA G'O'ZANI TOMCHILATIB SUG'ORISHNING AHAMIYATI VA ISTIQBOLLARI

***Annotatsiya.** Maqolada tomchilatib sug'orishning afzalliklari berilgan bo'lib jumladan, tomchilatib sug'orish bilan faqat ildiz tizimini namlaysiz. Bunday holda, suv o'simlik tomonidan kerakli miqdorda tezda so'riladi va uning o'sishi va rivojlanishiga zarar yetkazmasdan yordam beradi. An'anaviy sug'orish bilan solishtirganda, tomchilardan foydalanganda, tuproqning tabiiy tuzilishi buzilmaydi. Kuchli quyosh nurlari bilan o'simliklar nobud bo'lmaydi, bu barglarga tomchilar tushganda kuzatiladi. Avtomatlashtirilgan tomchilatib sug'orish tizimi bilan sug'orish insonning minimal aralashuvi bilan amalga oshiriladi. Suv tuproqqa faqat ildiz tizimi yotadigan joylarda kiradi, u har bir o'simlik uchun bir tekis va doimiy ravishda zarur bo'lgan miqdorda yetkazib beriladi*

***Tayanch so'zlar:** sug'oriladigan yerlar, qishloq xo'jaligi, suvdan samarali foydalanish, suvtejamkor texnologiyalar, tomchilatib sug'orish, g'o'za navlari.*

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THE IMPORTANCE AND PROSPECTS OF DRIP IRRIGATION FOR COTTON CULTIVATION IN UZBEKISTAN

***Annotation.** The article describes the benefits of drip irrigation, including the fact that with drip irrigation, you only moisten the root system. In this case, water is quickly absorbed by the plant in the required amount and contributes to its growth and development without harming it. Compared to traditional irrigation, the use of drops does not disrupt the natural structure of the soil. Plants are not killed by strong sunlight, which is observed when droplets fall on leaves. Irrigation using an automated drip irrigation system is carried out with minimal*

human intervention. Water enters the soil only in areas where the root system is located, and it is supplied uniformly and consistently in the necessary amount for each plant.

Keywords: *irrigated lands, agriculture, efficient water utilization, water-saving technologies, drip irrigation, cotton varieties.*

G‘o‘zani tomchilatib sug‘orish texnologiyasining afzalliklari:

- egat orqali sug‘orishga nisbatan 40-50% gacha sug‘orish suvi tejiladi;
- suvning filtratsiya va bug‘lanish orqali isrof bo‘lishi keskin kamayadi;
- suv oqovaga chiqmaydi, irrigatsiya eroziyasi kuzatilmaydi va tuproq egat bo‘ylab bir tekislanadi;

- g‘o‘zaning ildiz tizimi tarqalgan tuproq qatlami optimal va barqaror namlanib, mineral o‘g‘itlar suvda erigan holda berilishi hisobiga oziqlantirish samaradorligi oshadi;

- g‘o‘za qator orasiga ishlov berish (kultivatsiya) sonini qisqarishi hisobiga YoYOMlari 25-30%ga tejiladi va tuproqning zichlashishi kamayadi, strukturasi donador hamda mayin bo‘ladi;

- kam me‘yorlar bilan va tez-tez sug‘orish natijasida yer osti suvlari sathi ko‘tarilishi kamayadi va ikkilamchi sho‘rlanishiga barham beriladi;

- suvchilar soni maqbullashadi va sug‘orishning FIKi 10-15% ga oshadi.

- paxtadan qo‘shimcha 7-10 s/ga gacha hosil olish imkoniyati yaratiladi(4).

Yuqoridagilardan kelib chiqib so‘nggi yillarda mamlakatimizda qishloq xo‘jaligi yerlarining samaradorligini, jumladan suvni tejaydigan texnologiyalarni qo‘llagan holda, oshirishga alohida e‘tibor qaratilmoqda, buning asosiy sababi qishloq xo‘jaligini yanada rivojlantirish, qishloq xo‘jaligida zamonaviy texnologiyalarni qo‘llash, aholi daromadlarini oshirish, oziq-ovqat taqchilligiga yo‘l qo‘ymaslikdir. Shu bilan birga, ta‘kidlash joizki, bugungi kunda qishloq xo‘jaligini rivojlantirish, resurs tejovchi sug‘orish texnologiyalarini targ‘ib qilish maqsadida qator qaror va farmonlar qabul qilinmoqda, masalan: O‘zbekiston Respublikasi Prezidentining PF-6024-sonli “O‘zbekiston Respublikasi suv xo‘jaligini rivojlantirishning 2020-2030 yillarga mo‘ljallangan kontseptsiyasini tasdiqlash to‘g‘risida”gi farmoni va “Qishloq xo‘jaligida suvni tejayjigan texnologiyalarni joriy etishni yanada takomillashtirish chora-tadbirlari to‘g‘risida”gi PQ-144-sonli qarori hamda mazkur faoliyatga tegishli boshqa me‘yoriy-huquqiy hujjatlarda belgilangan vazifalarni amalga oshirishga xizmat qiladi(1,2,3).

Geografik uzoq g‘o‘za navlariga tomchilatib sug‘orish texnologiyasini qo‘lab parvarishlash (XINLUZAO-78 g‘o‘za navining sug‘orish tartibi, oziqlantirish tarptibi, ko‘chat qalinligi) agrotexnikasini ishlab chiqish.

Ingichka tolali paxtachilik ilmiy-tadqiqot instituti tajriba dalasining 1.0 ga maydoniga xorijiy XinLuZao 78 navi chigitlari ekildi va 15 may kuni 700m³/ga me‘yorda tomchilatib chigit suvi berildi. 4-5 kunda ko‘chat olindi. May oyida shamollar aktiv bo‘lganligidan yer yuzasi qurib qolishi hamda chuqur qatlamlar

(40-100 sm) quruq bo‘lganligi sababidan suvni so‘rib olishdan nihollarga tuproq namligi kamlik qilishi sabab yana bir marta 630 m³/ga me‘yorda tomchilatib sug‘orildi.

Jami 1330 m³/ga suv sarflandi. Izox: Suv berilmasdan shudgorlangan, nam to‘plash suvi berilmagan quruq tuproqqa chigit ekilgan dala.

Bu tajribada xorijiy g‘o‘za navi ekologik sinovi, hamda iqlim o‘zgarishlariga biotik va abiotik omillarga bardoshligi baxolandi. Xitoy paxtasi chigitining dala unish energiyasi maxalliy navlarga nisbatan kam ekanligi aniqlandi. Ekish chuqurligi 3.0-4.0 sm. Kelgusida ekish chuqurligini o‘zgartirish, yuzaroq ekish tavsiya etiladi. 2024 yilda xorijiy nav ko‘chat qalinligi bo‘yicha 4 qaytarishda 100, 150 va 200 ming tup/ga variantlarda sinov olib borilmoqda. Tuproq namligi, suv sarfi, agrotexnik tadbirlar muddati va me‘yori, fenologik o‘lchashlar, kasallik va hasharotlar ta‘siriga doir monitoring o‘tkazildi. Kundalik va fenologik o‘lchashlarga doir dala daftari yuritilmoqda.

Surxondaryo tajriba maydonida g‘alla yetishtirishda o‘tkazilgan tajribalar.

Oktyabr oyi oxirida 3,0 gektar g‘o‘zadan bo‘shagan maydonga gektariga 200 kg/dan fosforli o‘g‘it berildi va ikki marta chizel-kultivator bilan ishlov berildi.

Tayyorlangan yer maydoniga gektariga 200 kg/dan “Aleksievich”navli kuzgi boshqoli don urug‘i qadaldi hamda gektariga 1200 kub metrdan egatlab sug‘orildi va urug‘ undirib olindi.

Noyabr oyining oxirida g‘alla maydoni gektariga 900 kub metrdan yana bir marta egatlab sug‘orildi.

Fevral oyida kuzgi boshqoli don gektariga 300 kg/dan ammofos bilan oziqlantirildi hamda gektariga 800 kub metrdan ikki marta egatlab sug‘orildi.

Mart oyida kuzgi boshqoli donikki marta 700 kub metrdan sug‘orildi. Kuzgi boshqoli don jami 6 marta egatlab sug‘orildi va gektariga o‘rtacha 5100 kub metr suv berildi

April oyining boshida kuzgi boshqoli don gektariga sof holda 70 kg/dan karbamid bilan oziqlantirildi.

10 aprelda ushbu g‘alla maydoniga sprinklerli yomg‘irnatib sug‘orish texnologiyasi joriy qilindi.

April-iyun olti marta yomg‘irnatib sug‘orildi va gektariga o‘rtacha 1600 kub metrdan suv sarflandi. Bunda g‘alla bargidan ham sug‘orildi va uning rivojlanishi uchun mikroiklim yuzaga keltirildi.

Sprinklerli yomg‘irnatib sug‘orish o‘zining samarasini berdi. Natijada, sug‘orish mavsumida an‘anaviy egatlab sug‘orishga nisbatan gektariga 3500 kub metr suv tejaldi hamda o‘rtacha 68 sentnerdan hosil o‘rib olindi.

Tomchilatib sug‘orish texnologiyasi qo‘llab 1.0 ga ga ekilgan Xitoy paxtasi chigitlardan to‘liq ko‘chat olish mumkinligi aniqlandi. Shudgorni sug‘orishga sarflanadigan 1,5-2,0 ming m³/ga suv tejab qolindi.

Ingichka va oʻrta tolali jumladan xorijiy navni tomchilatib sugʻorish – oziqlantirish texnologiyasini qoʻllash va zarur agrotexnik tadbirlar olib borilmoqda. Bunda fosforli (ammofos) mineral oʻgʻitlarni shudgordan oldin, pushta olishdan oldin va birinchi kultivatsiya bilan nam tuproqqa qoʻllash, gʻoʻza shonalash fazasida 40-50 sm qatlam namligi ChDNS ga nisbatan 65-70% ga tushganda birinchi sugʻorishni amalga oshirish samarali ekanligi aniqlandi.

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THEORETICAL FOUNDATIONS OF THE PREPARATION AND ORGANIZATION OF THE AUDIT OF THE FINANCIAL REPORT IN JOINT-STOCK COMPANIES

***Abstract.** The article considers the issues of the theoretical foundations of the preparation and organization of the audit of the financial report in joint-stock companies, in which the essence of the financial report and the importance and necessity of its preparation based on the requirements of international standards, approaches to the organization of the audit of the financial report are researched.*

***Keywords:** accounting, income, contract, revenue, inventory, variable remuneration, fixed amount, efficiency of use, improving accounting.*

In the Republic of Uzbekistan, special attention is being paid to the development of the activities of joint-stock companies, the introduction of principles of corporate management in them, the organization of accounting and auditing based on the requirements of international standards. Including "organizing active methodological support of auditing organizations and auditors in the application of international standards of auditing" [Decision No. PQ-3946 of the President of the Republic of Uzbekistan dated September 9, 2018 "On measures to develop auditing activities in the Republic of Uzbekistan". www.lex.uz] task determination requires conducting the financial statement audit on the basis of international standards. These tasks determine the importance of organizing financial reporting and auditing based on international standards and improving its methodological foundations.

Theoretical foundations of the preparation and organization of the audit of the financial report in joint-stock companies, in which the essence of the financial report and the importance and necessity of its preparation based on the requirements of international standards, approaches to the organization of the audit of the financial report are researched.

Joint-stock companies play an important role in the development of the country's economy. These types of entities operate on the basis of shares contributed by shareholders, and their main task is to protect the interests of the founders. Joint-stock companies have certain priorities compared to other types of entities in solving problematic issues such as proper organization of economic activity and management of complex economic processes.

The financial report of joint-stock companies is an important element of accounting, the final order of the entire accounting process, and consists of summarizing accounting information about the property and financial situation

and financial results compiled according to the forms established for a certain period, usually for the reporting period.

The content of the financial report has been thoroughly interpreted by regulatory legal documents and economists.

According to Article 22 of the Law of the Republic of Uzbekistan "On Accounting", "Financial reporting consists of systematized information on the financial status of the accounting entity as of the reporting date, the financial result of its activities during the reporting period, and the movement of funds"

According to BHMS No. 1 "Accounting policy and financial reporting", "Financial reporting is a method of presenting financial information describing the activity of this economic entity in a certain period, regardless of whether the economic entity is a separate independent economic entity or a consolidated group of economic entities"

According to the "Conceptual framework for preparation and presentation of financial statements", "The purpose of financial statements is to provide information on the financial status of the accounting entity as of the reporting date, the financial results of its activities during the reporting period, and the movement of funds. However, the financial report does not contain all the information necessary for users to make economic decisions, because the report mainly reflects the results of previous events"

According to ISA No. 1 "Presentation of Financial Statements", "a financial statement is a report designed to meet the needs of all users, not intended to meet specific information needs".

B. A. Khasanov, A.A. Khashimov, A.B. Mukhametov, A.A. Abduvokhidov stated that "the financial report consists of systematic information about the financial status of the accounting entity as of the reporting date, the financial result of the reporting period and the movement of funds.

C. The main purpose of all the mentioned points is to confirm the reliability of the financial report. In order to achieve this goal, it is necessary to carefully plan the audit of financial statements by auditing organizations, to collect sufficient and appropriate evidence.

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TABIY FANLARNI O'QITISHDA TIMSS XALQARO BAHOLASH DASTURIDAN FOYDALANISH

***Annotatsiya.** Ushbu maqola yurtimizda yoshlar uchun innovatsion ta'lim yaratishda muhim ahamiyat kasb etgan TIMSS xalqaro baholash dasturi va bu tadqiqotni ishlab chiqish va rivojlanish tarixi to'g'risida. Bunda TIMSS xalqaro baholash dasturining O'zbekiston Respublikasi ta'lim sohasiga kirib kelishining sabablari aytib o'tiladi va bu tadqiqotning tabiiy fanlar savodxonligini rivojlantirishdagi ahamiyati ko'rsatiladi.*

***Kalit so'zlar:** TIMSS, ta'lim sifati, matematik va tabiiy-ilmiy savodxonlik, ko'rsatkich, texnologiya, bilim, ko'nikma, malaka, bilish, qo'llash, mulohaza yuritish.*

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USING THE TIMSS INTERNATIONAL EVALUATION PROGRAM IN NATURAL SCIENCE TEACHING

***Abstract.** This article is about the TIMSS international assessment program and the history of the development and development of this study, which has gained significant importance in creating innovative education for young people in our country. The reasons for the introduction of the TIMSS international assessment program into the field of education of the Republic of Uzbekistan are mentioned, and the importance of this research in the development of natural science literacy is shown.*

***Key words:** TIMSS, quality of education, mathematical and scientific literacy, indicator, technology, knowledge, skill, competence, knowledge, application, reasoning.*

KIRISH

Mamlakatimiz innovatsion taraqqiyot yo'lida shiddat bilan rivojlanib borayotgan bir davrda, kelajagimiz davomchilari bo'lgan yoshlarni ijodiy g'oyalar va ijodkorligini har tomonlama qo'llab-quvvatlash, ularning bilim, ko'nikma va malakalarini davlat ta'lim standartlari asosida shakllantirish hamda ilg'or xorijiy tajribalar, xalqaro mezon va talablar asosida baholash tizimini takomillashtirish muhim ahamiyatga ega. Bugungi kunda oldimizga qo'ygan buyuk maqsadlarimizning hayotimiz taraqqiyoti zamon talablariga mos ravishda yuqori malakali ongli mutaxassis kadrlar tayyorlash muammosi bilan bog'liqligini barchamiz anglab yetmoqdamiz. Shu maqsadda, O'zbekiston Respublikasi Vazirlar Mahkamasining "Xalq ta'limi tizimida ta'lim sifatini baholash sohasidagi xalqaro tadqiqotlarni tashkil etish chora-tadbirlari to'g'risida" 2018-yil 8-dekabrda 997-sonli qarori bilan O'zbekiston Respublikasi Vazirlar Mahkamasi huzuridagi Ta'lim sifatini nazorat qilish davlat inspeksiyasi huzurida Ta'lim sifatini baholash bo'yicha xalqaro tadqiqotlarni amalga oshirish Milliy markazi tashkil etildi. Jumladan, Trends in International Mathematics and Science Study - TIMSS xalqaro tadqiqot bo'yicha ta'lim yutuqlarini baholashda ishtirok etish dolzarb vazifa sifatida belgilanadi. TIMSS—bu 4- va 8-sinflarda matematika va tabiiy fanlar bo'yicha keng joriy qilingan xalqaro baholash dasturi. TIMSS (Trends in International mathematics and Science Study) 4-8-sinf o'quvchilarining matematika va tabiiy yo'nalishidagi fanlardan o'zlashtirish darajasini baholash dasturi bo'lib, bu tadqiqot to'rt yilda bir marta o'tkaziladi. TIMSS xalqaro baholash dasturida 4 va 8-sinf o'quvchilarining matematika va tabiiy fanlar bo'yicha egallagan bilim darajasi va sifatini solishtirish hamda milliy ta'lim tizimidagi farqlarni aniqlash bilan bir qatorda, qo'shimcha ravishda maktablarda matematika va tabiiy fanlar bo'yicha berilayotgan ta'lim mazmuni, o'quv jarayoni, ta'lim muassasasining imkoniyatlari, o'qituvchilar salohiyati, o'quvchilarining oilalari bilan bog'liq omillar o'rganiladi.

TIMSS dasturi o'zining birinchi tadqiqotini 1995-yilda boshlagan bo'lib, 2019-yilga qadar har to'rt yilda 1999, 2003, 2007, 2011, 2015 va 2019-yillarda tashkil etib kelindi. Navbatdagi 8-davriylik 2023-yilda amalga oshirilishi rejalashtirilgan. Dasturda qatnashyotgan davlatlar soni ham tobora ortib bormoqda, buni 2015-yildagi TIMSS tadqiqotida 57 ta mamlakat qatnashgan bo'lsa, 2019-yilda bu ko'rsatkich ortib, 60 dan ortiq davlatni tashkil etganida ham ko'rish mumkin. TIMSS 2015 tadqiqot natijalariga ko'ra, AQSH, Singapur, Gonkong, Koreya Respublikasi, Yaponiya, Rossiya, Buyuk Britaniya kabi davlatlarining ta'lim tizimi eng yuqori ko'rsatkichlarini egallagan. Matematika va tabiiy fanlarni baholash bo'yicha TIMSS tadqiqoti

ta'lim samaradorligini monitoring qilishda qimmatli manba hisoblanadi, chunki, odatda, STEM deb nomlanadigan tabiiy fanlar, texnologiya, muhandislik va matematika o'quv dasturining asosiy yo'nalishidir. Shubhasiz, hatto bugungi kunga ham ko'pgina ish o'rinlari uchun matematika va tabiiy fanlardan asosiy tushunchalarga ega bo'lish talab qilinadi va bu kelajakda ham o'z dolzarbligini yo'qotmaydi. STEM kasblarida ishlaydiganlar ochlikka qarshi kurash va yashash joylarining yo'qolishi kabi dunyo muammolariga yechim topish, shuningdek, global iqtisodiyotda o'sish va barqarorlikni qo'llab-quvvatlashga mas'uldirlar. Shuningdek, tabiiy fanlar kundalik hayotning asosi hisoblanadi.

Tabiiy fanlar -bu tabiat, jumladan, bizning ob-havo, yer va suv, oziq-ovqat va yoqilg'i manbalarimiz. Tabiiy fanlar bo'yicha savodxonlik tayanch kompetensiya sanalib, tabiiy fanlarni o'qitishning asosiy maqsadidir. Tabiiy fanlarga asoslangan bilim hamda ko'nikmalar har bir shaxsning shaxsiy, ijtimoiy, kasbiy, faoliyatida kata ahamiyatga ega. 60dan ortiq mamlakatlar o'quvchilarning bilim, ko'nikma, malakalari darajasini aniqlashning global resursi jahonning eng ilg'or tajribasi asosida ishlab chiqilgan. TIMSS yordamida o'quvchilarning ta'limiy yutuqlari: bilish, qo'llash, mulohaza yuritish baholanadi. Maktab o'quvchilarini o'quvchilarini TIMSS xalqaro baholash dasturiga tayyorlash ayni vaqtda muhim ahamiyatga ega hodisa sanaladi. Agar maktab o'quvchilarini TIMSS xalqaro baholash dasturiga tayyorlash samarali tashkil etilsa; o'quvchilarini TIMSS xalqaro baholash dasturiga tayyorlash usul va vositalari faollashtirilsa; O'qituvchi ta'lim jarayonida ijodiy ishlab, matematika va tabiiy fanlar darslarida hayotiy misollar, mantiqiy tushunchalardan o'rinli foydalanilsa, o'quvchilarning o'quv-bilim faoliyat samarali bo'ladi.

Xulosa qilib aytganda, O'zbekiston TIMSS va boshqa xalqaro tadqiqotlarda qatnashish orqali rivojlangan mamlakatlar tajribalarini O'zbekiston ta'lim tizimida qo'llash, o'z natijalarini boshqa davlatlar natijasi bilan qiyosiy taqqoslash imkoniyatlariga ega bo'ladi. Tadqiqotning har to'rt yillik davriyligida uzluksiz ravishda ishtirok etishi global miqyosda mamlakatimiz ta'lim tizimining samaradorligini oshirishga imkon beradi.

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SUV OMBORLARINI LOYQA BOSISHGA QARSHI TADBIRLARNI TAKOMILLASHTIRISH

***Annotatsiya:** Ushbu maqola suv omborlarining loyqa bosish muammosini va uni bartaraf etish uchun takomillashtirilgan chora-tadbirlarni tahlil qilishga bag'ishlangan. Suv omborlari qishloq xo'jaligi, sanoat va ichimlik suvi ta'minotida muhim ahamiyatga ega bo'lsa-da, ularning samaradorligiga loyqa bosish jiddiy xavf tug'diradi. Loyqa bosish tabiiy jarayonlar (yomg'ir, tuproq eroziyasi) va inson faoliyati (qishloq xo'jaligi, sanoat chiqindilari) tufayli yuzaga keladi. Ushbu muammo suv sifati va suv omborlarining ekologik holatini yomonlashtiradi, natijada iqtisodiy samaradorlik pasayadi. Maqolada loyqa bosishning asosiy sabablari va oqibatlarini o'rganilib, eroziyaga qarshi choralar, monitoring tizimlarini joriy etish, suv omborlarini tozalash va qishloq xo'jaligi amaliyotlarini optimallashtirish kabi samarali tadbirlar tavsiya etiladi. Tadbirlarning samaradorligi va ularni takomillashtirish yo'llari ilmiy manbalarga asoslangan holda tahlil qilinadi. Shuningdek, innovatsion texnologiyalar va ekologik nazorat usullarining qo'llanilishi bilan loyqa bosishga qarshi kurash strategiyalari ham muhokama qilinadi. Ushbu tadbirlar suv omborlarining ekologik va iqtisodiy barqarorligini ta'minlashga qaratilgan.*

***Kalit so'zlar:** Suv omborlari, loyqa bosish, eroziyaga qarshi chora-tadbirlar, suv sifati, monitoring tizimi, tuproq eroziyasi, suv omborini tozalash, ekologik nazorat, qishloq xo'jaligi amaliyoti, suv resurslari boshqaruvi, loyqa qatlamini boshqarish, bioxilma-xillikni saqlash, sug'orish tizimi, sedimentatsiya jarayonlari.*

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IMPROVING MEASURES AGAINST SLUIDING OF WATER RESERVOIRS

***Abstract:** This article is devoted to the analysis of the silting problem of reservoirs and the improved measures to eliminate it. Although reservoirs are important for agricultural, industrial and drinking water supply, siltation poses a serious threat to their efficiency. Silting occurs due to natural processes (rainfall, soil erosion) and human activities (agriculture, industrial waste). This problem worsens the water quality and ecological status of reservoirs, resulting in a decrease in economic efficiency. The article examines the main causes and consequences of siltation and recommends effective measures such as anti-erosion measures, implementation of monitoring systems, cleaning of reservoirs,*

and optimization of agricultural practices. will be done. The effectiveness of events and ways to improve them are analyzed based on scientific sources. Strategies to combat siltation with the use of innovative technologies and environmental control methods are also discussed. These activities are aimed at ensuring the ecological and economic stability of water reservoirs.

Keywords: *Reservoirs, siltation, anti-erosion measures, water quality, monitoring system, soil erosion, reservoir treatment, environmental control, agricultural practices, water resources management, silt layer management, biodiversity storage, irrigation system, sedimentation processes.*

Kirish

Omborlar va suv omborlari, zamonaviy qishloq xo'jaligi va sanoatning muhim elementlari sifatida iqtisodiy barqarorlik va ekologik muvozanatni ta'minlashda ajralmas rol o'ynaydi. Suv omborlari nafaqat ichimlik suvi ta'minoti va qishloq xo'jaligida sug'orish uchun zarur, balki turli xil ekosistemalar va bioxilma-xillik uchun ham muhim ahamiyatga ega. Ular suv resurslaridan unumli foydalanishni ta'minlash, iqlim o'zgarishiga moslashish va ko'plab jamiyatlar uchun iqtisodiy rivojlanishni qo'llab-quvvatlashda o'z o'rnini egallaydi.

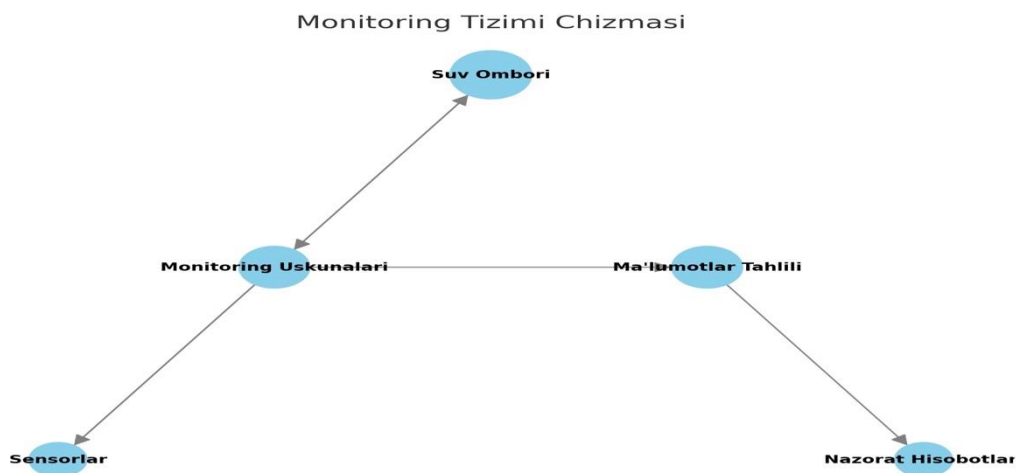
Biroq, suv omborlarining ekologik holati va samaradorligi turli omillar, xususan, loyqa bosish bilan jiddiy tahdidlarga duch kelmoqda. Loyqa bosish, suv omborlarining tuproqqa bosilishi natijasida yuzaga keladigan muammo bo'lib, u suv sifatining pasayishi, ekotizimning yomonlashishi va iqtisodiy yo'qotishlarga olib kelishi mumkin. Tabiiy jarayonlar, masalan, yomg'ir, shamol, va yerning eroziyasi, shuningdek inson faoliyati, masalan, qishloq xo'jaligida tuproq ishlov berish va suvdan foydalanish, loyqa bosish jarayonini kuchaytiradi.

Shuning uchun, suv omborlarini loyqa bosishga qarshi tadbirlarni takomillashtirish masalasi dolzarb hisoblanadi. Bunday tadbirlar omborlarning ekologik barqarorligini ta'minlash, suv sifatini yaxshilash va qishloq xo'jaligi va sanoat sohalarida samarali resurslardan foydalanishni optimallashtirishga yordam beradi. Bu maqolada suv omborlarini loyqa bosish muammosi kengaytirilgan tahlil qilinadi, mavjud tadqiqotlar asosida muammolar va ularning sabablarini aniqlashga harakat qilinadi, shuningdek, muammolarni hal etish bo'yicha samarali takliflar kiritiladi.

Ushbu tadqiqot natijalari suv omborlari va ularning atrof-muhitini muhofaza qilish bo'yicha yangi yondoshuvlarni ishlab chiqishda, shuningdek, qishloq xo'jaligi va iqtisodiyotni barqaror rivojlantirishda qo'llanilishi mumkin bo'lgan ilmiy asoslangan yechimlar taklif etishda yordam beradi. Kelajakda suv omborlarini loyqa bosishga qarshi kurashishda innovatsion texnologiyalar va strategiyalardan foydalanish muhim ahamiyatga ega bo'lib, bu omborlarning samaradorligini oshirish va ularning ekologik holatini yaxshilashga xizmat qiladi.

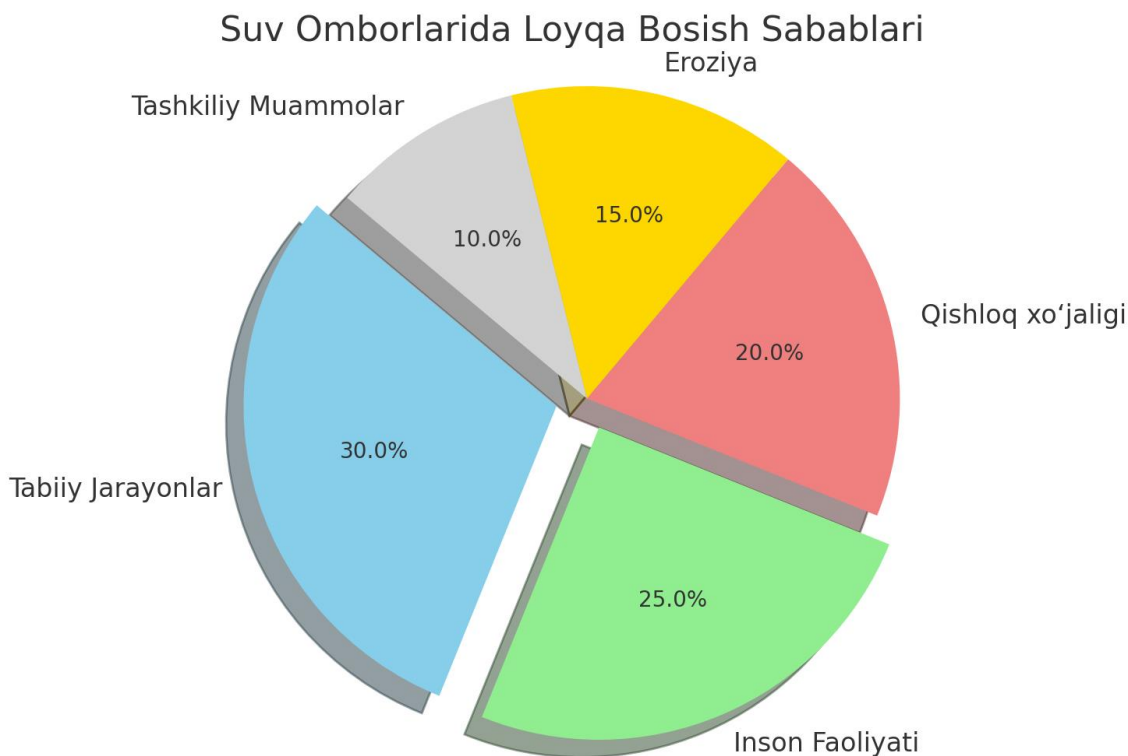
Ushbu maqola orqali, suv omborlarini loyqa bosishga qarshi tadbirlarni yanada takomillashtirishga qaratilgan ilmiy va amaliy yondoshuvlarni muhokama

etamiz, bu esa qishloq xo'jaligi va suv resurslarini boshqarish sohasida o'z o'rnini topadi.



Suv omborlaridagi monitoring tizimining oddiy chizmaviy tasviri.

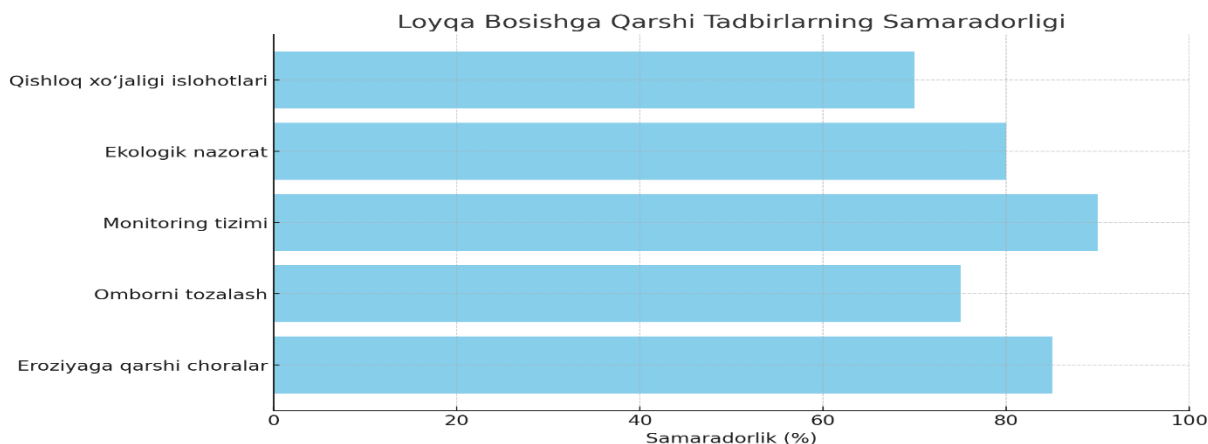
Chizmada suv ombori, monitoring uskunalari, sensorlar, ma'lumotlar tahlili va nazorat hisobotlari o'rtasidagi axborot almashinuvi jarayonlari ko'rsatilgan. Ushbu tizim suv omborining holatini kuzatish va ma'lumotlarni tahlil qilish orqali loyqa bosishga qarshi samarali choralarini belgilashda muhim ahamiyatga ega.



Suv omborlaridagi loyqa bosish sabablarini ko'rsatadigan diagramma.

Ushbu diagramma loyqa bosishning asosiy sabablari bo'lgan tabiiy jarayonlar, inson faoliyati, qishloq xo'jaligi, eroziya va tashkiliy muammolarning o'rnini foizlarda ko'rsatib beradi. Tabiiy jarayonlar va inson faoliyati eng katta

ulushga ega bo'lib, bu omillar loyqa bosishning asosiy sababchilari ekanligini ko'rsatadi.



Loyqa bosishga qarshi tadbirlarning samaradorligini ko'rsatuvchi grafik.

Ushbu grafikka ko'ra, **monitoring tizimi** va **eroziyaga qarshi choralar** eng samarali tadbirlar hisoblanadi, ularning samaradorligi mos ravishda 90% va 85% deb baholangan. Omborlarni tozalash, ekologik nazorat va qishloq xo'jaligi islohotlari ham muhim ahamiyatga ega, lekin samaradorliklari biroz pastroq.

Xulosa

Adabiyotlarni o'rganish natijalariga ko'ra, suv omborlarini loyqa bosishga qarshi kurashda asosiy diqqat ekologik holatni saqlab qolishga, inson faoliyatining salbiy ta'sirini kamaytirishga va monitoring tizimlarini joriy etishga qaratilishi lozim. Ilmiy maqolalar va tahliliy materiallar asosida loyqa bosish muammosini hal etish uchun eroziyaga qarshi tadbirlar, omborlarni tozalash va qishloq xo'jaligi amaliyotlarini takomillashtirish eng samarali yechimlar hisoblanadi.

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XODIMLARNI JAMOAGA MOSLASHTIRISHNING AHAMIYATI

***Annotatsiya:** ushbu maqolada korxonada xodimlar bilan ishlash hamda xodimlarni jamoaga moslashtirishning ahamiyati haqida ma'lumotlar berilgan.*

***Kalit so'zlar:** korxonada, lavozim, xodim, jamoada, shaxs, ijtimoiy-iqtisodiy.*

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THE IMPORTANCE OF ADAPTING EMPLOYEES TO THE TEAM

***Annotation:** this article provides information on the importance of working with employees at the enterprise and adapting employees to the team.*

***Keywords:** enterprise, position, employee, Team, person, socio-economic.*

Korxonada xodimlarni moslashtirish xodimlarni boshqarishning zarur elementi hisoblanadi. Ma'lumki, bir korxonaning xodimi bo'lganida, yangi kelgan shaxs tashkiliy talablarni qabul qilish zarurati bilan duch keladi: ish va dam olish jadvallari, qoidalar, lavozim yo'riqnomalari, buyruqlar, ma'muriyatning ko'rsatmalari va boshqalar. Shu bilan birga, u korxonada tomonidan unga taqdim etilgan ijtimoiy-iqtisodiy shart-sharoitlarning umumiylikini ham qabul qiladi. U o'z qarashlari va odatlarini qayta ko'rib chiqishga, ularni jamoada qabul qilingan, an'analarda mustahkamlangan xulq-atvor normalari va qoidalari bilan bog'lashga va tegishli xatti-harakatlar chizig'ini ishlab chiqishga majbur bo'ladi. Xodimlarni moslashtirish bo'yicha chora-tadbirlarning ahamiyati uzoq vaqt davomida kadrlar bo'limi tomonidan yetarlicha jiddiy qabul qilinmaganligi bizga ma'lum. Hozirda ko'pgina davlat korxonalari va tijorat tashkilotlarida hatto oddiy moslashuv dasturlari ham mavjud emas.

Korxonada moslashishni boshqarish tizimini joriy etish juda murakkab vazifadir, ammo korxonada uchun boshlang'ich xarajatlarni kamaytirish kabi muhim vazifalarni hal qilish unga bog'liq; kadrlar almashinuvini kamaytirish; ish

beruvchi tashkilot uchun maqbul bo'lgan samaradorlik ko'rsatkichlariga tezroq erishish mumkin; xodimning mehnat jamoasiga kirishi, uning norasmiy tuzilishi va o'zini jamoa a'zosi sifatida his qilish. Xodimlarni moslashtirishning eng muhim tarkibiy qismlari, bir tomondan, xodimning o'zini o'zi qadrlashi va intilishlarini uning imkoniyatlari bilan muvofiqlashtirish, ikkinchidan, u moslashadigan ishlab chiqarish muhitining haqiqati. Bu yangi kelganni ish mazmuni va shartlariga, bevosita ijtimoiy muhitga moslashtirish, xodimning ishbilarmonlik va shaxsiy fazilatlarini yaxshilashning ko'p qirrali jarayon hisoblanadi.

Ishga yangi qabul qilingan xodim bir vaqtning o'zida bir nechta lavozimlarni egallagan tashkilot ichidagi munosabatlar tizimiga kiradi. Har bir lavozim xodim, hamkasb, bo'ysunuvchi, menejer, jamoaviy boshqaruv organi, jamoat tashkiloti a'zosi sifatida jamoadagi ijtimoiy rolini belgilaydigan talablar, me'yorlar, xatti-harakatlar qoidalari to'plamiga mos keladi. Ushbu lavozimlarning har birini egallagan kishi o'zini shunga muvofiq tutishi lozim. Muayyan tashkilotga ishga kirishda inson muayyan maqsadlarga, ehtiyojlarga, xatti-harakatlar normalariga ega va tashkilotga ma'lum talablarni qo'yadi: mehnat sharoitlari va motivatsiya. Amaliyotlar shuni ko'rsatadiki, yangi xodimlarning o'zini "o'z o'rnida" his qilishiga to'sqinlik qiluvchi asosiy salbiy jihatlar - bu tashkiliy bilimning yetishmasligi, yangi muhitda harakat qila olmaslik, rahbariyat va hamkasblar oldida cheklov va amaliy tajribaning yetishmasligi hisoblanadi. Moslashuv insonda "o'rnatilgan" biologik va psixologik mexanizm bo'lganligi sababli, ko'p hollarda u o'z-o'zidan paydo bo'ladi. Nima uchun bu holda moslashuv muammosiga e'tibor qaratish, uning dasturlarini ishlab chiqish va samaradorligini oshirishga intilish kerak?

Bilamizki, inson ko'pincha ertami-kechmi, u yoki bu tarzda, har qanday sharoitga moslashadi yoki ularni o'ziga moslashtiradi. Buning uchun unga bir nechta omillar kerak: yetarli vaqt, motivatsiya, o'zgarish istagi va ularning tabiiy imkoniyatlari. Ammo kasbiy faoliyat jarayonida bu omillarning barchasi ish beruvchiga juda qimmatga tushishi mumkin, shuning uchun u bu murakkab jarayonni imkon qadar kamaytirish va soddalashtirishga intiladi.

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EFFECTIVE TEACHING OF THE PRACTICAL ENGLISH LANGUAGE MODULE USING THE ELICITATION METHOD

***Abstract:** Due to the wide spread and use of English language throughout the globe, teaching and learning English language has got really surprising importance. This has raised a number of questions related to effective English language teaching. In this scenario, with the help of author's own experience in teaching English language for more than a decade, this article elaborates different factors that are responsible for effective English language teaching. Teacher, methods and techniques, teaching materials and learner themselves are such factors that are responsible for effective English language teaching.*

***Key words:** Practical English, learning, methods.*

One of the keys to success when teaching languages is to maximise the opportunities for language production. For ESL students, who speak a different L1 but who live in a country where English is the main language spoken, this can be vital to building confidence and fluency.

Yet those students do not usually start their language learning with zero knowledge of English. Individually and collectively, they have some knowledge of the language, the culture and of the wider world. It's an opportunity for the teacher to use this as a starting point and to build upon that to facilitate learning.

Elicitation techniques are recognised as a powerful way to do this and can be used to ask learners questions that produce L2 speech. This blog post explores these elicitation techniques in further detail, identifies why they are so widely used in ESL settings and provides some practical suggestions for their classroom use.

Remember to also watch our instructional video on this topic below!
(Elicitation, how to get your students to speak more!)

What is elicitation in ESL teaching?

Elicitation is a strategic teaching approach that involves drawing responses, ideas, or information from students rather than the teacher directly providing answers. According to the Dictionary of Language Teaching and Applied Linguistics, the word means: 'Techniques or procedures which a teacher uses to get learners to actively produce speech or writing',

This is achieved by encouraging learners to reflect on their knowledge, formulate thoughts, and articulate them in the target language. By doing so, students become active participants in the learning process, which can significantly enhance comprehension and retention.

Advocates for the process argue that elicitation is not just suitable for testing knowledge or language production – it can also be used to get students to share their ideas, feelings, motivations and memories. As such, it can be a powerful tool to uncover the real person behind the learner as well as highlighting what learners know or don't know. Of course, this can be a huge help in lesson planning and lesson management as educators can quickly move on if students have grasped key concepts.

How can elicitation be used in ESL language teaching?

One of the biggest challenges in any language classroom is balancing teacher-centred instruction and student-centred interaction / language production. One of the reasons for the popularity of elicitation techniques is that they can create a bridge between the two approaches. Here's five key reasons why elicitation should be in every ESL teacher's toolkit!

- **Stimulates participation:** ESL classrooms thrive on interaction. Elicitation encourages active participation, transforming lessons into dynamic exchanges rather than teacher-led monologues.
- **Builds confidence:** As students successfully respond to elicitation prompts, their confidence in using the English language grows. This gradual confidence boost nurtures a positive learning environment and encourages them to be more adventurous in their communication.
- **Develops understanding:** The process of generating responses helps students deepen their understanding of language structures and usage. By grappling with sentence formation, grammar rules, and vocabulary in practical scenarios, key concepts are learned and retained more effectively.
- **Adaptable to students' abilities:** Elicitation techniques can be tailored to suit learners at various proficiency levels. From beginners to advanced students, the complexity and focus of each prompt can be easily adjusted by the educator.
- **Promotes critical thinking:** Responding to the teacher's prompts encourages students to think critically and apply their language skills to build meaningful responses. This engagement goes beyond rote memorization and empowers learners to grasp complicated language concepts.

Using elicitation techniques in the classroom

There are a wide variety of ways in which ESL teachers can use elicitation techniques to achieve different learning objectives. We've summarised four of the main techniques below and provided a brief suggestion of how they might be effectively used by educators.

1. Concept Elicitation

This approach encourages students to define and explain concepts in their own words. It can therefore be particularly effective for vocabulary and grammar lessons. The teacher begins by presenting an image or by describing a word without revealing it. Encourage students to guess the word based on the

description or visual cues. For instance, show a picture of a furry, four-legged animal with a wagging tail and ask students to guess the word “dog.”

2. Open-Ended Questions

These prompt students to respond with more than just one-word answers. Students are encouraged to try and express their opinions, thoughts and ideas in a coherent manner. A simple discussion starter would be a great example of this approach. Pose an open-ended question to the class and encourage students to respond and exchange insights via a group discussion. Ask a question like, “What are the advantages of learning a second language?” and allow students to share their thoughts. It’s worth noting that open-ended questions might not be appropriate for all pupils. Lower ability students may not have the language to answer them to their own satisfaction. More guided questioning may be needed.

3. Completion Elicitation

In this instance, the teacher provides fragments of text for students to complete. This technique reinforces sentence structure and context-based understanding. The educator provides a sentence with a missing word or phrase and asks students to complete it using appropriate vocabulary or grammar. For example, present the sentence: “She _____ to the park every Sunday.” Ask students to fill in the blank with a suitable verb. Learning could be scaffolded by providing 4 different alternatives, from which students pick the right answer.

4. Visual Elicitation

This technique uses images, videos, or real-world scenarios to initiate discussions and responses. Such cues are proven routes to stimulate creativity and enhance students’ comprehension. The lesson begins with the teacher showing a series of images depicting a sequence of events. Ask students to describe what’s happening in each image and then use their descriptions to create a cohesive story. For instance, display images of a child finding a treasure map, following the map’s clues, and finally discovering a hidden treasure

Things to think about when using elicitation techniques in the ESL classroom

Acknowledging the above benefits, it’s important to carefully consider how you might actually use such elicitation techniques in your classroom. After all, as the educator you will be responsible for coming up with the prompts to get the conversation started. That will inevitably involve some work and your best efforts may be met with a stony silence.

Combined with multiple incorrect answers, this might suggest that further clarifying input is required from the teacher. But cultural reasons could also explain students’ reluctance to get involved. In some cultures, students are not encouraged to volunteer information or to ask questions, while in others the teacher is seen as the expert provider of knowledge. Students may also be afraid of getting an answer wrong and want to avoid being embarrassed or losing face in front of their peers.

Nominating students to answer questions rather than seeking volunteers can be one strategy to address this. Avoiding questions which have a clear right / wrong answer is another tried and tested approach. Always encourage students rather than correcting their mistakes – confidence-building, not accuracy, is the priority with this approach. And finally, learners can also use the above techniques on each other – for example, during brainstorming activities. This helps to build confidence and group cohesion as well as shifting the focus away from the teacher

By leveraging these techniques, educators can create an engaging and interactive learning environment that encourages language production and empowers students to actively participate in their language learning. These are simple, yet effective ways to get learners to use their core language skills – we hope that you give them a try!

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IMPROVING FINANCIAL REPORTING AND AUDITING IN JOINT STOCK COMPANIES

***Abstract:** this article examines various definitions of the concept of improving financial statements and conducting audits in joint-stock companies. As well as the principles of approximation to IFRS.*

***Keywords:** accounting, income, contract, revenue, inventory, variable remuneration, fixed amount, efficiency of use, improving accounting.*

In the countries of the world, special attention is paid to increasing the efficiency of joint-stock companies, introducing modern principles of corporate management and increasing the transparency of information in financial reports. However, despite the measures taken in this area, many companies in the world are facing fraud related to financial reporting. According to the International Association of Auditors Fighting Fraud, "11% of the world's countries have fraud cases in the banking and finance sector, 12% in the industry, and 18% in the construction sector" Therefore, in the countries of the world, the correct application of accounting principles and the improvement of the quality of audits are given special importance in preventing and eliminating fraud related to financial statements.

In various countries of the world, special attention is paid to scientific research aimed at improving the preparation and auditing of financial statements in joint-stock companies in the context of the globalization of the economy. In these studies, the issues of compliance with accounting principles in the preparation of financial statements, improvement of the statement of financial position, improvement of the calculation of profits and losses and other gross income, planning of the audit of financial statements, determining the optimal set of audit risks, determining the level of importance in the audit of financial statements, and drawing up auditor's conclusions are solved. It should be recognized that in the field of research, at the same time, the transformation of financial statements to international standards, the assessment of events and continuity of activities after the reporting period in the audit of financial statements, and the improvement of the process of using written submissions in ensuring the adequacy and appropriateness of audit evidence have been achieved. However, current issues related to the preparation of financial statements and the organization of audits at the level of international standards have not yet been

fully resolved. Joint-stock companies must achieve a positive result in terms of financial status and financial results in order to protect the rights and interests of their shareholders, to provide them with a guarantee of receiving dividends. Information about the financial position and financial results is provided by the accounting service. When organizing accounting work by a business entity, first of all, it is required to observe the principle of continuity.

In the audit of financial statements conducted by auditing organizations, auditors must assess the continuity of operations. That is, a joint-stock company that has received a positive audit opinion should not go bankrupt in the next 12 months. Therefore, all the factors affecting the activity should be studied in audits.

The results of the assessment of business continuity during audits are the basis for choosing the type of audit opinion (Table 1).

Table 1. Options for choosing an auditor's report on the going concern assumption

| Approximate type of audit report | Basis for comment |
|---|--|
| Annotated audit report | Information about material misstatements is not adequately disclosed in the financial statements |
| Negative conclusion | Management did not follow the principle of continuity in the preparation of financial statements |
| Refusal to conclude | Audit evidence is insufficient to provide an objective opinion |

Thus, the assessment of continuity of activity is the subject of the auditor's professional opinion and is related to the formation of an opinion about events that may not be determined at the date of drawing up the financial statements. Disclosure of the future prospects of the economic entity will be subject to a significant increase in audit risk. Therefore, the need to identify and assess various risks that affect operations and depend on continuity occurs at all stages of the audit and requires the auditor's attention.

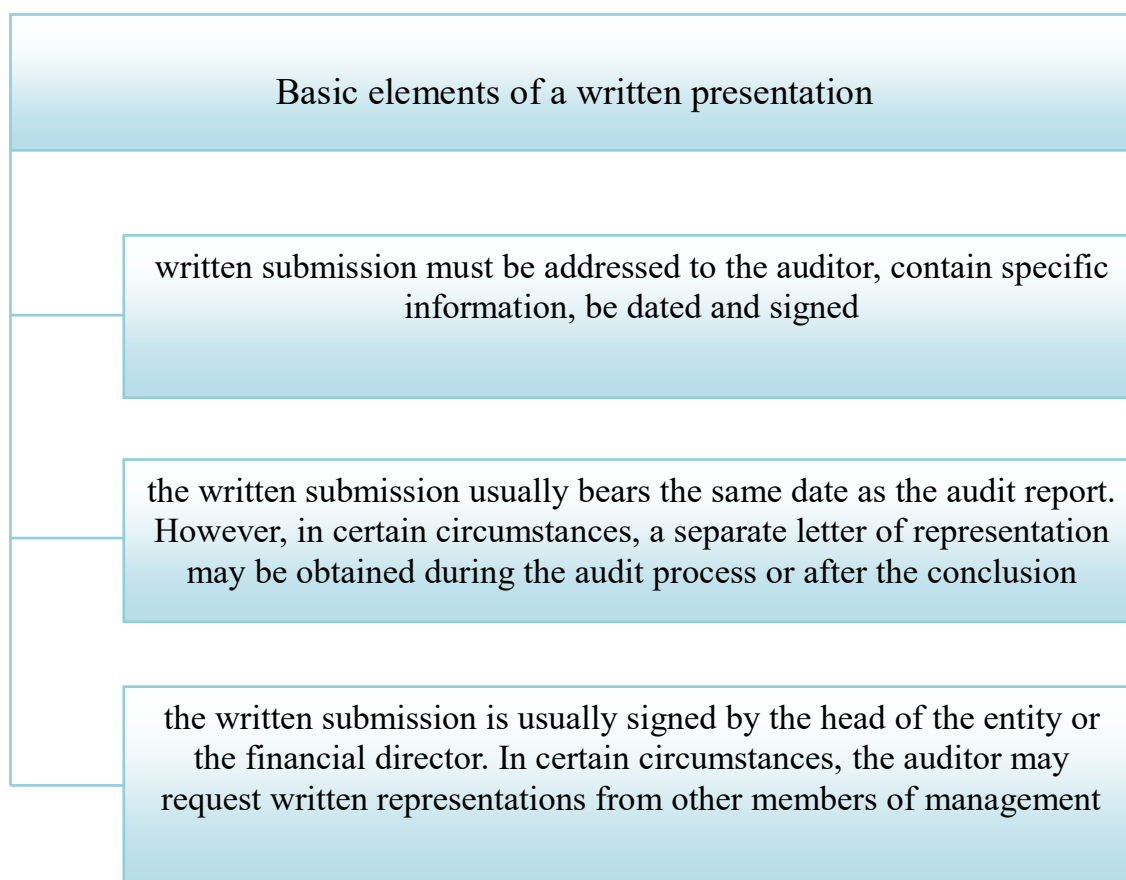
Evidence gathering is a key process in audits. AXS No. 500, Audit Evidence, describes many methods of gathering audit evidence. These methods are used depending on the type of inspection, operational characteristics of the client enterprise and other circumstances. The most reliable evidence when gathering evidence in audits is information obtained from third parties. However, if it is not possible to obtain written evidence from third parties, in accordance with AXS No. 580 entitled "Written Submissions", it is required to obtain written submissions from the management of the entity conducting the audit. Along with

the above, it is also required to confirm that the responsibility for the financial report prepared for the reporting period and intended for external users rests with the entity's management.

According to AXS No. 580 "Written submissions", the main part of written confirmations is obtained from the management in order to obtain information on the events that occurred in this economic entity after the reporting date.

If management's representations are inconsistent with other audit evidence, the auditor should review the situation and, if necessary, reassess the reliability of management's representations.

According to AXS No. 580 "Written Submissions", the main elements of a written submission are as follows



1-Picture. Basic elements of a written presentation

If the management of the organization refuses to provide the representations and explanations that the auditor considers necessary, this is a limitation of the scope of the audit. In this case, the auditor should express a negative opinion or reject the opinion.

Based on the above, it is worth noting that it is necessary to use management's presentations during audits. If the management gives incorrect representations or refuses to give them, this situation directly affects the formation of the auditor's opinion and the type of the auditor's conclusion. The following

conclusions were formed as a result of the research conducted on improving the preparation and auditing of financial statements in joint-stock companies:

Joint-stock companies play an important role in the economy of our country, in the formation of gross domestic product and budget revenues. Nowadays, it is important to introduce modern corporate management methods in joint-stock companies, to ensure that the reports prepared by them meet the requirements of international standards, and to confirm the reliability of the presented reports based on international standards.

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O'ZBEKISTONDA KICHIK BIZNESNI RIVOJLANTIRISH IMKONIYATLARI

***Annotatsiya:** Ushbu maqolada O'zbekistonda olib borilayotgan iqtisodiy islohotlar orqali iqtisodiyotning barqaror o'sishi, kichik va o'rta biznesning o'rni, mamlakatimizda uni rivojlantirish uchun yaratilayotgan yangi imkoniyatlar va davlat tomonidan qo'llab quvvatlanishi bayon etilgan*

***Kalit so'zlar:** Tadbirkorlik, kichik biznes, o'rta biznes, tadbirkorlik, iqtisodiy islohotlar, oilaviy tadbirkorlik, makroiqtisodiy ko'rsatkichlar, aholi bandligi.*

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NEW OPPORTUNITIES FOR THE DEVELOPMENT OF SMALL BUSINESSES IN UZBEKISTAN

***Abstract:** This article describes the sustainable of the economy through economic reforms in Uzbekistan, the role of small and medium-sized business, new opportunities created for its development in our country, and state support.*

***Key words:** Entrepreneurship, small business, medium business, economic reforms, family business, macroeconomic indicators, population employment*

O'zbekistonda kichik va o'rta biznesni qo'llab-quvvatlash va rivojlantirish uchun keng qamrovli ekotizim yaratildi. Prezident Sh. Mirziyoyevning so'zlariga ko'ra, bankning faoliyati ham, ishlash usullari ham, jumladan, moliyalashtirish mexanizmlari ham jiddiy o'zgarishlarga uchraydi. Xususan, har bir hududdagi bank huzurida kichik biznes markazi tashkil etiladi. Mazkur markazlar tadbirkorlar tashabbusi bilan amalga oshirilayotgan biznes loyihalarni ishlab chiqishga xizmat qiladi.² Ular yangi loyihalarni amalga oshirishga intilayotgan tadbirkorlarni mustaqil ravishda o'qitish, zarur mutaxassislarni jalb etish,

² O'zbekiston Respublikasi. Prezidenti Sh.M.Mirziyoyevning 2023 yil 18 avgustda tadbirkorlar bilan o'tkazgan Ochiq Muloqoti.

buxgalteriya hisobi, soliq, audit, marketing, yuridik va boshqa maslahat xizmatlarini taklif etadi.

Markazlar yangi korxonalariga zamonaviy texnologiyalarni o'zlashtirish, xodimlarning malakasini oshirish, mahsulotlarini samarali yo'lga qo'yishda yordam beradi. Prezident o'z nutqida yuqorida aytilgan jamg'armalarga mustaqil ravishda investitsiyalarni jalb qilish huquqi berilganini ta'kidladi. Ushbu jamg'armalar kelgusi yilda o'rta biznes uchun qo'shimcha 1 milliard dollar sarmoya jalb etishni maqsad qilgan. Eksportni kengaytirishning muhim imkoniyatlaridan biri O'zbekistonga nufuzli xorijiy brendlarni jalb qilishdir. Mahalliy korxonalariga sarmoya kiritish va buyurtma berishni osonlashtirish uchun ularni tashvishga soladigan uchta muhim masala hal qilinadi: ishlab chiqarish uchun xalqaro standartlar, ekologik va sertifikatlashtirish talablari amalga oshiriladi. So'nggi yillarda iqtisodiyotimiz poydevori bo'lmish kichik biznes, oilaviy va xususiy tadbirkorlikni rivojlantirish ishlariga alohida e'tibor berilmoqda. Xususan, ushbu kategoriyadagi tashkilotlarga bir qator imtiyozlar, soliq preferensiyalari va yengilliklar berilmoqda.

Shu maqsadlarda 2023 yilning 14 sentyabr kuni ham O'zbekiston Respublikasi Prezidentining "Kichik biznesni rivojlantirishni moliyaviy va institutsional qo'llab-quvvatlash chora-tadbirlari to'g'risida"gi qarori qabul qilindi.

Qarorga asosan, Iqtisodiyot va moliya vazirligi, "Biznesni rivojlantirish banki" tomonidan "Kichik biznesni uzluksiz qo'llab-quvvatlash" kompleks dasturi amalga oshiriladi.

Mazkur dastur doirasida kichik biznes vakillari moliyaviy va tadbirkorlik savodxonligiga o'qitilib ularga bir qator moliyaviy qo'llab-quvvatlash choralari beriladi. Jumladan:

- 100 million so'mgacha garovsiz kreditlar;
- 150 million so'mgacha garov talabi 50%ga pasaytirilgan kreditlar;
- 18 foiz stavkada 7 yilgacha (aylanma mablag' uchun 3 yilgacha) muddatga 1,5 mlrd so'mgacha kredit va lizing;
- qiymati 1,5 mlrd so'mgacha bo'lgan asosiy vositalar 7 yilgacha muddatli to'lov asosida qarz berish;
- kichik biznes markazlariga 1 mlrd so'mgacha bo'lgan loyihalarga bo'sh turgan davlat mulki ob'ektlari, yer maydonlari va asbob-uskunalar bilan 20 foizgacha ulushdor bo'lib kirish huquqi berildi;
- innovatsion ishlanmalarni tijoratlashtirish, startup loyihalariga davlat ilmiy dasturlari doirasida 2 mlrd so'mgacha grant ajratish.

O'zbekiston Respublikasi Prezidentimi Sh.Mirziyoyevning 2023 yil 18 avgustdagi tadbirkorlar bilan ochiq muloqotida kichik biznesni yanada qo'llab-quvvatlashga qaratilgan qator taklif va tashabbuslar ilgari surilgan edi.

Qarorga asosan kichik biznesni qo'llab-quvvatlash bo'yicha "uzluksiz xizmatlar zanjiri"ni yaratish maqsadida "Kichik biznesni uzluksiz qo'llab-quvvatlash" kompleks dasturini amalga oshirish belgilandi.

Mamlakatimizda “Kichik biznesni rivojlantirishni moliyaviy va institutsional qo‘llab-quvvatlash chora-tadbirlari to‘g‘risida”gi Prezident qarori (PQ-306 son,14.09.2023 y) qabul qilindi va shu qarorga ko‘ra, 2023 yil 1 oktyabrdan “Kichik biznesni uzluksiz qo‘llab-quvvatlash” kompleks dasturi amalga oshiriladi.³

Dasturni 2023-2026 yillarda amalga oshirish uchun davlat mablag‘lari hisobidan 6 trillion so‘m va xalqaro moliya institutlarining 1,2 milliard AQSH dollari miqdoridagi mablag‘lari yo‘naltirilishi ko‘zda tutilmoqda.

Xususan, “Biznesni rivojlantirish banki” ATB ta‘sischiligida “Kichik biznesni rivojlantirish jamg‘armasi” va Jamg‘arma tarkibida hududlarda 14 ta “Kichik biznesga ko‘maklashish hududiy markazlari” tashkil etilgani qayd etildi.

Ushbu markazlar orqali kichik biznes loyihalarini tanlash, tashabbuskorlarni o‘qitish, moliyalashtirish, axborot bilan ta‘minlash, biznes rejalar va texnik iqtisodiy asoslarni ishlab chiqish, bozor topish bilan bog‘liq kompleks xizmatlar ko‘rsatiladi. Moliyaviy qo‘llab-quvvatlash yo‘nalishida tadbirkorlik faoliyatini yo‘lga qo‘yish yoki kengaytirish uchun 2 yilgacha imtiyozli davr bilan 7 yilgacha muddatga hamda aylanma mablag‘lar uchun revolver tarzda 3 yilgacha muddatga yillik Markaziy bank asosiy stavkasidan 4 foizlik punkt yuqori stavkada 1,5 milliard so‘mgacha kreditlar ajratiladi.⁴

Shu bilan birga, asosiy vositalarni sotib olish uchun lizing berish vazifalari belgilangan bo‘lib, bunda 100 million so‘mgacha kreditlarni garovsiz, 150 million so‘mgacha kreditlarni garov talabi 50 foizgacha pasaytirilgan holda ajratish amaliyoti tatbiq etiladi.

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³ O‘zbekiston Respublikasi Prezidenti Sh.M.Mirziyoyevning “Kichik biznesni rivojlantirishni moliyaviy va institutsional qo‘llab-quvvatlash chora-tadbirlari to‘g‘risida”gi qarori.PQ-306 son,14.09.2023.

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SENNANGUSULIFOLIA NING TIBBIYOTDA ISHLATILISHI

Annotatsiya. Maqolada senna angustifolia ning tibbiyotda ishlatilishi xususiyatlari haqida ma'lumotlar keltirib o'tilgan.

Kalit so'zlar: лекаpство, *S. angustifolia (Vahl), S.Acutifolia (Delile), S.angustifolia, S.acutifolia, S.obuvata*

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MEDICINAL USES OF SENNA ANGUSTIFOLIA

Abstract. The article provides information about the medicinal properties of senna angustifolia.

Key words: medicine, *S. angustifolia (Vahl), S.Acutifolia (Delile), S.angustifolia, S.acutifolia, S.obuvata*

O'tkir bargli sanno o'simligi bargida 6,17%, mevasida 2,70%, tor bargli sanno bargida esa 3,77%, mevasida 4,6% gacha antrasen unumlarining yig'indisi (sennozid A, sennozid V, sennozid S, sennozid E, rein, aloy-emodin, glyuko-aloy-emodin, glyukorein va boshqalar) bo'ladi. Sanno barglari tarkibida antrasen unumlaridan tashqari, flavonoidlar (izoramnetin, kempferol va ularning glikozidlari) hamda salitsilat va boshqa organik kislotalar, smolalar va juda oz miqdorda alkaloidlar bor.

Mevasi tarkibida smola bo'lmaydi. Antrasen unumlari sanoning yosh barglarida ko'p to'planib, barg qarigan sari ular miqdori ham kamayib boradi. Agar o'tkir bargli sanno tarkibidagi antrasen unumlarining yosh barglardagi umumiy miqdori 5,8% bo'lsa, barg sathi kattalashgan sari, bu birikmalar kamayib, oxirida 3,8%) qoladi.

Sanno bargining asosiy ta'sir etuvchi glikozidlari - sennozid A va sennozid V gidroliz natijasida qand qismi - glyukoza va aglikonlari - sennidin A va sennidin V ga parcha-lanadi. Bu birikmalar bir-birining stereoizomerlari bo'lib, sennidin A optik faol (kuchli fiziologik ta'sir ko'rsatadi), sennidan V esa optik faol emas (fiziologik ta'siri ancha kuchsiz). Hindistonning quruq (namlik kam bo'ladigan) tumanlarida o'sadigan tor bargli sanno bargi tarkibiga 4,23% gacha sennozidlar va 3,54% gacha rein bo'ladi.

S. angustifolia (Vahl) Batka-ingichka bargli sano *S.Acutifolia (Delile)* Batka-o'tkir bargli sano, *S.tora-to'mtoq* bargli sanno turlarining barglari va

urug'larida antraglikozid, flavonoidlar mavjud bo'lib, asosan surgi dori sifatida, organizmni yumshatuvchi, shuningdek ozdirish maqsadida istemol qilinadi.

Ilmiy tabobatda hozirgi vaqtda dorivor o'simlik sifatida foydalanish uchun ruxsat etilgan. Sobiq Ittifoq Davlat farmakologiyasiga kiritilgan. *S.angustifolia*, *S.acutifolia* ning barglari, yangi novdalarining ekstraktidan Senadaksin (Senadexinum) tabletkasi tayyorlanadi. Ukraina va Xindiston davlatlarida bu dori turi ishlab chiqarilib, boshqa davlatlarga eksport qilinadi.

S.angustifolia - O'rta Yer dengizi florasida (Janubiy Yevropa, Shimoliy Afrika, Saudiya Arabistoni) tabiiy holda tarqalgan bir yillik o'tsimon o'simlik. O'simlikning yer ustki qismi qadimdan xalq tabobatida va ilmiy tibbiyotda ishlatib kelingan. Uning xom ashyosi Yevropaga Shimoliy Afrikadan Aleksandriya porti orqali olib kelinganligi sababli o'simlikning tijorat nomi Aleksandriya bargi (Aleksandriyskiy list) deb ham yuritiladi.

S.angustifolia, *S.acutifolia*, *S.obuvata* Collad. turlari Respublikamizning Surxandaryo viloyatida madaniy holda o'stirilishi va ko'paytirilishi adabiy manbalarda keltirilgan. Hozirgi kunda yuqoridagi turlar O'zbekiston sharoitida dorivor o'simliklarni yetishtirishga ixtisoslashtirilgan xo'jaliklarda qisman ekib o'stiriladi. Tabiblar, savdogarlar tomonidan, Sobiq Ittifoq va boshqa davlatlar orqali Respublikamizga urug'lari keltirilib, qiziquvchilar tomonidan tamorqalarda ham ekiladi. Hozirda halq tabobatida urug'lari va barglari ishlatiladi, shuningdek bozorlarda dorivor o'simliklar qatorida sotiladi.

Respublika dori-darmon ishlab chiqarish sanoati «O'zfarmkonsern» buyurtmasi asosida, sho'r yerlarda dorivor o'simliklarning introduksiyasi va bioekologik xususiyatlarini o'rganish maqsadida O'zbekistonning Mirzacho'l va Buxoro vohasida bir qancha dorivor o'simliklar qatorida *S.angustifolia*, *S.acutifolia*, *S.tora* larning sho'rga chidamligi, introduksiya natijalarini tahlillash asosida introduksion baholash ishlari ustida tadqiqotlar olib borilgan. Tadqiqot natijalarida tuproqlarning 2 xil sho'rlanish darajasida, urug'larning unuvchanlik va saqlanish darajalari aniqlanib, o'rta va kuchli sho'rlangan yerlarda o'simliklarning o'sishi va rivojlanish uchun sho'rlanish darajasining yuqoriligi, havo haroratining ko'tarilishi ularning o'sishdan to'xtab, qurib qolishiga sabab bo'lishi aniqlangan [9].

S.tora yuzida Shimoliy va Sharqiy Afrika, Xindiston, Xitoy, Yaponiyaning tropik qisimlarida tabiiy sharoitda keng tarqalgan. Bir yillik kosmopolit o'simlik. Asosan, Xitoyning Shensi, Xubey va Kvantun provinsiyalarida dorivor o'simliklar qatorida o'stirilib, xomashyo olish maqsadida katta ekin maydonlari tashkil etilgan. *S. tora* ning mahalliy nomi Angliyada - *Wild senna*, Yaponiyada - *Ebisu-gusa* deb nomlanadi.

O'tkir bargli sanno - *Senna angustifolia* Del. ning vatani Misr (Nil daryosining o'rta oqimi) va Sudan hisoblanadi. Ushbu mamlakatlarning iqlimi issiq, yilning eng sovuq kunlarida havo harorati kamdan-kam xolatlarda 5-10⁰S dan pasayadi. O'zbekistonda dorivor o'simlik sifatida madaniylashtirilgan. Sanno

o'simligini yetishtirish uchun eng ma'qul joy, Surxandaryo viloyatining Denov tumani xisoblanadi.

Tibbiyotda qo'llanilishi va kimyoviy tarkibi. Sanno preparatlari surgii dori sifatida ishlatiladi. Bargi tarkibida smolalar spirtida va qaynoq suvda eriydi, bu smolalar ichakni og'ritish xususiyatiga ega. Shuning uchun tayyorlangan damlamani sovutib smolani filtirlab qo'llaniladi. Barglari tarkibida antroglukozidlar (6% gacha), mevasida antretsen unumlari (sennozid A, rein, aloy-emodin va boshqalar) mavjud.

Tarixiy ma'lumotlarga qaraganda, o'tkir bargli sano o'simligi xalq tabobatida 3000 yildan beri ishlatib kelinadi. Rus tabiblari uni 99 dardga darmon giyoh deb atashgan. Shuningdek, rusalarda qo'yidagicha maqol bor: «Nonni bug'doysiz yopib bo'lmaydi, dardni sanosiz davolab bo'lmaydi».

O'tkir bargli sano tarkibidabargida 6,17%, mevasida 2,7%, tor bargli sano bargida 3,77%, mevasida 4,60% gacha antrasen unumlari bo'lib, ular sennozid A va V, S, D, rein, aloy-emodin, glyuko-aloy-emodin va boshqalardan tashkil topgan. Antrasen unumlardan tashqari flavonoid, organik kislotalar va oz miqdorda alkaloidlar bor.

I.A. Damirov va boshqalarning [1982] fikricha, o'simlikning yosh barglarida va pishgan mevalarida antrasen unumlari ko'p bo'ladi. Asosiy moddasi hisoblangan sennozidlar gidroliz qilinsa aglikon sennedin A va V ga va glyukozaga parchalanadi. Surgii sifatida ishlatiladi. Barg tarkibidagi smolalar qorinni og'ritgani uchun, tayyorlangan damlamani sovutiladi, cho'kkan smolalardan filtrlab olinadi va iste'mol qilinadi. Ba'zan barg tarkibidagi smolalarni spirtida eritib olib tashlanadi va dori turlari tayyorlanadikasalliklarini davolashda foydalanganlar.

Dorivor preparatlari. Barg damlamasi - *Infusum foliorum Sennae*, murakkab qizilmiya poroshogi - *Pulvis Glycyrrhizae compositus* tarkibiga kiradi. Sano surgii sifatida ishlatiladigan va bavoasil kasalligida qo'llaniladigan yig'malar tarkibiga kiradi.

Tayyor dorilar: Tabletki senade, glaksen (Hindiston), tabletki senna (Gruziya), tabletki senadeksin (Tosh. xim-farm.zavod) chiqariladi.

Abu Ali Ibn Sino aytadiki, dorilarning bazilari madanlardan, bazilari o'simliklardan va boshqa xayvon jinslaridan olingan bo'ladi [Xolmatov va boshq., 1994].

Hamdamov I., Shukurullaev P., Tarasova Ye va boshqalar [1990] yozishicha Abu Ali Ibn Sino o'zining II kitobini dorishunoslikka bag'ishlangan bo'lib, unda o'simlik, ma'dan va hayvonlardan olinadigan 811 ta sodda dorilarning nomini alifbo tartibida joylashtirib, ularni ta'riflari va har bir dorining qaysi kasallikka davo ekanligi ko'rsatilgan.

O'simliklardan olinadigan dorilar, ularning yaproqlaridan, donlaridan, ildizlaridan, shoxlaridan, po'stloqlaridan, gullaridan, mevalaridan, iborat bo'ladi. (Tib qonunlari)

Tibbiyotda sanno turlarining bargi va mevasidan foydalaniladi. Bargi o‘simlik gullaganda yig‘iladi va soyada, mevasi yetilganda terib olinib, ochiq havoda - quyoshda quritiladi.

Sanno bargi va mevasi tarkibida antraglikozidlar, flavonoidlar, smola va boshqa moddalar bo‘ladi. Sanno qadimdan tabobatda keng miqyosda ishlatilib kelingan dorivor o‘simliklardan. Bargining damlamasidan Ibn Sino bod, jigar va sariq kasalliklarini davolashda hamda surgi sifatida foydalanilgan.

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DALA SHAROITIDA O‘TKIR BARGLI SANNO O‘SIMLIGINI YETISHTIRISH AGROTEKNOLOGIYASI

***Annotatsiya.** Maqolada Sano shifobaxsh o‘simligining o‘shish sharoitlari, fiziologik, anatomik-morfologik xususiyatlari haqida ma’lumotlar keltirib o‘tilgan.*

***Kalit so‘zlar:** Cassia, sezaljindoshlar oilasi, sho‘rxok yerlar, tuproq namligi, transpiratsiya, randomizatsiya*

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AGROTECHNOLOGY OF CULTIVATION OF SHARP LEAF PLANT IN FIELD CONDITIONS

***Abstract.** The article provides information about the growth conditions, physiological, anatomical and morphological characteristics of the medicinal plant Sano.*

***Key words:** Cassia, sedge family, saline soils, soil moisture, transpiration, randomization*

O‘zbekiston Respublikasi Prezidentining “Yovvoyi holda o‘sovchi dorivor o‘simliklarni muhofaza qilish, madaniy holda yetishtirish, qayta ishlash va mavjud resurslardan oqilona foydalanish chora-tadbirlari to‘g‘risida”gi qarori⁵ qabul qilindi. Ушбу қарорда 50 турдаги доривор ўсимликларни ўстириш ва хомашё олиш бўйича таклифлар берилган бўлиб, unda o‘tkir bargli sano (*senna angustifolia* del.) o‘simligini yetishtirish bo‘yich ma’lumotlar keltirilgan.

Respublikada so‘nggi yillarda dorivor o‘simliklarni muhofaza qilish, tabiiy resurslardan oqilona foydalanish, dorivor o‘simliklar yetishtiriladigan plantatsiyalar tashkil etish va ularni qayta ishlash borasida izchil islohotlar amalga oshirilmoqda.

⁵ O‘zbekiston Respublikasi Prezidentining 2020 yil 10 apreldagi “Yovvoyi holda o‘sovchi dorivor o‘simliklarni muhofaza qilish, madaniy holda yetishtirish, qayta ishlash va mavjud resurslardan oqilona foydalanish chora-tadbirlari to‘g‘risida”gi PQ-4670-son qarori

Mahalliy floraga mansub 4,3 mingdan ortiq o‘simliklarning 750 ta turi dorivor hisoblanib, ulardan 112 ta turi ilmiy tibbiyotda foydalanish uchun ro‘yxatga olingan, shundan 70 ta turi farmasevtika sanoatida faol qo‘llanib kelinmoqda. 2019-yilda 48 mln AQSh dollari qiymatidagi qayta ishlangan dorivor o‘simliklardan olingan mahsulotlar eksport qilingan.

Shu bilan birga, tahlillar dorivor o‘simliklarni muhofaza qilish, ularning plantatsiyalarini tashkil etish, qayta ishlash orqali qo‘shimcha qiymat zanjirini yaratish zarurligini ko‘rsatmoqda.

O‘zbekiston Respublikasi Prezidentining 2022-yil 20-maydagi “Dorivor o‘simliklarni madaniy holda yetishtirish va qayta ishlash hamda davolashda ulardan keng foydalanishni tashkil etish chora-tadbirlari to‘g‘risida” PQ-251-son qarorida dorivor o‘simliklar bozori konyunkturasini o‘rganishni tashkillashtirish, aholi va sog‘liqni saqlash muassasalarining dorivor o‘simliklar mahsulotlari bilan ta‘minlanganlik holatini tizimli tahlil qilish va ishlab chiqarishni mahalliyashtirish bo‘yicha takliflarni ishlab chiqish va dorivor o‘simliklar va ulardan ishlab chiqarilgan mahsulotlarning tibbiy ahamiyati hamda ularni qo‘llashga oid maxsus ko‘rsatuvlar va rolklarni muntazam namoyish etilishini tashkil qilish, dorivor o‘simliklarga oid ilmiy ishlanmalarni tijoratlashtirishda ko‘maklashish, dorivor o‘simlikshunoslik tarmog‘iga ilg‘or xorijiy amaliyot va xalqaro standartlarni tatbiq etish bo‘yicha ishlarni muvofiqlashtirish, dorivor o‘simliklar mahsulotlari ishlab chiqaruvchi korxonalar talabini tahlil qilgan holda har yili Qishloq xo‘jaligi vazirligiga dorivor o‘simliklar yetishtirish hajmlari to‘g‘risida taklif kiritish vazifasi berilgan.

Dorivor o‘simliklar xom ashyosini tayyorlash asosan O‘zbekiston Respublikasining Qishloq va suv xo‘jaligi vazirligining O‘rmon xo‘jaligi Bosh boshqarmasi qoshidagi “Shifobaxsh” ishlab chiqarish birlashmasiga, dehqon va fermer xo‘jaliklariga farmqo‘mita tarkibiga kirgan farmasevtika korxonalariga

Respublikamizda sug‘oriladigan yerlarda dorivor o‘simliklarni yetishtirish uchun Toshkent, Samarqand, Buxoro, Qashqadaryo, Surxondaryo va Namangan viloyatlarida maxsus xo‘jaliklar tashkil qilingan.

Shunday o‘simliklardan biri o‘tkir bargli sanno - *Senna angustifolia* Del. o‘simligi butun dunyo xalqlari orasida xalq tabobatida dorivor o‘simlik sifatida keng foydalanib kelinmoqda.

O‘tkir bargli sanno yarim bo‘ta o‘simligi bo‘lib, asosan urug‘idan ko‘paytiriladi. O‘simlikni ekishdan oldin yerni kuzda 25-28 sm qilib haydaladi. Haydashdan oldin gektariga 20-25 tonna go‘ng va 50 kg (sof xolda) dan superfosfat o‘g‘iti beriladi, va obi tobiga yetishi uchun qishki tinim davrini o‘taydiyu Tajriba tiziim bo‘yichaerta baxorda yer tekislab barona qilinadi. Tajriba tiziim bo‘yicha baxorda sannoni urug‘idan ekish variantlari bo‘lganligi uchun 22aprel kuni qator orasi 60 sm bo‘lgan egatlar olindi va pushtalarga urug‘lar ekildi.

Sanno o‘simligi urug‘idan ko‘payadi. 1000 dona urug‘ vazni 25-35 gr. Unib chiqish qobiliyati 80-95 %, ammo vaqt o‘tgan sari unuvchanligi pasayib boradi. Yaxshi pishib yetilmagan urug‘lar tez unuvchanligini yo‘qotadi.

Sanno urug‘i unib chiqishi uchun havo harorati 18-20⁰S ni tashkil etishi kerak. Urug‘lar ekilgandan so‘ng 6-20 kunda unib chiqadi. Unib chiqqan o‘simliklar juda ham sekin o‘sadi va rivojlanadi. G‘unchalash o‘simlik unib chiqqanidan 2,5-3 oydan so‘ng kuzatiladi. Vegetatsiya davri dastlabki sovuqqacha (-1⁰S) davom etadi. Lekin bunday sovuqqacha qolgan xom-ashyo: barg va urug‘ o‘zining sifatini yo‘qotadi.

Sanno o‘simligi yengil va o‘rtacha og‘irlikdagi unumdor tuproqlarda yaxshi o‘sib rivojlanadi. Namlik yuqori va aeratsiyasi yomon bo‘lgan tuproqlarga ekish tavsiya etilmaydi. Chunki ildiz sistemasi yaxshi rivojlanmaydi va zamburug‘ kasalliklariga tez chalinadi. Shuning uchun sanno o‘simligi ekiladigan joy tashlama tizimi chuqur (1,2-1,5 m) bo‘lishi, sizot suvlari kamida 1,2-1,8 chuqurlikda bo‘lishi talab etiladi.

Sanno o‘simligi ekishdan oldin issiq suvda (30⁰S) 6-8 soat ivitiladi. Ivigan urug‘lar ekish uchun yaroqli hisoblanadi. Ivimagan urug‘larni qumga aralashtirib 30 minut davomida urug‘ po‘sti shikastlantiriladi. Buning uchun qumga aralashgan urug‘ tekis taxta yoki polga yoyilib qattiq buyum yoki brezent qo‘lqop bilan ishqalanadi. So‘ngra issiq suvda (30⁰) 8-10 soat ivitiladi, ushbu vaqt mobaynida issiq suv 2 marta almashtiriladi. Ivitilayotganda urug‘lar qopning 1/3 qismigacha solinishi kerak.

Urug‘lar ivitiligidan so‘ng oqava suvda 2-3 kun qoldiriladi. Urug‘larning unishi boshlanishi bilanoq darhol ekishga kirishiladi. Bizning sharoitda ekish muddati aprel oyining ikkinchi yarmidan, tuproq yaxshi qizib olgandan so‘ng, 10-15 kun hisoblanadi. Eng kechki muddat may oyining 5-10 kunlari hisoblanadi. Maydonning katta kichikligiga qarab qo‘l kuchi va seyalka yordamida ekiladi. Urug‘ ekishdan oldin quritiladi. Agar urug‘ seyalkada (g‘o‘za chigiti ekadigan) ekilsa, gektar hisobiga 8 kg sarflanadi. Urug‘lar 2-3 sm chuqurlikda ekiladi. Urug‘larning unuvchanligi 56-60% ni tashkil etadi. Qator oralig‘i sug‘oriladigan yerlarda 60-70 sm, lalmi yerlarda 50-60 sm. Ekilgandan so‘ng zudlik bilan zaxlatib sug‘oriladi.

Nihollarning unib chiqishi 5-6 kunda boshlanadi. Agar unib chiqish kechiksa, qayta sug‘oriladi. Unib chiqqan maysalar ikkinchi chinbarg chiqargandan so‘ng, 20-25 sm.da har bir uyada 2-3 donadan qilib yagona qilinadi. Ikkinchi yagonada 10-15 kundan so‘ng 40-50 sm.da bittadan o‘simlik qoldiriladi. Yagona qilish bilan bir vaqtda, qator oralari yumshatiladi. Tuproqni zichlashuviga olib keladigan har bir tadbirdan so‘ng, qator oralarini 8-12 sm chuqurlikda yumshatiladi. Sug‘oriladigan joylarda kamida 5 marta kultivatsiya qilinadi.

Ikki marta mineral o‘g‘itlar bilan oziqlantiriladi. Birinchi oziqlantirishda - shoxlanish boshlanganda gektar hisobiga 30 kg azotli, 20 kg fosforli o‘g‘itlar solinadi. Ikkinchi oziqlantirishda - gullash boshlanganda, gektar hisobiga 20 kg azotli, 30 kg fosforli o‘g‘itlar solinadi. Sanno o‘simligidan barg xom-ashyosini

olish uchun 7-8 marta sug'orilsa, urug' olish uchun 5-6 marta sug'orish maqsadga muvofiq.

Sano o'simligi bargidan xom-ashyo tayyorlanadigan maydonlarda chekanka ishlari olib boriladi. Chekanka har 15-20 kunda olib borilib o'simlikni gullashga qo'yilmaydi. Har bir chekanka 1-2 kundan oshmasligi kerak.

Sanodandan yuqori hosil yetishtirish uchun erta bahorda tuproqning yuqori qatlamini urug' yaxshi ko'miladigan, normal unib chiqishi va rivojlanishi uchun qulay sharoit yaratiladigan qilib yumshatish, havoalmashinishini yaxshilash, pastki qatlamlardan uruqqa nam kelishini ta'minlash va begona o'tlarni yo'qotishga qaratish kerak bo'ldi.

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SANO O‘SIMLIGINING QURUQ MASSA VA URUG‘ HOSILDORLIGI

Annotatsiya. Maqolada senna angustifolia ning quruq massa va urug‘ hosildorligi haqida ma’lumotlar keltirib o‘tilgan.

Kalit so‘zlar: sano o‘simligi, quruq massa, urug‘ hosildorligi, o‘sishi va rivojlanishi

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MEDICINAL USES OF SENNA ANGUSTIFOLIA

Abstract. The article provides information on dry mass and seed yield of senna angustifolia.

Key words: sano plant, dry mass, seed yield, growth and development

O‘zbekiston Respublikasida dorivor o‘simliklarning urug‘chiligi yangi soxa bo‘lib, uning bir qancha o‘ziga xos xususiyatlari mavjud, jumladan hozirgacha Respublikamiz sharoitida o‘stiriladigan sano o‘simliklari asosan chet mamlakatlardan keltirilgan bo‘lib, bu sharoitga moslashmagan hamda ularning biologik, ekologik xususiyatlari yetarlicha ilmiy jihatdan o‘rganilmagan, bulardan tapqari sanno dorivor o‘simligi bizning o‘ta keskin kontinental iklim sharoitimizda urug‘ berishi yoki sifatli urug‘ olinishi bo‘yicha ham yetarlicha tadqiqotlar o‘tkazilmagan(1-jadval).

1-jadval

Urug‘lik sano dorivor o‘simligining o‘sishi va rivojlanishi

| T/r | Ekish usuli | To‘planish davrida | | Gullash davri davrida | | Pishish davrida |
|-----|-------------------|--------------------|-----------|-----------------------|-----------|-----------------|
| | | Bo‘yi sm | Poyasi sm | Bo‘yi sm | Poyasi sm | Poyasi sm |
| 1 | Urug‘idan ekish | 9 | 4 | 27 | 13 | 30 |
| 2 | Ko‘chatidan ekish | 15 | 9 | 35 | 23 | 38 |
| 3 | Urug‘idan ekish | 12 | 7 | 30 | 18 | 38 |
| 4 | Ko‘chatidan ekish | 21 | 11 | 38 | 25 | 40 |

Bizning ilmiy tadqiqot ishimizda birinchi marta O'zbekiston sharoitida yaratilgan dorivor sanno o'simligining xarxil variantlar urug'chiligi bo'yicha tadqiqotlar o'tkazilib, urug' yetishtirish uchun o'tkaziladigan agrotexnologik tadbirlari ya'ni urug'lik uchun ekilgan sanno o'simliginingo'suv fazalari bo'yicha zarur bo'lgan agrotadbirlar, urug'ni vujudga kelish jarayoni, pishib yetilish va yigishtirib olish muddatlari, urug'ni kuritish, tozalash, saklash va urug'larni sifat ko'rsatkichlarini aniklash kabi masalalar o'rganildi.

Tajribada o'rganilgan sanno o'simligining urug' hosildorligini aniklash uchun tajribaning har bir varianti va takrorlanishlaridan 1 m² maydon ajratib olindi va undagi urug'lar ko'lda yigishtirib olindi xamda uning og'irligi o'lchandi. Sanno o'simligining urug'hosildorligi 14.-jadvalda keltirilgan. Ushbu jadval ma'lumotlarining ko'rsatishicha sanno o'simligining urug' xosildorligiga ekish usullari va sanno o'simligining biologik xususiyatlari katta ta'sir ko'rsatar ekan. Tajribada o'rganilgan ikkala sanno o'simligida ham ko'chatidan ekilganda urug'idan ekishga nisbatan yukori urug'hosili olish mumkinligi aniklandi. Bunda Birinchi variant o'rtacha 1,58 kg/ga, ikkinchi variantda esa 1,97 kg/ga urug' olindi. Shu navlar erta bahorda ko'chatidan ekilganda o'rtacha 2,45 va 2,59 kg/ga urug' hosili yig'ishtirib olindi. O'rganilgan sano o'simligining urug'lik hosili o'zaro takkoslanganda Birinchi variantga nisbatan Ikkinchi variantning urug' hosili ikkala ekish usulida ham 0,20-0,33kg/ga yuqori bo'lganligi kayd kilindi. Bunday holat ikkinchi variantningagrotexnik tadbirlarga va biologik xususiyatiga bog'liq bo'lib, bu navning urug'lari nisbatan katta, tuk va serurug'li bo'ladi. ikkinchi variantningurug'lari esa juda mayda bo'lganligi uchun uning umumiy urug'hosili ham kamdir. Sanno o'simligining urug'hosilini aniklab shunday xulosa kilish mumkinki, tajriba maydonida urug' olish uchun ekilgan sanno o'simliklarini yetishtirish agrotexnologik tadbirlari birinchi varianta urug'idan ekilganda 1,58 kg/ga, ko'chatidan ekilganda 1,97kg/ga, Ikkinchi variantdaurug'idan ekilganda 2,4 kg/ga, ko'chatidan ekilganda esa 2,59 kg/ga hosil olinishini ta'minladi. Sano dorivor o'simligi dorivorlik xususiyatigi ega bo'lgan bargi va poyasidan foydalaniladi shuning uchun bu o'simlikning bargi va poyalari 15-20 sm qoldirib o'rib olinadi. Tajribada dorivor sanno o'simligini ko'k massasini aniqlash uchun xar bir variantdagi mavjud 10 ta o'simlik va to'rtta takrorlanishda gi jami 40 ta o'simliklarni may iyun avgust oylari davomida (1-2-o'rim shaklida o'rib olib) tarozida tortish yo'li bilan aniqlab boriladi. Hosilni aniqlashda har bir o'simlik poyalaridagi butunlar soni 7-10 ta bo'lganda malga oshiriladi. Jadval malumotlari shuni ko'rsatadiki, sanno dorivor o'simligining tajriba sharoitida eng ko'p to'rtinchi variantda baxorda ko'chatidan ekilgan xolatda yuqori bo'ldi 101 s/ga shundan 1-o'rimda 84,35 s/ga, 2-o'rimda 16,65 s/ga, kuzda ko'chatidan ekilgan variantda esa bu xolat 95,9 s/ga., baxorda urug'idan ekilgan variantda 80 s/ga kuzda urug'idan ekilgan variantida esa 75 s/ga hosil olindi olingan xosilning 70 %dan yuqori qismi 1-o'rimda 30% ga yaqin qismi 2-o'rimda olindi

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SURXONDARYO VILOYATINING SUV RESURSLARI VA ULARDAN FOYDALANISH MASALALARI

Annotatsiya: Ushbu maqolada Surxondaryoning daryolari, soylari, kanallari hamda mamlakatimizning suv manbalari kabi tabiiy boyliklar bo'yicha ma'lumotlar berilgan. Shuningdek, iqlimi quruq, sug'orma dehqonchilikka asoslangan o'lkamiz uchun daryolarning sug'orishdagi ahamiyati naqadar kattaligi haqida ilmiy ma'lumotlar berib o'tilgan.

Kalit so'zlar: Suv ombori, yog'in mavsumi, suvdan foydalanish, namlik koeffitsiyenti, daryolarning to'yinishi, yaxob suvining ahamiyati.

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Abstract: This article provides information on natural resources such as rivers, streams, canals and water sources of the country. Also, scientific information was given about the importance of rivers in irrigation for our country, which has a dry climate and is based on irrigated agriculture.

Key words: Reservoir, rainy season, water use, moisture coefficient, saturation of rivers, importance of groundwater.

Kirish. Daryolarning ahamiyati va suvni toza saqlash.

Surxondaryo viloyati hududidan oqib o'tadigan suv havzalari, jumladan, daryolar, soylar, kanallar, anhorlar va ariqlar viloyatimiz qishloq xo'jaligida foydalaniladigan, sug'orib dehqonchilik qiladigan yerlarni sug'orishda, yuzlab sanoat korxonalarini suv bilan ta'minlashda, shahar va qishloqlarimizdagi ijtimoiy sohalarni hamda viloyatning 2821,9 ming kishi aholisining suvga bo'lgan ehtiyojini qondirishda muhim ahamiyatga egadir.

Viloyatda qishloq xo'jaligi yerlarining umumiy maydoni 276 399 gektarni tashkil etadi. Umumiy ekin maydoni – 237 471 gektar. Bu maydonlarni sug'orish uchun jami 150,4 mln.m³ suv sarflanadi. Qishloq xo'jaligi uchun olinayotgan suvning 80% sug'orish uchun sarflansa, qolgan 20% tuproq sho'rini yuvishga ishlatiladi. Viloyatning Sho'rchi, Angor hamda Termiz tumanlarida sho'r va sho'rxok tuproqlar mavjud bo'lib, bu tuproqlarni yaxob suvi berish orqali sho'rlarini yuvib, undan so'ng ekin ekiladi. Sug'orishga sarflanayotgan suvning 20-25 % zovur drenaj orqali tabiiy holda sizib qaytarma suvlar sifatida zaharli

kimyoviy moddalar va mineral o'g'itlar bilan ifloslanib, tabiiy havzalarga qo'shiladi yoki sug'oriladigan hududlardan tashqariga chiqarib tashlanadi.

Viloyatimizda mavjud daryo va kanallar sanoat tarmoqlarini va maishiy kommunal xo'jaligini suv bilan ta'minlaydi. Bu sohalarga daryo va kanallarni 2 – 2,5 % suvi sarflanadi. Shu sarflangan suvning 85% ifloslangan yoki qisman tozalangan holda yana tabiiy o'zanlarga qo'shib ketadi.

Surxondaryo havzasi hududida bunyod etilgan magistral kanallar va suv omborlari Surxondaryo viloyati tumanlarining xalq xo'jaligini barqaror rivojlanishida katta ahamiyat kasb etadi. Ana shunga qat'iy e'tibor qilingan holda Surxondaryo vodiysida barcha ekin maydonlarini suv bilan ta'minlaydigan Amu-Surxon irrigatsiya tizimlari havza boshqarmasi tashkil etilgan. Mazkur boshqarma uchta yirik sug'orish irrigatsiya sistemasi va bitta magistral tizimdan tarkib topgan.

Birinchisi To'palang-Qoratog' irrigatsiya sistemasi bo'lib u asosan, Surxondaryo daryosining bosh irmoqlari bo'lgan To'palang va Qoratog' daryolaridan suv oladi. Irrigatsiya sistemasi suv yo'llarining uzunligi 804 km ni tashkil etadi. Bu sistema Surxondaryo vohasining shimoliy qismidagi barcha ekin maydonlarini suv bilan ta'minlaydi.

Ikkinchi irrigatsiya sistemasi Surxon-Sherobod irrigatsiya sistemasi deb ataladi. Uning suv yo'llarining uzunligi 445 km ga teng.

Uchinchi sistema Amu-Zang irrigatsiya sistemasi. Mazkur sistema asosan Amudaryodan suv olib, Surxondaryo vohasining janubiy qismidagi ekin maydonlarini suv bilan ta'minlaydi.

Yuqorida nomlari zikr etilgan uchala irrigatsiya sistemasi suv tanqisligi sodir bo'lgan paytlarda ham bir-birini suv bilan ta'minlashga yordam beradigan va o'zaro chambarchas bog'langan holda tashkil etilgan. Suv olish va suv berish borasida uchala irrigatsion sistema ham Surxondaryo vodiysidagi eng katta suv ombori Janubiy Surxon suv ombori bilan bog'liqdir. To'palang – Qoratog' irrigatsiya sistemasidagi daryolar Janubiy Surxon suv omboriga suvni shimol tomondan, ya'ni tabiiy nishablik yo'li bilan yetkazib beradi.

Tog' oldi va tog'li tumanlarimizdan faqatgin Sariosiyo tumanida baliqchilik rivojlangan Qolgan tumanlardagi baliqchilik xo'jaliklari tekisliklardagi ko'llarda va suniy suv havzalarida hosil qilingan, vaholanki hududdan uzunligi 20 kilometrdan ortiq bo'lgan 35 ta daryo oqib o'tadi. Bulardan Surxondaryo va uning irmoqlari: To'palang, Qoratog', Sangardak, Xo'jaipok, Oqqopchig'ay daryolari va Sheraboddaryo yiriklari hisoblanadi. To'palangdaryo va Qoratog' daryolari Hisor tizmasining 4000 metrdan baland qismidan boshlanib qor va muzlik suvlaridan to'yinadi. Qariyb yillik oqimining 60 % Mart-Aprel oylarida oqib o'tadi. Bu daryolar orasida To'palang daryoning irmoqlari ko'pligi bilan ajralib turadi bularga: Oybeksuv, Xovatsoy, Kishtutsoy, Dashnobod, Shartut, Chosh, Balandsoy, Zarcho'psoy, Zevarsoy, Qoratog'daryoning Oqtoshsoy va Shirkent kabi irmoqlari bor. Yuqoridagi daryolardan boshqa O'rtasoy, Shotrud, Cham, Bodomiston, Og'ashayton, Sharg'un, Xursanddaryo, Qag'ni, Darasoy,

Malangur, Panjob ,Gazak, Laylakonsoy, Sholqon, Maydon, Xanjarsoy, Ajarsoy kabi daryo va soylar mavjud. Sheraboddaryo va boshqa aksariyat daryolar 2000 mertgacha bo‘lgan tog‘lardan boshlanadi va mavsumiy qor va yomg‘ir suvlardan to‘yinadi. Daryolarda suv miqdorining ortishi fevral oyidan boshlanadi. May-iyun oylarida maksimal suv sarfi ortadi. Viloyatda sug‘oriladigan hududlarni kengaytirish maqsadida ko‘plab kanal va suv omborlari barpo e‘tilgan. Daryolarnig suvlari zich kanallar orqali sug‘orishga sarflanadi. To‘palang daryoda: Hazarbog‘, To‘palang – Qoratog‘, Haydarobod, Surxondaryoda, Zang, Qumqo‘rg‘on, Kakaydi, kanallari qurilgan. Viloyatda Janubiy Surxon, Uchqizil, Degrez, To‘palang, Oqtepa suv omborlari mavjud. To‘palang suv ombori Surxondaryo viloyatining 10 ta tumanini suv bilan ta‘minlaydi. Birgina Denov tumanidan Surxondaryo, To‘palangdaryo, Sangardak, Qizilsuv daryolari, Hazorbog‘, Oy-barak kanallari, Dayto‘lak, Denov ariqlari oqib o‘tadi.

Amu-Zang irrigatsiya sistemasi ham Janubiy Surxon suv omborini suv bilan ta‘minlab turadi. Biroq Amudaryo o‘zani Janubiy Surxon suv omboridan ancha past bo‘lganligi sababli uning suvini keltirish katta miqdorda mablag‘ talab qilish yo‘li bilan amalga oshiriladi. Suv omboriga janub tomondan 90 km uzunlikdagi Amudaryo suvini uch joyda o‘rnatilgan nasos stansiyalari yordamida yuqori ko‘tarib kanallarga tashlab yetkazib beradi. Surxon-Sherobod Janubiy Surxon suv omboridan suv oladi. Sherobod nasos stansiyasi Sherobod magistral kanaliga Shu yerdan suv chiqarib beradi va bu kanal Surxon-Sherobod cho‘llarida o‘zlashtirilgan yerlarni va ekin maydonlarini suv bilan ta‘minlaydi.

Ma‘lumotlardan ko‘rinib turibdiki, Surxondaryo havzasida mavjud bo‘lgan har uchala irrigatsiya sistemasini bir-biriga bog‘laydigan manba vodiyning markaziy qismida joylashgan Janubiy Surxon suv ombori hisoblanadi. Janubiy Surxon suv ombori va u orqali butun Surxondaryo havzasidagi irrigatsiya sistemalarini har tomonlama qo‘llab-quvvatlay oladigan bosh manba bo‘lib To‘palang suv ombori xizmat qiladi. Janubiy Surxon suv ombori O‘zbekistonning eng yirik sun‘iy dengizlaridan biri hisoblanadi. U Surxondaryo havzasining o‘rta qismida, Sho‘rchi va Jarqo‘rg‘on tumanlari hududida 1962-yilda bunyod etilgan. Janubiy Surxon suv omborining to‘g‘oni Surxondaryoning o‘rta oqimida, daryo vodiysining eng tor yerida, mutlaq balandligi 390 m ga teng bo‘lgan joyda qurilgan. Suv ombori qurilmasdan oldin bu yerda Zarkamar – Xo‘jamulki to‘qayzori mavjud bo‘lgan.

Janubiy Surxon suv omborida baliqchilikni rivojlantirish ham yaxshi yo‘lga qo‘yilgan. Bu yerda mahalliy zog‘ora baliq, tillabaliq, laqqa baliqlardan tashqari boshqa joylardan keltirilgan karp, tostolobik kabi baliqlar ham urchitilib ko‘paytirilmoqda va ko‘plab ovlanib, aholini baliq go‘shiti bilan ta‘minlamoqda. O‘zbekiston Respublikasining eng janubiy issiq subtropik rayonlaridan biri bo‘lgan Surxondaryo havzasi hududida Janubiy Surxon suv omborining bunyod etilishi bu joyning mikroiklimining o‘zgarishiga sabab bo‘ldi. Suv omborining tevarak atrofi aholining sevimli dam olish joyiga aylandi. Suv ombori atrofiga 20 ming tupdan ko‘proq manzarali va mevali daraxtlar ekilib, yashil zonalar tashkil

etilgan. Bu Janubiy Surxon suv omborining rekreatsion ahamiyatining kattaligidan dalolat beradi. Suv ombori atrofida shahar va qishloq seliteb landshaftlari ham barpo etilgan. Bunga Qumqo‘rg‘on shaharchasi, Yangiyer va Xo‘jamulki qishloqlari, Gagarin nomidagi posyolka misol bo‘la oladi.

Surxondaryo havzasining janubiy qismida, Surxondaryo vodiysining o‘ng sohilida joylashgan Kattaqum cho‘li yaqinida, tektonik jarayon tufayli vujudga kelgan cho‘kmada Uchqizil suv ombori qurilib ishga tushirilgan. Buning natijasida Termiz tumani hududidagi qumoq va gilli cho‘l landshaftlari o‘zlashtirilib, ularning o‘rnida madaniy landshaftlar bunyod etildi.

GESlarning energetik ahamiyati ham katta. To‘palang GES da viloyatning elektr energiyaga bo‘lgan ehtiyojini ma’lum darajada qondiradi. Viloyatda bir yilda, jumladan, 2023 – yilda, 467 mln kvt/soat elektr energiya ishlab chiqargan bo‘lib, bu energiya asosan sanoat korxonalarini va aholini energiya bilan ta’minlashga sarflanadi.

So‘nggi vaqtlarda viloyatimizdagi sug‘oriladigan yerlarning meliorativ holatini yaxshilash maqsadida zovur – drenaj suvlari miqdorining ko‘payishi, ishlab chiqarish korxonalaridan, maishiy tarmoqlaridan, transport va sog‘lomlashtirish tashkilotlardan, ayniqsa, aholi xo‘jaliklaridan chiqayotgan iflos-oqova suvlar miqdorining ortib ketishi, ularning daryo va kanallarga oqizilishi tufayli katta suv havzalari suvining tabiiy holati buzilib, ifloslanib bormoqda bu esa o‘z navbatida suvdan foydalanish muammolarini keltirib chiqarmoqda.

Daryo suvlarining ifloslanishi oqibatida suvning tabiiy holati buzilib, yashil suv o‘tlarining, baliqlarning va boshqa suvda yashaydigan jonivorlarning kamayib ketilishiga, sug‘oriladigan yerlardagi ekinlarning yaxshi rivojlanishiga, ularning hosildorligiga va oqibatda kishilar salomatligiga salbiy ta’sir ko‘rsatmoqda.

Daryolar, soylar, kanal va anhorlar ham hududning katta boyligi hisoblanadi. Shuning uchun bu suv havzalari suvlarini toza saqlash, ulardan oqilona foydalanish muhim ahamiyatga ega. Suvni toza saqlash uchun eng avvalo ekin dalalaridan chiqayotgan zovur-drenaj suvlarini tabiiy suv havzalariga oqizmaslik, zovur-drenaj suvlarini ma’lum havzaga yig‘ib, uni zararsizlantirib keyin toza suvlarga qo‘shish maqsadga muvofiq.

Qishloq xo‘jaligi ekinlarini kimyoviy zaharlar bilan kamroq dorilab, qishloq xo‘jaligi zararkunundalariga biologik usul bilan qarshi kurashishni joriy qilish hamda zavod va fabrikalardan, maishiy xizmat ko‘rsatish korxonalaridan chiqayotgan iflos oqova suvlarni suz tozalash qurilmalarida tozalab, undan so‘ng suv havzalariga tashlashga erishish zarur.

Xulosa. Xulosa qilib aytganda Surxondaryo havzasida bunyod etilgan magistral kanallar va suv omborlari viloyat iqtisodiyotining barqaror rivojlanishida katta ahamiyat kasb etmoqda. Surxondaryo havzasi doirasida suv muammosi yechimini topish maqsadida amalga oshirib kelinayotgan tadbirlar va barpo etilgan irrigatsion inshootlar daryo va soylar oqimini tartibga solib suv

rejimini mumkin qadar maqsadga muvofiq o'zgartirdi, undan vegetatsiya davrida qishloq xo'jalik ekin maydonlarini sug'orishda keng va me'yoriy ravishda taqsimlash hamda foydalanish uchun qulay imkoniyatlar yaratib berdi.

Janubiy Surxon suv omborining qurilishi munosabati bilan Surxondaryo havzasidagi umumiy ekin maydonining yarmidan ko'pi yetarli darajada suv bilan ta'minlandi. Suv omborining qurilib ishga tushirilishi natijasida Qiziriq-Sherobod cho'lida 71 ming gektardan ortiqroq yerlar o'zlashtirilib, qishloq xo'jaligi tasarrufiga kiritildi. Bundan tashqari ilgari foydalanib kelinayotgan 52 ming gektar yerning suv ta'minotini yaxshilash imkonini berdi. Yangidan o'zlashtirilgan yerlarda ingichka tolali paxta, don ekinlari, mevali bog'lar, uzum, sabzavotlar, poliz ekinlari ekilib, katta miqdorda qishloq xo'jaligi mahsulotlari yetishtirilmoqda.

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STEAM TA'LIM TAMOYILLARI VA ULARNI MAKTABLARDA QO'LLASH

***Annotatsiya.** Ushbu maqolada O'quvchilarning bilim faolligini oshirish, mustaqillik rolini oshirish hamda kreativ fikrlash qobiliyatini oshirishda STEAM texnologiyalarini o'quv jarayonida qo'llashning xususiyatlari va afzalliklari keltirilgan bo'lib, ushbu texnologiyani zamonaviy maktabda qo'llashning muhim jihatlari belgilab berilgan.*

***Kalit so'zlar:** STEAM, Ta'limdagi samarali o'qitish metodi, o'quv jarayoni, ta'lim dasturi.*

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PRINCIPLES OF STEAM EDUCATION AND THEIR APPLICATION IN SCHOOLS

***Abstract.** This article presents the features and advantages of using STEAM technologies in the educational process to increase students' knowledge activity, increase the role of independence, and increase the ability to think creatively, and the important aspects of using this technology in a modern school are defined.*

***Keywords:** STEAM, effective teaching method in education, educational process, educational program*

STEAM - bu tanqidiy fikrlash, tadqiqot qobiliyatlari va guruhda ishlash ko'nikmalarini rivojlantirish vositasi sifatida bir nechta fan yo'nalishlarini birlashtirgan yangi ta'lim texnologiyasi. Ushbu yo'nalishlar zamonaviy dunyoda eng mashhur bo'lib kelayotganini unutmang. Shuning uchun bugungi kunda STEAM tizimi asosiy tendentsiyalardan biri sifatida rivojlanmoqda. STEAM ta'limi yo'nalishi va amaliy yondashuvni qo'llash, Shuningdek, barcha beshta

sohani yagona ta'lim tizimiga integratsiyalashuviga asoslangan. Ilm-fan va san'atni birlashtirish zarurati XI asr matematiklari va o'qituvchilari kabi mutafakkirlar tomonidan yozilgan. Deyarli barcha ixtirochilar va olimlar ham musiqachilar, rassomlar, yozuvchilar yoki shoirlar edilar: Galiley shoir va adabiyotshunos edi, Eynshteyn skripka chaldi, Morse portret rassomi edi va hokazo, ya'ni miyaning o'ng yarmi bilan bog'liq amallar. STEAM o'quv dasturi o'quvchilarni fanlararo va amaliy yondashuv yordamida o'qitish g'oyasiga asoslangan. STEAM beshta fanning har birini alohida-alohida o'rganish o'rniga, ularni bitta ta'lim yo'liga birlashtiradi. STEM ta'limi ilmiy metodlardan, texnik qo'llanmalardan, matematik modellashtirishdan, muhandislik dizaynidan foydalanishga imkon beradi. 21-asr o'quvchisining innovatsion tafakkurini, ko'nikmalarini shakllantirishga olib keladi. STEAM ta'lim muhitida bolalar bilimga ega bo'ladilar va darhol undan foydalanishni o'rganadilar. Shuning uchun, ular o'sib ulg'ayganlarida va hayotiy muammolarga duch kelganda, atrof muhitning ifloslanishi yoki global iqlim o'zgarishi bo'ladimi, bunday murakkab masalalarni faqat turli sohalardagi bilimlarga tayanib va birgalikda ishlash orqali hal qilish mumkinligini tushunadilar. Bu erda faqat bitta mavzu bo'yicha bilimga tayanish etarli emas. Ta'limga ushbu yangi yondashuv qanday paydo bo'ldi? Bu nazariya va amaliyotni birlashtirishning mantiqiy natijasidir. STEAM Amerikada ishlab chiqilgan. Ba'zi maktablar bitiruvchilarning martabalarini e'tiborga olishdi va fan, texnologiya, muhandislik va matematika kabi fanlarni birlashtirishga qaror qilishdi va STEM tizimi shu tarzda shakllandi. (Fan, texnika, muhandislik va matematika). Keyinchalik bu erda Art qo'shildi va endi STEAM oxirigacha shakllandi. O'qituvchilar ushbu mavzular, aniqrog'i ushbu fanlardan bilimlar kelajakda talabalarning yuqori malakali mutaxassis bo'lib etishishiga yordam beradi, deb hisoblashadi. Oxir oqibat, bolalar yaxshi bilim olishga intilishadi va uni darhol amalda qo'llashadi. STEAM yondaShuvining asosiy g'oyasi Shundan iboratki, amaliyot nazariy bilim kabi muhim ahamiyatga ega. Ovqatlanish uchun, o'rganish paytida men nafaqat miyam bilan, balki qo'llarim bilan ham ishlashim kerak. Stenaks sinfida o'qishni o'rganish tez o'zgaruvchan dunyo bilan hamqadam emas. STEAMning asosiy farqi Shundaki, bu erda bolalar mavzulardagi fikrlarni muvaffaqiyatli o'rganish uchun o'zlarining fikrlari va qo'llaridan foydalanadilar. Ular olgan bilimlarni o'zlari "chiqarib tashlaydilar"[1].

Zamonaviy dunyoda texnologiya, san'at, fan va muhandislik tafakkurisiz tasavvur qilib bo'lmaydigan narsalar tobora bir-biriga yaqinlashib, bir-biriga zid bo'lishni to'xtatmoqda. Hamkorlik va ijodiy qobiliyatlarni namoyon qilish qobiliyati, har qanday faoliyat turida o'z bayonotining ma'nosini boshqalarga eng tushunarli, vizual shaklda yetkazish qobiliyati hayot davomida rivojlanishi kerak bo'lgan muhim qobiliyatlar qatorida birinchi o'rinda turadi [2].

Bilish jarayoniga beriluvchanlik, o'rganilayotgan mavzuga ilmiy qiziqish, orzu qilish, tasavvur qilish, axborotni tanqidiy tahlil qilish va o'z fikriga ega bo'lish, irodani tarbiyalash kabi fazilatlarni rivojlantirish. va sa'y-harakatlarini uzoq vaqt davomida taqsimlash qobiliyati ham zamonaviy ta'limning dolzarb

muammosidir. O'rganish, tajriba qilish, empatiya, xatolarni xotirjam boshdan kechirish va barqarorlikni yo'qotmasdan qayta urinib ko'rish qobiliyati, o'z fikrlari va g'oyalarini boshqalarga etkazish qobiliyati (o'zini yoki mazmunini taqdim etish) o'quv natijalari sifatida muhim o'quv natijalari sifatida ko'rib chiqilishi kerak [3].

STEAM - bu bir nechta fan sohalarini birlashtirgan ta'lim texnologiyasi. Bu tanqidiy fikrlash, tadqiqot qobiliyatlari va guruhda ishlash ko'nikmalarini rivojlantirish vositasidir.

STEM so'zi ingliz 4 so'zning bosh harflaridan tashkil topgan abreviatura bo'lib, unda:

S – Science –Fan

T – Technology – Texnologiya

E – Engineering –Muhandislik

A – Art – San'at

M – Mathematics – Matematika kabi fanlarning qo'shilishidan kelib chiqqan bo'lib, Ushbu yondashuv bilan maktab o'quvchilari faoliyatining mazmuni san'at va eng yangi axborot texnologiyalaridan foydalanishga bag'ishlangan muhim ijodiy komponentga asoslanadi[2,3]. O'quvchilar o'zlarini eng ko'p ilhomlantiradigan, o'zini namoyon qilish vositalarini tanlashlari, umumiy tushunchani ishlab chiqishlari va uni to'liq amalga oshirishlari, ta'lim jarayonida boshidan oxirigacha uni amalga oshirish texnikasini o'zlashtirishlari kerak. Shunday qilib, o'quvchilar ijod jarayonining ijodiy jihatlarining to'laqonliligi va ahamiyatini anglay oladilar, san'atdagi turli yo'llar va usullar bilan tanishadilar, hamkorlikdagi ijodiy faoliyatda chinakam ishtirok etadilar.

Loyihani ishga tushirishga tayyorgarlik bosqichi STEAM laboratoriyasiga mas'ul o'qituvchi tomonidan ilmiy muammoni shakllantirish edi. Loyihaga kirish va uning doirasida harakat qilish uchun o'quvchi o'zi ega bo'lgan bilimlarini qo'llashi yoki yangi fanlararo bilimlarga ega bo'lishi, qiziqish ko'rsatishi, maqsadlarga erishishda qat'iyatli bo'lishi, o'z ishini rejalashtira olishi va a'zolar bilan kerakli o'zaro munosabatlarni amalga oshirishi kerak edi.

STEAM ta'lim muhitida bolalar bilimga ega bo'ladilar va darhol undan foydalanishni o'rganadilar. Shuning uchun, ular o'sib ulg'ayganlarida va hayotiy muammolarga duch kelganida, atrof muhitning ifloslanishi yoki global iqlim o'zgarishi bo'ladimi, bunday murakkab masalalarni faqat turli sohalardagi bilimlarga tayanib va birgalikda ishlash orqali hal qilish mumkinligini tushunadilar. Bu yerda faqat bitta mavzu bo'yicha bilimga tayanish yetarli emas.

Ta'lim tizimida sinf - dars tizimidan loyihaviy faoliyatga tomon o'tish, fundamental bilimlarni funksional bilimlarga ko'chirish, ularni amaliyotda faol qo'llash jarayoni orqali fanlar integratsiyasi, muammolar yechimining yangicha yo'llarni izlash, lozim topilsa, kashf etishga yo'naltirilgan kabi vazifalarni qo'ydi.

Masalan biologiya fanida an'anaviy dars o'tish tizimi orqali moddalarni hujayraga ta'siri og'izaki va yozma tarzda o'rganilib yod olinsa, STEAM ta'lim

tizmi orqali o'rganilganda esa moddalarni sintez qilish bilan bir qatorda ularni amalda tirik organizmda sinab ko'rishga imkon yaratiladi.

Bundan tashqari STEAMni afzalligini ko'rishimiz mumkin an'anaviy darsda suvni fizik biologik kimyoviy xususiyatlarini chizish yozish ta'riflash orqali tushuntirilsa STEAMda esa suvni suniy sintez qilish orqali o'quvchilar uning to'laligicha xususiyatlarni ta'riflay oladilar.

Olib borilgan kuzatishlarimizdan xulosa qilishish mumkinki, ushbu texnologiya qo'llanilganda o'quvchilardan jamoada ishlash talab qilinib, bu jamoa a'zolari o'rtasidagi konstruktiv o'zaro munosabatlarni qo'llab-quvvatlaydi, ishtirokchilarni bir-birining fikrini hurmat qilishga o'rgatadi, ularni bahslashish va yechim topish, bir-birining kuchli tomonlaridan qanday foydalanishni o'rgatadi. Ular o'zlarining murakkab muammolarini hal qilish uchun ko'pincha nostandart va muayyan guruh va muayyan loyiha uchun noyob bo'lgan yechimlarni izlashga harakat qiladilar.

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O'SIMLIKLARDA FOTOSINTEZ MAVZUSIGA OID MASALALAR YECHISH METODIKASI

***Annotatsiya:** Ushbu maqola talabalarni "O'simlik barglarida organik moddalarning hosil bo'lishi" mavzusida olgan nazariy bilimlarni mustahkamlashda asos bo'ladi. Bundan tashqari o'quvchilarda ma'lum qonuniyatlar va algoritmik izchillik orqali biologik masala va mashqlarning to'liq idrok etishlari va biologiya fanining matematika, fizika va kimyo fanlari bilan integratsiyasi amalga oshishi bo'yicha tavsiyalar berilgan.*

***Kalit so'zlar:** biologik masala, integratsiya, fotosintez, xlorofill, xloroplast, yorug'lik energiyasi, ATF energiyasi, mitoxondriya, glukoza, fotoliz, simbioz, fosforlanish.*

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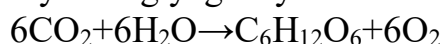
METHODOLOGY FOR SOLVING PROBLEMS ON THE SUBJECT OF PHOTOSYNTHESIS IN PLANTS

***Abstract:** This article serves as a basis for students to strengthen their theoretical knowledge on the topic "Formation of organic matter in plant leaves". In addition, there are recommendations on how students can fully understand biological problems and exercises through certain laws and algorithmic consistency, and how to integrate biology with mathematics, physics, and chemistry.*

***Key words:** biological matter, integration, photosynthesis, chlorophyll, chloroplast, light energy, ATF energy, mitochondria, glucose, photolysis, symbiosis, phosphorylation.*

Soʻnggi yillarda mamlakatimizda amalga oshirilayotgan islohotlar natijasida ulkan biologik oʻsish koʻrsatkichlariga erishilayotganligi barcha sohalarda malakali kadrlar va yetuk mutaxassislariga boʻlgan talabni yanada oshirmoqda. Bu oʻz-oʻzidan oʻquvchilarimizning darslarga qiziqish xususiyatini oshirish va oʻqituvchilarning har tomonlama taʼlim-tarbiyaga eʼtiborini kuchaytirishni talab etadi. Yuqoridagi talablarning taʼlim tizimi uchun juda muhim ekanligi, aksariyat xorijiy davlatlardagi kabi taʼlim va fan sohalari rivojlanishini baholash va monitoring qilish orqali taʼlim sifatini oshirishga qaratilgan ilgʻor tajribalarni sohaga jalb qilish kerakligini anglatadi. Bilim olish jarayonida aksariyat talabalar fanning nazariy qismini oʻrganib, u bilan bogʻliq masala ishlash metodikasini keyinroq oʻrganaman deydi. Bu albatta notoʻgʻri qaror. Bugungi kunda biologiya fanidan berilayotgan masalalar koʻpchilikni oʻylantirib qoʻymoqda. Bunday biologik masalalarni yechish oʻquvchilarda maʼlum qonuniyat va algoritmik izchillik orqali masala-mashqlarni mazmun-mohiyatini toʻliq idrok etishni talab etadi. Bundan tashqari biologiyani matematika bilan integratsiyasi amalga oshadi. Bunday murakkab masalalarni yechishni oʻrganish har bir oʻquvchi va oʻqituvchidan qoʻshimcha shugʻullanishni va matematik 1 va 2 nomaʼlumli tenglamalarni bilish va proporsiya tuza olish qisqacha qilib aytganda, kitobda oʻqigan nazariyasiga tayanib berilgan masalani ishlay olish kerak. Shunday oʻquvchilar borki, ular kitobni nazariy va amaliy (mashqlar bajarish, masala yechish) qismini teng olib ketadi. Shunday ekan oʻqituvchilar ham dars davomida biologik masalalar qismini oʻquvchilarga xar bir darsda sharxlab ketishi kerak. Chunki, oʻquvchi ham kirish imtixonida tushgan masalalarni nazariya bilimiga asoslanib yechishi kerak. Oʻquv fanini oʻzlashtirilganlik darajasi nafaqat nazariy bilimlar bilan balki, olingan bilimlarni turli xil sharoitlarda qoʻllay olish orqali ham belgilanadi. Agar oʻquvchi matematikadan masala yechishni bilmasa, bu uni matematikani bilmasligini koʻrsatadi. Hatto u barcha teorema va qonunlarni bilsa ham. Afsuski, koʻpchilik bu biologiya uchun ham taalluqli ekanligini tushunib yetmaydi. Biologiyadan masalalar yechish oʻquvchilarning ilmiy dunyoqarashini, mantiqiy fikrlashlarini, barcha biologiya kursidan olgan bilimlarini mustahkamlash va rivojlantirish imkonini beradi.

Quyosh nuri taʼsirida oʻsimliklarning yashil qismida karbonat angidrid bilan suvdan murakkab organik birikmalar hosil boʻlishi **fotosintez** deyiladi. Fototrof organizmlarga xlorofill pigmentiga ega organizmlar, yashil oʻsimliklar, lishayniklar va ayrim bakteriyalar kiradi. Yashil oʻsimliklar hujayrasidagi xloroplastlarda toʻplangan xlorofill pigmenti yordamida yorugʻlik energiyasi kimyoviy energiyaga aylanadi. Uning qisqacha reaksiyasini yozamiz



Lekin bu juda koʻp bosqichli jarayon va bir qancha bosqichlarda amalga oshadi. Hamda yuqoridagi kabi bitta emas balki bir qancha reaksiyani oʻz ichiga oladi. Masala ishlashda odatda quyidagi reaksiyalarni bilish kifoya qiladi.

Ammo mashqlarni ishlashda va reaksiyalarni yodda saqlashda fotosintez ximimizni bilish zarur. Ularni ko'rib chiqamiz:

Fotosintez ikki bosqichda amalga oshadi:

| 1. Yorug'lik bosqichi; | 2. Qorong'ulik bosqichi. |
|--|--|
| xloroplastning tillakoidlarida kechadi | xloroplastning stromasida kechadi. |
| Faqat quyosh nuri tasirida yorug'likda sodir bo'ladi shuning uchun yorug'lik fazasi deyiladi | Bu reaksiyalar borish uchun yorug'lik kerak emas. Kechayu kunduz amalga oshadi |
| Energiyani quyosh nuridan oladi | Energiyani yorug'lik bosqichida hosil bo'lgan ATF energiyasidan oladi.(reaksiyada aniq ko'rsatilgan) |

FOTOSINTEZGA DOIR MASALA VA MASHQLAR

Masalalarga o'tishdan avval o'quvchi quyidagi mashqni bajarisi kerak bo'ladi. Jadvaldagi bo'sh kataklarni mavjud kalit raqamga qarab to'ldirish talab etiladi. Xar bir qatorda bitta fotosintez reaksiyasi amalga oshirilgan.

1-jadval. Bo'sh kataklarni to'ldiring

| CO ₂ molekulasi soni | Qancha molekula sarflangan | ATF | Qancha molekula (C ₆ H ₁₂ O ₆) bo'lgan | shakar hosil | Qancha gramm (C ₆ H ₁₂ O ₆) bo'lgan | shakar hosil |
|------------------------------------|----------------------------------|-----|---|-----------------|--|-----------------|
| 6 | | | | | | |
| | 36 | | | | | |
| | 90 | | 5 | | 540 | |
| | | | 10 | | | |
| | 108 | | | | | |
| 120 | | | | | | |

Fotosintezga doir oddiy masalalar

- 660 g glukoza sintezlanishi uchun sarflanadigan ATF energiyasi miqdorini (kJ) aniqlang.
- Fotoliz natijasida 144 g suv parchalangan bo'lsa, fotosintezning kunduzgi (a) va kechqurungi (b) bosqichida hosil bo'lgan suv miqdorini (g) aniqlang.
- O'simlik bargida fotoliz jarayonidan so'ng 20 ta gidroksil ionlari hosil bo'ldi. Hosil bo'lgan vodorod ionlari qorong'ilik fazasiga yo'naltirilsa, shu fazada glukozadan tashqari qancha (mol) fosfat kislota (I) hamda dastlabki fotoliz jarayonidan so'ng yana necha (mol) suv (II) hosil bo'lishini aniqlang.
- O'simlik bargida fotoliz jarayonidan so'ng yana 180 gr suv hosil bo'ldi. Hosil bo'lgan vodorod ionlari qorong'ilik fazasiga yo'naltirilsa, shu fazada glukozadan tashqari qancha (mol) fosfat kislota hosil bo'ladi?
- Fotosintez jarayonida birlamchi uglevod hosil bo'lishi uchun C manbaini aniqlang.

6. Fotosintez jarayonida birlamchi uglevod hosil bo'lishi uchun H_2 manbaini aniqlang.
7. Fotosintez jarayonida 12 mol organik birikma H_2 ishtirok etgan bo'lsa fotoliz jarayonida necha molekula H_2O dissotsiyalanadi?
8. Fotosintez jarayonida 18 mol organik birikma H_2 ishtirok etgan bo'lsa fotoliz jarayonida necha molekula H_2O dissotsiyalanadi?
9. Fotosintezni qorong'lik bosqichini reaksiyalarida 36 molekula ATF ishtirok etgan bo'lsa, Glyukoza sintezi uchun necha molekula CO_2 biriktirilgan?
10. Fotosintezni qorong'lik bosqichini reaksiyalarida 54 molekula ATF ishtirok bo'lsa, Glyukoza sintezi uchun necha molekula CO_2 ketgan?

Xulosa. O'simliklarning fotosintez jarayoni yer yuzida quyosh energiyasini organik birikmalarning kimyoviy energiyasiga aylantiruvchi birdan-bir vosita hisoblanadi. Fotosintez jarayonini o'rganish qishloq xo'jalik ekinlaridan mo'l hosil olishga ham imkon yaratadi. Ammo buni masala va mashqlar orqali o'rganish o'quvchida kompetensiyani oshirib, ularni fanga nisbatan qiziqish uyg'otishga sabab bo'ladi.

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G'O'ZANING BARG SATHI MAYDONI VA QURUQ MASSA TO'PLASHI

***Annotatsiya.** Maqolada g'o'za navlarining bir o'simlikdagi barg sathlarini o'zgarish dinamikasini o'rganish natijalari va quruq massaning hosil bo'lishini o'rganish natijalari keltirilgan*

***Kalit so'zlar:** g'o'za navlari, barg sathi, uruq massa, ko'chatlar soni, biomassa, variant.*

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LEAF SURFACE AREA AND DRY MASS ACCUMULATION OF COTTON

***Abstract.** The article presents the results of the study of the dynamics of changes in the leaf levels in one plant of cotton varieties and the results of the study of the formation of dry mass.*

***Keywords.** cotton varieties, leaf level, seed mass, number of seedlings, biomass, variant.*

Fotosintez- quyosh nuri ta'sirida o'simliklar bargida kechadigan fiziologik jarayon bo'lib, quyosh nuri ta'sirida anorganik moddalardan organik moddalarni sintez qilinadi. Natijada ekinlarni o'sish va rivojlanishi jadallashadi, hosildorligi oshib, sifati yaxshilanadi.

Fotosintez jadalligi bargning anatomik tuzilishi, ferment sistemasining faolligi va boshqa omillarga bog'liq. Fotosintez jadalligini oshirishda o'simliklar selektsiyasining ham ahamiyati katta. Chunki SO₂ ni tez o'zlashtira oladigan va hosil bo'lgan organik moddadan samarali foydalanadigan yangi g'o'za navlarini yaratish selektsioner olimlar oldidagi dolzarb vazifalardan biridir.

Ekinlarning fotosintetik faoliyatiga tashqi muhit keskin ta'sir ko'rsatadi. Fotosintetik faoliyatining ko'rsatkichlari bu barg soni, barg sathi maydoni, quruq massa to'plashi va fotosintez mahsuldorligidir.

Barg sathi maydoni ko'chat qalinligiga bevosita bog'liq bo'lib, bu ko'rsatkichlar gektar hisobiga chiqarilganda o'z aksini topadi. Ya'ni bitta o'simlik hisobida barg sathi ko'chat kam qoldirilgan maydonlarda yuqori bo'lgan bo'lsa,

gektar hisobiga chiqarilganda aksincha ko'chat ko'proq qoldirilgan maydonlarda barg sathining yuqori bo'lganligi kuzatildi [6; 17-18-b.]

Ekinlarning hosildorligi fotosintez jarayonida hosil bo'ladigan organik moddalar evaziga shakllanadi. Bitta o'simlikdagi barg sathi maydonining qay darajada rivojlanishi oziqlanish maydoniga bog'liqdir. Har bir pagonometr ga o'simlik barobar taqsimlanishi - bu o'simliklarni optimal joylashtirish demakdir. A. V. Nichiprovichning fikricha, o'simliklar fotosintezini tartibga tushirish uchun ularning barg sistemasini erta muddatlarda tez o'sishini ta'minlash lozim. Iloji bo'lsa ertapishar navlar yoki barg plastinkasining o'sishini ta'minlaydigan sharoit yaratib berish kerak, buning uchun yorug'lik, issiqlik, namlik, karbonat angidrid gazi, kislorod, oziq elementlari yetarli darajada bo'lishi lozim. Shundagina fotosintez mahsuldorligi ikki marta ortadi.

Ekinlardan mo'l hosil olish uchun yuqori assimilyatsiya yuzasiga ega bo'lgan barglarni yetishtirish kerak. Chunki, barg sathi yuqori bo'lsa, o'simlikda fotosintez yaxshi bo'ladi va natijada fotosintez mahsuldorligi ortadi. Olib borilgan tajribalarda ham barg sathi maydoniga ko'chat qalinligi va chilpish usullarini ta'siri o'rganildi.

G'o'zaning barg sathi maydoni o'simlik rivojining shonalash, gullash, hosil to'plash va pishish davrlarida aniqlandi. Shonalash davrida bir tup o'simlikda barg sathi maydoni o'rta tolali g'o'za navida 448,0-537,6 sm²; ingichka tolali g'o'za navida 449,5-510,0 sm² bo'lib, har ikkala navda ham bir tup o'simlikda ko'chat soni ortishi bilan barg soni va shunga mos holda barg sathi maydoni ham kamayib borgan. O'simlik rivojining hosil to'plash davrida bir tup o'simlikda o'rta tolalilarda - barg sathi maydoni 2208,4- 2728,3 sm² bo'lsa, ingichka tolalilarda esa 2057,9-2227,7 sm² bo'lib, ko'chat soni ortishi bilan barg sathi maydoni bir tup o'simlikda kamayib borgan. Ammo, gektar hisobida hisoblaganimizda ko'chat soni ortishi bilan barg sathi maydoni ham oshib boradi.

O'simlik rivojining pishish davrida barg sathi maydonining o'zgarishiga ko'chat qalinligining ta'siri o'rganilganda variantlar o'rtasida farqlar kuzatilib, ko'chat soni oshishi bilan barg sathi maydoni bir tup o'simlikda kamroq bo'lishi hamda gektariga esa ko'chat soni hisobiga ko'proq bo'lishi kuzatildi. Masalan, o'rta tolali "Buxoro-102" g'o'za navida o'simlik rivojining pishish davriga kelib, bir tup g'o'zada barg sathi maydoni 2084,9-2658,7 sm² bo'lib, yuqori natija gektariga 90-100 ming tup ko'chat ekilgan variantlarda kuzatilib, ko'chat qalinligi ortishi bilan barg sathi maydoni kamayib borgan.

Barg sathi maydoni gektar hisobida aniqlanganda ko'chat soni hisobiga ko'payib g'o'za 110-120 ming tup/ga ekilganda 23225,8-26420,2 m²/ga bo'lib, gektariga 90-100 ming tup ko'chat bo'lgan variantlardan 1853,8-3099,0 m²/ga ko'p barg sathi maydoniga ega bo'lib, yuqori ko'rsatkich gektariga 110-120 ming tup ko'chat ekilgan variantlarda kuzatildi.

Ingichka tolali "Surxon-103" g'o'za navida ham yuqoridagi qonuniyatlar takrorlanib, barg sathi maydoni gektar hisobida aniqlanganda ko'chat soni hisobiga ko'payib g'o'za 140-150 ming tup/ga ekilganda pishish davrida 27560,5-

30873,3 m²/ga bo'lib, gektariga 120-130 ming tup ko'chat bo'lgan variantlardan 2072,9-3840,5 m²/ga ortiq barg sathi maydoniga ega bo'lib, o'rta tolalilarga nisbatan yuqori ko'rsatkichlarga ega bo'lgan.

Demak, ko'chat sonini oshishi bilan bir tup o'simlikdagi barg sathi maydoni kamaysada, ko'chat soni oshishi hisobiga gektariga hisoblaganda barg sathi maydoni ko'payadi.

G'o'za barg sathi maydoniga ko'chat qalinligi bilan birga chilpish usullarini ham ta'siri kuzatilib, chilpish o'tkazilgan variantlarda chilpish o'tkazilmagan variantlarga nisbatan barg sathi maydoni kamroq bo'lgan. Chilpish agrotexnik tadbiridan so'ng pishish davrida barg sathi maydoni aniqlanganda, o'rta tolali g'o'za navida 90-100 ming tup/ga ko'chat ekilganda bir tup o'simlikda barg sathi maydoni 2198,6-2658,7 sm² bo'lib, chilpish o'tkazilmaganda 2658,7 sm² bo'lsa, qo'lda chilpish o'tkazilganda 2286,8 sm² va kimyoviy chilpish o'tkazilganda 2198,6 sm² bo'lgan. G'o'zada Entojean qo'llanilganda g'o'za bo'yiga va yoniga o'sishdan to'xtashi natijasida barglar soni kamayishi hisobiga barg sathi maydoni kamaygan. Yuqori barg sathi maydoni chilpish o'tkazilmagan nazorat variantda 2658,7 sm²/o's bo'lib, chilpish o'tkazilmagani hisobida barglar soni ko'payishi hisobiga ortgan.

O'rta tolali "Buxoro-102" g'o'za navida ko'chat soni 110-120 ming tup /ga bo'lgan variantlarda ham chilpish o'tkazilmagan nazorat variantida barg sathi maydoni chilpish o'tkazilgan variantlardan ortiq ekanligi aniqlandi. Chilpish o'tkazilmagan variantda barg sathi maydoni bir tup o'simlikda 2380,2 sm² bo'lsa, Entojean qo'llanganda 2107,4 sm²/o's bo'lib, 272,8 sm² barg sathi maydoni ortiq bo'ldi.

Ingichka tolali "Surxon-103" g'o'za navida ham kuzatuvlar olib borilganda yuqoridagi qonuniyatlar takrorlanib, bir tup o'simlikda barglar soni kam bo'lishiga qaramasdan bir gektar hisobida barg sathi maydoni ko'chat qalinligi hisobiga barcha rivojlanish davrlarida ham o'rta tolalilarga nisbatan ko'proq bo'lganligi kuzatildi. G'o'za barg sathi maydoniga chilpish usullarini ham ta'siri kuzatilganda, gektariga 120-130 ming tup ko'chat ekilganda bir tup o'simlikda barg sathi maydoni 1957,1-2380,2 sm² bo'lib, bu navda ham g'o'zada chilpish o'tkazilmaganda yuqori natija olingan. Entojean qo'llanilganda barg sathi maydoni 1957,1 sm² bo'lib, chilpish o'tkazilmagan variantdan 423,1 sm² kam barg sathi maydoni hosil bo'lgan.

Foydalanilgan adabiyotlar:

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G'O'ZANING BIOMETRIK KO'RSATKICHLARI

***Annotatsiya.** Ushbu maqolada ingichka tolali g'o'za yetishtirish bo'yicha olib borilayotgan ilmiy tadqiqotlari natijalari keltirilgan. Istiqbolli navlarning biometrik va xosildirlik ko'rsatkichlari o'zaro taqqoslangan*

***Kalit so'zlar:** g'o'za navlari, biometrik ko'rsatkichlar, xosildirlik ko'rsatkichlari, entojean, 1000 dona chigit vazni*

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BIOMETRIC INDICATORS OF COTTON

***Abstract.** This article presents the results of scientific research on the cultivation of fine fiber cotton. Biometric and fertility indicators of promising varieties were compared.*

***Keywords.** Cotton varieties, biometric indicators, productivity indicators, entogene, 1000 seed weight*

So'nggi yillarda O'zbekiston Respublikasi hududida ekish uchun tavsiya etilgan qishloq xo'jalik ekinlari Davlat reestriga G. hirsutum L turiga mansub o'rta tolali g'o'za navlari bilan birgalikda G. barbadense L turiga mansub ingichka tolali g'o'za navlari ham kiritilmoqda. Xususan, Vazirlar Mahkamasining 2020 yil 30 yanvardagi 47-sonli qaroriga binoan ingichka tolali g'o'zaning "istiqbolli nav" sifatida ekib kelinayotgan navlarini ularning ishlab chiqarishdagi ko'rsatkichlaridan kelib chiqqan holda O'zbekiston Respublikasi hududida ekish uchun tavsiya qilingan qishloq xo'jaligi ekinlarining davlat reestriga kiritish belgilangan bo'lib, Qishloq xo'jalik ekinlari navlarini sinash markazining 27.12.2019 yildagi 41-sonli qarori bilan Surxon-14, Surxon-16, Surxon-103 navlari Surxondaryo viloyati bo'yicha Davlat reestriga kiritildi.

Bu esa o'z navbatida ingichka tolali navlar orasida ham raqobatning kuchayishiga, pirovard natijada esa hosildorlik, tola sifati, zararkunandalarga bardoshlilik singari qimmatli xo'jalik belgilarini o'zida mujassamlantirgan g'o'za navlari yaratilishiga asos bo'ladi.

G'ozaning bosh poyasi va monopodial shoxining o'sishini to'xtatish maqsadida o'sish nuqtasini yulib tashlash chilpish nomi bilan yuritilib, yuqori hosildorlikka erishishda o'ta muhim agrotexnik tadbirlardan biri hisoblanadi. Mazkur tadbir o'z muddatida va sifatli amalga oshirilganda hosil elementlarini to'kilishining oldi olinishi, to'liq ko'saklarning ko'proq shakllanishi va erta pishib yetilishi, paxta hosilining gektariga 3-4 sentnerga ortishi va tola sifatining yuqori bo'lishiga olib keladi. Ko'p yillik ilmiy tadqiqotlar asosida, O'zbekistonda 1939 yildan boshlab hukumatning maxsus qarori bilan chilpish g'ozaga agrotexnikasida bajarilishi lozim bo'lgan agrotadbir sifatida kiritilgan.

Chilpish o'z vaktida, to'g'ri va sifatli o'tkazilganda hosil elementlari kam to'kiladi, g'ozaning o'sishi va rivojlanishi 7-8 kundan 10 kungacha tezlashadi, 3-4 dona ko'prok ko'sak hosil bo'ladi, bitta ko'sak paxtasining vazni 0,3-0,5 g ortadi, hosildorlik 3-5 sentnerdan 8 sentnergacha oshadi, paxtani 1-2 terimda to'liq terib olish bilan birga tola sifati 25-30 foizga yaxshilanadi, chigit vazni xam ortadi, moydorligi 1-2 foizga oshadi, ko'sak qurti bilan zararlanishi 50-60 foizga kamayadi [6,8,9].

Ma'lumotlariga ko'ra, Respublikamizda Sojean, Entojean preparatlari g'ozaga vegetatsiyasi (shonalash, gullash, hosil tugish) davrida uch marta 15+45+90 g/ga me'yorda ishlov berilganda yoki g'ozada 12-13 hosil shoxi to'planganda 100-110 g/ga me'yorda, Dalpiks 1,0-1,5 l/ga, Piks 1,5-2,0 l/ga me'yorlarda g'ozani sug'orishdan 5-7 kun avval yoki keyin sepilganda qo'lda chilpishga hojat qolmaydi.

G'ozaga butun vegetatsiya davomida ko'plab hosil elementlarini to'plashi va gektaridan 150-200 s gacha hosil olish mumkin. Lekin, turli tabiiy va antropogen sabablarga ko'ra hosil elementlarini to'liq saqlab qolishning imkoniyati yo'q. F. Teshayev va boshqalar tomonidan hosil elementlarining to'kilishiga ko'chat qalinligi va chilpishni ta'siri o'rganilganda, O'zPITI-202 g'ozaga navida 100-110 ming tup/ga qoldirilgan fonda, eng kam hosil elementlari to'kilgan variant 13-14 hosil shoxlarida chilpish o'tkazilganda olinib bu 6,6% ni, chilpilmagan variantga nisbatan esa 7,1% ga kamroq to'kilgani aniqlangan.

Chilpishning kechiktirilishi, sifatsiz va e'tiborsizlik bilan chala o'tkazilishi yoki o'tkazmaslik oqibatida paxta hosili 20-25% kamayib, pishib yetilishi 10-15 kungacha kechikib, ko'saklari kichrayib, vazni ham kamayadi, g'ozaga serbarg bo'lib, barglar ko'payib hashoratlarni o'ziga ko'proq jalb etadi.

Paxtachilikda mahsulot hajmini ko'paytirish, sifatini yaxshilash ko'p jihatdan suv va mineral o'g'itlar bilan o'z vaqtida ta'minlash, g'ozani hosilga o'tkazish maqsadida maqbul muddatlarda chilpish o'tkazishga bog'liq. Sh. Raxmonov tajribasida g'ozani 14-15 hosil shoxida chilpish o'tkazilganda ko'saklar soni 11,1-12,2 donagacha bo'lib, yuqori natijalarga erishilgan.

Parvarishlanayotgan g'ozaga navlariga defoliantlarni qo'llashda g'ozada chilpish o'tkazish muddatlari va usullariga bog'liq holda ishlab chiqish muhim masala hisoblanadi. X. Abduraxmonov va boshqalar tavsiyasiga ko'ra, g'ozaga 13-

14 hosil shoxlaganda kimyoviy chilpish o'tkazilganda defoliantlar samaradorligi optimal darajada bo'ladi.

X. Egamov va boshqalarni ta'kidlashicha, "Andijon-35" navini chilpish muayyan maydondagi g'o'zaning ko'chat qalinligini hisobga olib o'tkazish kerak. Ko'chat qalinligi gektar hisobiga 80-90 ming tup bo'lganda bir tup o'simlikla 14-15 dona hosil shoxi, 90-100 ming tup bo'lganda 13-14 dona hosil shoxi, 100-120 ming tup bo'lganda esa 12-13 dona hosil shoxi paydo bo'lganda chilpish o'tkazish ma'qul bo'lib, g'o'zaning ushbu navi ilmiy tavsiyalarga rioya qilingan holda parvarishlansa gektaridan 40-45 sentner sifatli paxta hosili yetishtirish mumkin.

Bir ko'sakdagi paxta vazniga boshqa omillar qatori ko'chat qalinligini ta'siri aniqlanib, o'rta tolali "Buxoro-102" g'o'za navi gektariga 90-100 ming tup joylashtirilganda bir ko'sakdagi paxta vazni 1-terimda 5,0-5,9 g ga teng bo'lgan bo'lsa, ko'chat qalinligi 10-20 ming tup/ga ga oshirilganda 4,5-5,5 g bo'lib, 0,4-0,5 g gacha kamayganligi kuzatildi.

Bir ko'sakdagi paxta vazniga ko'chat qalinligi bilan bir qatorda chilpish usullarini ham ta'siri kuzatilganda, "Buxoro-102" g'o'za navi gektariga 90-100 ming tup qo'chat qalinligida turli chilpish usullarida parvarishlanganda, yuqori ko'rsatkich Entojean preparati bilan kimyoviy chilpish o'tkazilgan variantda 5,9 g ga teng bo'lib chilpish o'tkazilmagan nazorat variantdan 0,9 g hamda qo'lda chilpish o'tkazilgan variantdan 0,5 g gacha ko'p bo'ldi

Ingichka tolali "Surxon-103" g'o'za navi 120-130 ming tup/ga bo'lganda bir ko'sakdagi paxta vazni 3,2-3,6 hamda 140-150 ming tup/ga da 2,8-3,2 g bo'lib, ko'chat soni oshishi bilan 0,3-0,4 g gacha kamayib borgan. "Surxon-103" g'o'za navi gektariga 120-130 ming tup ko'chat fonida turli chilpish usullarida parvarishlanganda yuqori natija Entojean qo'llanilgan variantda (3,6 g) kuzatilgan.

O'rta tolali "Buxoro-102" g'o'za navida 1000 dona chigit vazni 3 yilda o'rtacha 118,7-122,4 g bo'lib, gektariga 90-100 ming tup ko'chat bo'lganda 120,6-122,4 g, 110-120 ming tup/ga ko'chat qalinligida 118,7-120,5 g bo'lib, ko'chat soni gektariga 10-20 ming tup/ga ga oshirilganda 1000 dona chigit vazni 1,9 g gacha kamaygan.

Ingichka tolali "Surxon-103" g'o'za navining 1000 dona chigit vazni 3 yilda o'rtacha 124,6-120,6 g bo'lib, o'rta tolali "Buxoro-102" navi 1000 dona chigit vaznidan 2,0-2,7 g gacha ko'p bo'ldi. Bu navda ham ko'chat soni oshishi bilan 1000 dona chigit vazni kamayib borishi kuzatilgan. Ingichka tolali "Surxon-103" navi gektariga 120-130 ming tup bo'lganda, 1000 dona chigit vazni 122,6-124,6 g bo'lib, chilpish o'tkazilmagan variantda 1000 dona chigit vazni 122,6 g, qo'lda chilpish o'tkazilganda 123,4 g va Entojean qo'llanganda nazorat variantiga nisbatan 2,0 ga ko'p bo'lib, 124,6 g ni tashkil etgan.

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KO'CHAT QALINLIGI HAMDA CHILPISH USULLARINI G'O'ZANING HOSILDORLIGIGA TA'SIRI

***Annotatsiya.** Ushbu maqolada ingichka tolali g'o'za navining hosildorlik ko'rsatkichlari o'rganilgan. G'ozaning hosildorlik koeffitsienti, hosil berish koeffitsienti va hosildorligi ko'rib chiqilgan.*

***Kalit so'zlar:** O'sishi, rivojlanish, g'oza o'simligi, ko'chat qalinligi, hosildorlik ko'rsatkichlari, hosildorlik koeffitsienti.*

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THE EFFECT OF SEEDLING THICKNESS AND WEEDING METHODS ON COTTON PRODUCTIVITY

***Abstract.** This article examines the yield indices of fine-fiber cotton varieties. The productivity coefficient, yield coefficient, and cotton yield are considered.*

***Keywords.** Growth, development, cotton plant, shoot thickness, yield indices, yield coefficient.*

Ma'lumotlariga ko'ra, paxta butun dunyoda daromad va kasb manbai hisoblanib, 100 ta davlatda 32 million gektar maydonda yetishtiriladi. O'tgan 60 yil davomida ekin maydoni o'zgarmasada, hosildorlik oshib borgan. 80 ga yaqin davlatda paxta yetishtirilib, jahon ekin maydonlarining atigi 2,5% ni tashkil qilgan. 2017-yil avgustidan 2018-yilning iyuliga qadar global paxta yetishtirish qiymati taxminan 50 milliard AQSh dollarini tashkil etgan[10].

N. Mahmudov tomonidan Andijon viloyati sharoitida "Sulton" va "O'zPITI-201" g'o'za navlarining hosil to'plash jarayonlariga ko'chat qalinliklarini ta'siri o'rganilganda, 90x12-1 ekish tizimida "Sulton" navi gektariga 95 ming tup, "O'zPITI-201" navi 110 ming tup/ga bo'lganda yuqori natijalar olingan.

I. Bo'riev, B. Tillabekovlar tomonidan Qashqadaryo viloyatining tipik bo'z tuproqlari sharoitida g'o'zaning o'rta tolali Namangan-77, Buxoro-6, S-6530 va Mehr navlari paxta tolasining texnologik xususiyatlariga ko'chat qalinliklarini ta'siri o'rganilganda, ko'chat qalinligi 90 ming tup/ga dan 120 ming tup/ga gacha

o'zgarishi bilan navlarni paxta tolasining texnologik xususiyatlariga ijobiy ta'sir etgani va tolani chiqishi biroz pasayganligi kuzatilgan. Shuningdek, I. Bo'riev [3] Namangan-77, Buxoro-6, S-6530 va Mehr navlaridan yuqori paxta hosili (36,8; 38,2; 37,4 va 38 s/ga) hamda sifatli tola olish uchun ko'chat qalinligi 120 ming tup/ga bo'lishini tavsiya etgan.

S. Rahmonqulov va boshqalar tomonidan olib borilgan tajribada tuproq namligi ChDNS ning 65-70-65% da sug'orilgan, ko'chat qalinligi 90-100 ming tup/ga bo'lgan variantlarda ko'chat qalinligi 120-130 ming tup/ga saqlangan variantlarga nisbatan paxta hosili 4,9-6,5 s/ga yuqori bo'lgan[6].

S. Boltaev va boshqalarning tadqiqotlarida "ST-1651" g'o'za navini sug'orish tizimi 0-2-0 da, ma'danli o'g'itlar me'yori N-230; R-160; K-115 kg/ga qo'llanilganda hosildorlik ko'chat qalinligi gektariga 80-90 ming tup bo'lganda 27,9 s/ga, gektariga 110-120 ming tup qoldirilganda esa 31,7 s/ga ni tashkil qilgan[7,4,8].

Qashqadaryo viloyati sharoitida T. Rajabov tomonidan olib borilgan tajribada "Buxoro-102" g'o'za navi turli sho'rlangan tuproqlarda parvarishlanganda ko'chat qalinligi o'rtacha sho'rlangan tuproqlarda 85,0-85,7 ming tup/ga; kuchsiz sho'rlanganda 81,3-82,8 ming tup/ga; o'rtacha sho'rlanganda esa 74,3-75,8 ming tup/ga bo'lib, amal davri oxirida sho'rlanishlar bo'yicha 1,2; 2,1 va 2,2 foizga kamayganligi kuzatilgan

I. Vasilchenkoning fikricha 108-F navi uchun 70 sm qator oralig'ida maqbul ko'chat qalinligi 100-120 ming tup/ga bo'lib, ko'chat sonining bu me'yordan oshishi o'simlikning rivojlanishiga salbiy ta'sir ko'rsatadi.

R. H. Peebles, G. T. Den Harton va boshqalarning tadqiqotlarida, AQSh ning sug'oriladigan maydonlarida paxta hosildorligi 100 sm qator oralig'ida uya orasi 5-15 sm bo'lganda uya orasi 30-41 sm bo'lganga nisbatan yuqori bo'lishi kuzatilgan.

Surxondaryo viloyatining taqir o'tloqi tuproqlari sharoitida 2018-2020 yillarda o'tkazilgan tajriba ma'lumotlariga ko'ra, o'rta tolali g'o'zaning ko'chat qalinligi nazariy ko'chat soni 90-100 ming tup/ga bo'lganda o'rtacha 95,7-96,0 ming tup/gani; 110-120 ming tup/ga bo'lganda o'rtacha 116,5-117,1 ming tup/gani; ingichka tolali g'o'zaning nazariy ko'chat soni 120-130 ming tup/ga bo'lganda o'rtacha 124,5-124,8 ming tup/gani; 140-150 ming tup/ga bo'lganda o'rtacha 146,7-146,9 ming tup/gani tashkil etdi. Variantlar bo'yicha ko'chat qalinligi bir-biridan sezilarli farq qilmadi.

G'o'zani yagona qilishdan boshlab paxta terimigacha bo'lgan davr mobaynida noqulay ob-havo sharoiti, zararkunanda va kasalliklarning ta'sirida hamda kultivatsiya va chopiq o'tkazish, egat olish vaqtida o'simlikning shikastlanishi natijasida g'o'za tuplari 3,5-5,5 ming tupgacha nobud bo'lishi aniqlangan. Amal davri oxirida olingan ma'lumotlarga ko'ra, o'rta tolali g'o'zaning ko'chat qalinligi o'rtacha 92,3-92,5 va 111,1-111,6 ming tup/gani, ingichka tolali g'o'zaning ko'chat qalinligi o'rtacha 120,6-120,9 va 141,6-141,9 ming tup/gani tashkil etib, amal davri boshiga nisbatan gektariga 3,5-5,5 ming

tupgacha kamayganligi kuzatildi. Amal davri oxiri ko'chat soni ko'proq bo'lgan variantlarda ko'chatlarning nobud bo'lishi biroz ko'proq bo'ldi.

Amal davri oxirida ko'chatlarni nobud bo'lishiga ko'chat qalinligini ta'siri kuzatilib, ko'chat soni oshib borishi bilan ko'chatni nobud bo'lishi ham 1,7-2,0 ming tupgacha oshib borishi kuzatildi. Ya'ni, o'rta tolali g'o'za navida nazariy ko'chat soni 90-100 ming tup/ga bo'lganda amal davri oxirida ko'chatlarni nobud bo'lishi gektariga 3,5-3,7 ming tup bo'lsa, nazariy ko'chat soni 110-120 ming tup/ga bo'lganda nobud bo'lgan ko'chatlar 5,3-5,5 ming tup/ga bo'lganligi kuzatildi.

Ingichka tolali g'o'za navida ham amal davri oxirida nobud bo'lgan ko'chat soni 3,9-5,2 ming tup/ga bo'lib, "Surxon-103" g'o'za navi nazariy ko'chat soni gektariga 120-130 ming tup bo'lganda nobud bo'lgan ko'chatlar soni 3,9-4,0 ming tup/ga bo'lgan holda ko'chat qalinligi gektariga 10-20 ming tupga oshirilishi bilan nobud bo'lgan ko'chatlar soni ham 1,0-1,3 ming tup/ga oshib 5,0-5,2 ming tup/ga ni tashkil etdi.

Demak, Surxondaryo viloyatining taqir o'tloqi tuproqlari sharoitida o'rta va ingichka tolali g'o'za navlari maqbul ko'chat qalinligida parvarishlanganda, g'o'zaning o'sish va rivojlanishi normal me'yorda bo'lishi, hashorat va kasalliklarga chidamliligi oshishi hisobiga amal davri oxirida ko'chatlarning nobud bo'lishi kamroq bo'lib mo'l paxta hosili olinadi.

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G'O'ZA O'SIMLIGINING O'SISH VA RIVOJLANISHI

Annotatsiya. Ushbu maqolada ingichka tolali g'o'za navining o'sishi va rivojlanishiga tashqi muhit omillarining ta'siri ko'rib chiqilgan.

Kalit so'zlar: O'sishi, rivojlanish, entojean, chigit ekish, g'oza o'simligi, ko'chat qalinligi

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GROWTH AND DEVELOPMENT OF THE COTTON PLANT

Abstract. This article examines the influence of external environmental factors on the growth and development of fine fiber cotton.

Keywords. Agrotechnical measures, herbivorous bugs, seed planting, cotton, seedling thickness.

O'zbekiston paxta yetishtirish bo'yicha dunyodagi yetakchi mamlakatlardan biri bo'lib, mamlakatimizda asosan ikki tur, o'rta tolali (*Gossipium hirsutum*) va ingichka tolali (*Gossipium barbadense*) g'o'za navlari yetishtiriladi. Ingichka tolali g'o'za navlari tola sifatining yuqori ekanligi bilan alohida xarakterlanadi. Biroq, ushbu turga mansub g'o'za navlari issiq iqlimga moslashgan bo'lib, O'zbekistonning faqatgina janubiy mintaqalarida yetishtirishning imkoni mavjud. Shuningdek, hosildorligi va tolasining chiqimi ham o'rta tolali g'o'za navlarinikiga nisbatan birmuncha past hisoblanadi. Dunyo paxta tolasini ulushining 95 foizdan yuqori qismini yetkazib beruvchi o'rta tolali g'o'za navlari o'zining hosildorligi, tola chiqimining yuqoriligi bilan boshqa tur g'o'za navlaridan ajralib turadi. Lekin, o'rta tolalilarda tola sifati ingichka tolaga nisbatan kalta, dag'alroq va mustahkamligi past bo'ladi[2].

Dunyoda ishlab chiqarilgan tolaning **9,41 mln** tonnasi eksport qilinsa, uning 38,2 foizi yoki **3,592 mln** tonnasi AQSh tomonidan eksport qilingan va paxta eksporti bo'yicha dunyoda birinchi o'rinni egallagan. Shuningdek AQShda ishlab chiqarilgan tolaning 82 foizi eksport qilinadi [1] .

Bugungi kunda dunyoning 84 ta mamlakatida 200 millionga yaqin aholi 32-33 million gektar yerga chigit ekib paxta yetishtirish va qayta ishlash bilan shug'ullanadi. O'zbekiston paxta yetishtirish bo'yicha dunyoda Xitoy, Hindiston,

AQSh, Pokiston va Braziliyadan keyin 6-o'ringa turadi. Avvallari paxta tolasini eksport qilish bo'yicha O'zbekiston AQSh va Hindistondan keyin uchinchi o'ringa turgan bo'lsa, keyingi yillarda paxtani o'zimizda qayta ishlash sanoati rivojlanayotgani sayin 6 o'ringa o'tdi [2,6].

Hozirgi kunda jahon paxta sanoatida tola sifatiga bo'lgan talab ortib bormoqda. Bu esa har bir g'o'za navlarining ko'chat qalinligi, sug'orish va oziqlantirish tartiblarini har bir mintaqa sharoitiga mos tadbiriq qilish dolzarb vazifa hisoblanadi.

A. Haydarov "Andijon-37" g'o'za navini suv va resurs tejovchi texnologiyaning muhim elementi hisoblangan 60x15-1 ekish tizimida plyonka ostiga chigit ekish bilan birga egatlarga shoffof plenka to'shab sug'orishda ko'chat qalinligini 95-100 ming tup/ga bo'lishi lozimligini tavsiya etgan[3].

X. Tursunov esa Andijon viloyatining och tusli bo'z tuproqlari sharoitida yangi "Andijon-37" g'o'za navidan yuqori va sifatli hosil olish uchun pushtaga chigitni yakka qator usulida ekilganda maqbul ko'chat qalinligini gektariga 113-114 ming tup, qo'shqator usulida ekilganda esa 144-145 ming tup qilib belgilashni tavsiya etgan[4].

S.X. Yo'ldoshevni ko'rsatishicha, ko'chat soni gektariga 114 ming tup bo'lganda yaxshi natijalar olingan bo'lib, ko'chat soni 171 ming/ga teng bo'lganda esa o'simliklar zich joylashgani va yotib qolgani natijasida hosildorlik kamaygan. Olingan ma'lumotlarga tayanib, sizot suvlari chuqur joylashgan tipik bo'z tuproqlarda o'rta tolali g'o'zalarning ko'chat soni 120-130 ming/ga bo'lishi kerak deb hisoblaganlar.

Olib borilgan tajriba natijalariga ko'ra, iyun oyining boshida olingan fenologik kuzatuvlarda variantlar o'rtasida sezilarli farq kuzatilmadi. O'simlik bo'yi ko'chat soni ortishi bilan 2-3 sm ga yuqori bo'lganligi kuzatildi. G'o'zada chilpish tadbiri o'tkazilganidan so'ng olingan natijalarda variantlar o'rtasida farqlar kuzatildi. Sentyabr oyida olingan fenologik kuzatuv natijalariga ko'ra, g'o'zaning o'rta tolali "Buxoro-102" navining bo'yi variantlar bo'yicha gektariga 90-100 ming tup ko'chat qalinligida 93,0-105,2 sm bo'lsa, 110-120 ming tup/ga esa 95,0-109,0 sm bo'lib ko'chat soni ortishi bilan 2,0-4,0 sm; chilpish o'tkazilmaganda esa 10,0-15,0 sm gacha yuqori bo'lishi kuzatildi.

G'o'zada ko'chat soni ortishi bilan bir tup o'simlikda hosil shoxlari 1,5-2,0 dona; hosil elementlari 1,3-1,7 dona; ko'saklar soni 1,3-2,2 dona va shu jumladan ochilgani 1,2-1,8 donagacha kamayganligi kuzatilgan bo'lsa, kimyoviy va qo'lda chilpish o'tkazilganda chilpish o'tkazilmagan variantga nisbatan hosil shoxi 0,8-1,3 dona; hosil elementlari 2,7-4,3 dona; ko'sak soni 2,5-4 dona va shu jumladan ochilgani 2,6-3,2 donagacha ko'p bo'lishi kuzatildi. Chilpish tadbiri qo'lda o'tkazilganiga nisbatan kimyoviy yo'l bilan o'tkazilganda hosil shoxi va elementlari, ko'saklar soni 2,0-2,5 donaga yuqori bo'ldi (3.2.1 – jadvalga qarang). G'o'zaning ingichka tolali "Surxon-103" navida ham yuqoridagi qonuniyat kuzatilib, olingan natijalar o'rta tolali g'o'za navidan biroz yuqoriroq chiqdi. Ya'ni, sentyabr oyi holatida o'simlik bo'yi variantlar bo'yicha gektariga 120-130

ming tup ko'chat qalinligida 95,0-110,2 sm bo'lsa, 140-150 ming tup/ga esa 100,6-115,0 sm bo'lib ko'chat soni ortishi bilan 5,0-6,0 sm; chilpish o'tkazilmaganda esa 11,0-15,0 sm gacha yuqori bo'lishi kuzatildi.

“Surxon-103” navida ko'chat soni gektariga 120-130 ming tupdan 140-150 ming tupgacha ortib borishi bilan bir tup o'simlikda hosil bo'g'inlari 1,0-2,0 dona; hosil elementlari 1,4-1,7 dona; ko'saklar soni 1,5-3,5 dona va shu jumladan ochilgani 2,0-3,0 donagacha kamayganligi kuzatilgan bo'lsa, kimyoviy va qo'lda chilpish o'tkazilganda chilpish o'tkazilmagan variantga nisbatan hosil bo'g'ini 0,3-1,6 dona; hosil elementlari 0,6-2,1 dona; ko'sak soni 2,7-4,5 dona va shu jumladan ochilgani 2,3-3,0 donagacha ko'p bo'lishi kuzatildi. Chilpish tadbiri qo'lda o'tkazilganiga nisbatan kimyoviy yo'l bilan o'tkazilganda hosil bo'g'ini va elementlari, ko'saklar soni 2,3-2,7 donaga yuqori bo'ldi.

Ma'lumki, Qandalalar g'o'za bargi va hosil elementlarini shirasini so'rib, ularni nobud bo'lishiga olib keladi. G'o'za qandala bilan zararlanganda barglari chirtak bo'lib teshilib qoladi, zararlangan hosil elementlari-shona, gul va ko'saklari esa to'kilib qoladi. Iyul oyida o'tkazilgan fenologik kuzatuvlarda hosil bo'lgan hosil elementlari bilan birgalikda to'kilgan hosil elementlari ham hisoblandi. Olingan natijalarga ko'ra, o'rta tolali “Buxoro-102” g'o'za navida 20,4-26,6 donagacha hosil elementlari hosil bo'lgan bo'lsa 5-9 dona hosil elementlari nobud bo'lib to'kilgan. Ingichka tolali “Surxon-103” g'o'za navida ham to'kilgan hosil elementlari hisoblanib, mos ravishda 6-8 dona ekanligi kuzatildi.

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MAQBUL KO'CHAT QALINLIGI MO'L HOSIL GAROVI

Annotatsiya: Maqolada yangi istiqbolli g'o'za navlaridan yuqori xosil olishda maqbul ko'chat qalinligining hosildorlikka ta'siri adabiyotlar taxlili misolida o'rganilgan.

Kalit so'zlar: Innovatsiyalar, ko'chat qalinligi, suv berish tartibi, o'g'it me'yorlari, agrotexnologiya, nav, shoxilanish tipi, vegetatsiya davri.

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ACCEPTABLE PLANT THICKNESS IS A GUARANTEE OF A PLENTY HARVEST

Annotation: The article examines the effect of optimal seedling thickness on yield in obtaining high yields from new promising cotton varieties using an analysis of the literature.

Keywords: Innovations, seedling thickness, watering regime, fertilizer rate, agrotechnology, variety, branching type, vegetation period.

Chigit ekishni maqbul muddatlarda, agrotexnik talablarga to'liq rioya qilgan holda o'tkazish, nihollarni tuproqning tabiiy namligiga undirib olish paykallarda sog'lom, bir tekis nihollar hosil qilishni ta'minlaydi hamda mo'l va sifatli hosil yetishtirishga puxta zamin tayyorlaydi.

Ko'chat qalinligi g'o'za hosildorligini belgilovchi asosiy omillardan biri hisoblanib, g'o'zaning navi, tuproq iqlim sharoitiga qarab joylashtirish maqsadga muvofiq hisoblanadi. G'o'zaning ko'chat soni va uni dalada joylashishi hosildorlikni ta'minlashda muhim ahamiyatga ega.

Har bir agrotadbirning natijasi olingan paxta hosili bilan belgilanadi. M. Avliyoqulov va F. G'opporovlar [1]ning tadqiqotlarida g'o'zaning "Sulton" navi 80-90 ming tup/ga ko'chat qalinligida 41,1 s/ga hamda 70-80 ming tup/ga qo'chat qalinligida 43,3 s/ga ni tashkil etib, "Sulton" g'o'za navi uchun 70-80 ming tup/ga ko'chat qalinligi maqbul ekanligi aniqlangan.

Surxondaryo viloyati och tusli bo'z tuproqlari sharoitida O. Boynazarov [2; 120 b.] g'o'zadan yuqori va sifatli paxta hosili olish uchun o'rta tolali Porloq-1

va yangi ingichka tolali ST-1651 g'o'za navlari uchun ko'chat qalinligini gektariga 110-120 ming tup bo'lishini tavsiya etgan.

R. Musaev [3; s. 22] va boshqalar o'z tadqiqotlarida o'simlik amal davri davomida oziqa moddalar bilan yaxshi ta'minlansa, maqbul ko'chat qalinligiga ega bo'lib, o'z vaqtida chilpish o'tkazilganda g'o'zalarda barg sathi yuzasi yuqori bo'lishi hisobiga g'o'zadan yuqori hosil olishni aniqlaganlar.

O'simlikxo'r qandalalar soni va g'o'za o'simligiga zararini o'rganishda ko'chat qalinligini ta'siri tajribada ilk bora o'rganilgan. Tajriba tizimiga muvofiq har xil ko'chat qalinligi (90-100; 110-120; 120-130 va 140-150 ming tup/ga) qoldirilganda qandalalar soni va zarari aniqlandi.

Surxondaryo viloyatining taqir o'tloqi tuproqlari sharoitida 2018-2020 yillarda o'tkazilgan tajriba ma'lumotlariga ko'ra, o'rta tolali g'o'zaning ko'chat qalinligi nazariy ko'chat soni 90-100 ming tup/ga bo'lganda o'rtacha 95,7-96,0 ming tup/gani; 110-120 ming tup/ga bo'lganda o'rtacha 116,5-117,1 ming tup/gani; ingichka tolali g'o'zaning nazariy ko'chat soni 120-130 ming tup/ga bo'lganda o'rtacha 124,5-124,8 ming tup/gani; 140-150 ming tup/ga bo'lganda o'rtacha 146,7-146,9 ming tup/gani tashkil etdi. Variantlar bo'yicha ko'chat qalinligi bir-biridan sezilarli farq qilmadi.

G'o'zani yagona qilishdan boshlab paxta terimigacha bo'lgan davr mobaynida noqulay ob-havo sharoiti, zararkunanda va kasalliklarning ta'sirida hamda kultivatsiya va chopiq o'tkazish, egat olish vaqtida o'simlikning shikastlanishi natijasida g'o'za tuplari 3,5-5,5 ming tupgacha nobud bo'lishi aniqlangan. Amal davri oxirida olingan ma'lumotlarga ko'ra, o'rta tolali g'o'zaning ko'chat qalinligi o'rtacha 92,3-92,5 va 111,1-111,6 ming tup/gani, ingichka tolali g'o'zaning ko'chat qalinligi o'rtacha 120,6-120,9 va 141,6-141,9 ming tup/gani tashkil etib, amal davri boshiga nisbatan gektariga 3,5-5,5 ming tupgacha kamayganligi kuzatildi. Amal davri oxiri ko'chat soni ko'proq bo'lgan variantlarda ko'chatlarning nobud bo'lishi biroz ko'proq bo'ldi.

Amal davri oxirida ko'chatlarni nobud bo'lishiga ko'chat qalinligini ta'siri kuzatilib, ko'chat soni oshib borishi bilan ko'chatni nobud bo'lishi ham 1,7-2,0 ming tupgacha oshib borishi kuzatildi. Ya'ni, o'rta tolali g'o'za navida nazariy ko'chat soni 90-100 ming tup/ga bo'lganda amal davri oxirida ko'chatlarni nobud bo'lishi gektariga 3,5-3,7 ming tup bo'lsa, nazariy ko'chat soni 110-120 ming tup/ga bo'lganda nobud bo'lgan ko'chatlar 5,3-5,5 ming tup/ga bo'lganligi kuzatildi.

Ingichka tolali g'o'za navida ham amal davri oxirida nobud bo'lgan ko'chat soni 3,9-5,2 ming tup/ga bo'lib, "Surxon-103" g'o'za navi nazariy ko'chat soni gektariga 120-130 ming tup bo'lganda nobud bo'lgan ko'chatlar soni 3,9-4,0 ming tup/ga bo'lgan holda ko'chat qalinligi gektariga 10-20 ming tupga oshirilishi bilan nobud bo'lgan ko'chatlar soni ham 1,0-1,3 ming tup/ga oshib 5,0-5,2 ming tup/ga ni tashkil etdi. Demak, Surxondaryo viloyatining taqir o'tloqi tuproqlari sharoitida o'rta va ingichka tolali g'o'za navlari maqbul ko'chat qalinligida parvarishlanganda, g'o'zaning o'sish va rivojlanishi normal me'yorda bo'lishi,

hashorat va kasalliklarga chidamliligi oshishi hisobiga amal davri oxirida ko'chatlarning nobud bo'lishi kamroq bo'lib mo'l paxta hosili olinadi.

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OZIQ-OVQAT MAHSULOTLARINI OZUQAVIY IMKONIYATINI OSHIRISH IMKONIYATLARI

Annotatsiya: Ushbu maqola oziq-ovqat mahsulotlarining ozuqaviy mavjudligini oshirish imkoniyatlarini o'rganadi, oziq-ovqatning ozuqaviy tarkibini oshirish uchun turli strategiya va yondashuvlarga e'tibor qaratadi. Bu qishloq xo'jaligi amaliyotini takomillashtirish, oziq-ovqat mahsulotlarini qayta ishlash texnikasini takomillashtirish, ovqatlanish bo'yicha ta'limni rivojlantirish va texnologik yutuqlarni qo'llashni o'z ichiga oladi. Maqsad oziq-ovqat mahsulotlarining ozuqaviy profilini yaxshilashning potentsial yo'llarini aniqlash va baholashdir.

Kalit so'zlar: Oziq moddalar mavjudligi, Oziq-ovqat, Imkoniyat, Qishloq xo'jaligi amaliyoti, Oziq-ovqat mahsulotlarini qayta ishlash usullari, Oziqlanish ta'limi, Texnologik yutuqlar, Oziq moddalar tarkibi, Barqaror oziq-ovqat tizimi.

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POSSIBILITIES OF INCREASING THE NUTRITIONAL VALUE OF FOOD PRODUCTS

Abstract: This article explores the possibilities of increasing the nutritional availability of foods, focusing on various strategies and approaches to increase the nutritional content of foods. This includes improving agricultural practices, improving food processing techniques, developing nutrition education, and applying technological advances. The goal is to identify and evaluate potential ways to improve the nutritional profile of foods.

Keywords: nutrient availability, food, opportunities, agricultural practices, food processing practices, nutrition education, technological advances, nutrient composition, sustainable food system.

Oziq-ovqat mahsulotlarining ozuqaviy imkoniyatlarini oshirish zamonaviy oziq-ovqat sanoatida dolzarb masala hisoblanadi. Ushbu maqolada oziq-ovqat mahsulotlarining ozuqaviy qiymatini oshirish bo'yicha turli usullar, texnologiyalar va yondashuvlar tahlil qilinadi. zuqaviy imkoniyatlarni oshirishning asosiy tamoyillari Ozuqaviy moddalar bilan boyitish Vitaminlar va minerallar qo'shish: Temir, yod, vitamin A, D va B guruhlaridagi vitaminlar kabi muhim ozuqa moddalarini oziq-ovqat mahsulotlariga qo'shish orqali

boyitish. Afzalliklari: Vitaminlar yetishmovchiligini kamaytirish, kamqonlik va boshqa kasalliklarni oldini olish. Misol: Non mahsulotlarini temir va foliy kislotasi bilan boyitish. Zaruriy yog' kislotalari va oqsillar bilan boyitish Omega-3 va omega-6 yog' kislotalari: Baliq yog'i yoki o'simlik yog'laridan olinadigan bu yog' kislotalari yurak-tomir tizimi uchun foydali bo'lib, oziq-ovqat mahsulotlariga qo'shilishi mumkin. Oqsil qo'shimchalari: Soya, no'xat yoki boshqa o'simliklardan olingan oqsillarni qo'shish orqali protein miqdorini oshirish. Misol: Oqsil bilan boyitilgan sut mahsulotlari yoki oqsilli yog'lar. Prebiotik va probiotiklar qo'shish Prebiotiklar: Organizmda foydali bakteriyalarning rivojlanishiga yordam beradigan moddalar. Prebiotiklar ichak mikroflorasini yaxshilaydi va immun tizimini mustahkamlaydi. Probiotiklar: Foydali mikroorganizmlar, ular fermentlangan oziq-ovqat mahsulotlariga qo'shiladi va organizmga turli sog'lom ta'sir ko'rsatadi. Misol: Probiotiklar bilan boyitilgan yogurtlar va ichimliklar. Oziq-ovqat mahsulotlarini qayta ishlash texnologiyalari orqali ozuqaviy qiymatni oshirish. Issiqlik bilan ishlov berishni optimallashtirish Kam haroratli pishirish: Ozuqa moddalari, ayniqsa, vitaminlar va minerallarni yo'qotmaslik uchun mahsulotlarni past haroratlarda pishirish. Yuqori bosimli ishlov berish (HPP): Mahsulotlarni termik ishlovsiz sterilizatsiya qilish usuli bo'lib, ozuqa moddalari saqlanib qoladi. Ilmiy tadqiqotlar va innovatsiyalar Ozuqaviy moddalarni saqlash va oshirish bo'yicha ilmiy izlanishlar yangi texnologiyalarni kashf qilish imkonini beradi. Nanotexnologiya: Oziq-ovqat mahsulotlarida ozuqa moddalari mikro darajada ko'paytirilishi mumkin. Bu sog'lom mahsulotlarni ishlab chiqarishda katta yordam beradi. Biofortifikatsiya: Genetik o'zgartirish orqali mahsulotlarning tabiiy ozuqaviy qiymatini oshirish, masalan, temir va vitaminlar bilan boyitilgan sholg'om yoki kartoshka. Oziqlanish salomatlik va farovonlikni saqlashda hal qiluvchi rol o'ynaydi. Shu bilan birga, ozuqa moddalarining yetishmasligi ovqatlanish bilan bog'liq kasalliklarning tarqalishi bilan oziq-ovqat mahsulotlarining ozuqaviy mavjudligini oshirishga shoshilinch ehtiyoj bor. Ushbu maqola ushbu maqsadga erishish uchun bir nechta imkoniyatlarni o'rganadi. Qishloq xo'jaligi amaliyotini takomillashtirish, oziq-ovqat mahsulotlarini qayta ishlash texnikasini takomillashtirish, ovqatlanish bo'yicha ta'limni rivojlantirish va texnologik yutuqlardan foydalanishga e'tibor qaratish orqali biz oziq-ovqat mahsulotlarining ozuqaviy tarkibini sezilarli darajada oshirishimiz va aholi salomatligini yaxshilashimiz mumkin. Oziq-ovqat mahsulotlarining ozuqaviy mavjudligini oshirishning asosiy imkoniyatlaridan biri qishloq xo'jaligi amaliyotini takomillashtirishdan iborat. Bu organik dehqonchilik, aniq qishloq xo'jaligi va agro'rmonchilik kabi barqaror dehqonchilik texnikasini qabul qilishni o'z ichiga olishi mumkin. Ushbu amaliyotlar tuproq salomatligini mustahkamlash, sintetik o'g'itlar va pestitsidlardan foydalanishni kamaytirish va qishloq xo'jaligi erlarida biologik xilma-xillikni oshirish orqali ekinlarning ozuqaviy tarkibini yaxshilashga yordam beradi. Bundan tashqari, ozuqaviy moddalarga boy

ekinlarni va an'anaviy navlarni etishtirishni rag'batlantirish oziq-ovqat mahsulotlarida muhim oziq moddalarning kengroq turlarini yaratishga yordam beradi. Oziq-ovqat mahsulotlarini qayta ishlash oziq-ovqat mahsulotlarining ozuqaviy profilini shakllantirishda hal qiluvchi rol o'ynaydi. Qayta ishlash jarayonida muhim oziq moddalarni saqlaydigan va saqlaydigan texnologiyalarga sarmoya kiritish orqali biz qayta ishlangan oziq-ovqatlarning ozuqaviy mavjudligini oshirishimiz mumkin.

Masalan, yuqori bosimli ishlov berish, impulsli elektr maydonini qayta ishlash va bug 'infuzioni kabi texnologiyalar ko'proq vitaminlar, minerallar va bioaktiv birikmalarni saqlashga yordam beradi. Bundan tashqari, asosiy oziq-ovqatlarning ozuqaviy tarkibini muhim vitaminlar va minerallar bilan yaxshilash uchun boyitish va biofortifikatsiya usullaridan foydalanish mumkin.

Oziq-ovqat mahsulotlarining ozuqaviy mavjudligini oshirish, shuningdek, iste'molchilarning xulq-atvorini va ovqatlanish haqidagi bilimlarini ham talab qiladi. Oziqlanish bo'yicha ta'limni targ'ib qilish odamlarga oziq-ovqat mahsulotlarini to'g'ri tanlash va ozuqaviy moddalarga boy oziq-ovqatlarni iste'mol qilishni oshirish uchun juda muhimdir. Ta'lim kampaniyalari turli platformalar, jumladan, maktablar, jamoat markazlari va ommaviy axborot vositalari orqali o'tkazilishi mumkin. Ushbu kampaniyalar muvozanatli ovqatlanishning ahamiyati, ozuqaviy moddalarga boy oziq-ovqatlarni iste'mol qilishning afzalliklari va nosog'lom oziq-ovqat tanlovlarini haddan tashqari iste'mol qilish bilan bog'liq xavflar haqida xabardorlikni oshirishga qaratilishi kerak.

Texnologik taraqqiyot oziq-ovqat mahsulotlarining ozuqaviy mavjudligini oshirish uchun ulkan imkoniyatlarni taqdim etadi. Aniq qishloq xo'jaligi, sensorga asoslangan monitoring tizimlari va ma'lumotlar tahlili kabi aqlli qishloq xo'jaligi texnologiyalarini ishlab chiqish ekin yetishtirishni optimallashtirish va ozuqaviy moddalardan yaxshiroq foydalanishni ta'minlashga yordam beradi. Xuddi shunday, nanotexnologiya va inkapsulyatsiya usullaridan foydalanish oziq-ovqat mahsulotlaridagi ozuqa moddalarining bio-mavjudligini oshirishi mumkin, bu esa organizm tomonidan yaxshiroq so'rilishini va undan foydalanishini ta'minlaydi. Bundan tashqari, raqamli platformalar va mobil ilovalardan foydalanish ovqatlanish ma'lumotlariga, moslashtirilgan parhez tavsiyalariga va ozuqa moddalarini iste'mol qilishni real vaqt rejimida kuzatishga oson kirish imkonini beradi. Oziq-ovqat mahsulotlarining ozuqaviy salohiyatini oshirish imkoniyatlarini aniqlashning tahliliy jarayoni bir necha asosiy bosqichlarni o'z ichiga oladi. Ushbu qadamlar mavjud muammolar va tendentsiyalarni baholash, takomillashtirish uchun potentsial yo'nalishlarni aniqlash, aralashuvlarning maqsadga muvofiqligi va ta'sirini tahlil qilish va amalga oshirish strategiyalarini ishlab chiqishga qaratilgan. Quyidagi sxema analitik jarayonning umumiy ko'rinishini beradi:

1. Tadqiqot va ma'lumotlarni to'plash: Oziq-ovqat mahsulotlarining

ozuqaviy mavjudligining hozirgi holati bo'yicha tegishli ma'lumotlar va adabiyotlarni oling. Bu ozuqa moddalarining etishmasligi va ovqatlanish tartibini ta'kidlaydigan ilmiy tadqiqotlar, hisobotlar va ma'lumotlar bazalarini ko'rib chiqishni o'z ichiga olishi mumkin.

2. Oziqlanishdagi kamchiliklar va ehtiyojlarni baholash: Maqsadli aholining asosiy ozuqaviy bo'shliqlari va ehtiyojlarini aniqlash uchun ma'lumotlarni tahlil qiling. Bu yaxshilanishni talab qiladigan joylarni aniqlash uchun ozuqa moddalarinin

Yetishmasligi, dieta bilan bog'liq kasalliklar va iste'mol usullarining tarqalishini o'z ichiga olishi mumkin.

3. Asosiy manfaatdor tomonlarni aniqlash: Davlat idoralari, oziq-ovqat ishlab chiqaruvchilari, tadqiqotchilar, dietologlar va iste'molchilarni himoya qilish guruhlarini kabi asosiy manfaatdor tomonlarni aniqlang. Oziq-ovqat mahsulotlarining ozuqaviy salohiyatini oshirish bilan bog'liq muammolar va imkoniyatlar haqida tushuncha va istiqbollarni to'plash uchun ular bilan shug'ullaning.

4. Joriy amaliyot va tendentsiyalarni baholash: Oziq-ovqat mahsulotlarining ozuqaviy tarkibiga ta'sirini tushunish uchun joriy qishloq xo'jaligi amaliyotlarini, oziq-ovqat mahsulotlarini qayta ishlash texnikasini va iste'molchilarning xatti-harakatlarini baholang. Oziq-ovqat sanoatidagi mavjud tendentsiyalarni va bozorning sog'lom va to'yimli variantlarga bo'lgan talablarini aniqlang.

5. Bo'shliqlar tahlilini o'tkazish: Noto'g'ri moslashish joylarini aniqlash uchun aniqlangan ozuqaviy bo'shliqlar va ehtiyojlarni mavjud amaliyot va tendentsiyalar bilan solishtiring. Ushbu tahlil aralashuv va takomillashtirish uchun potentsial imkoniyatlarni aniqlashga yordam beradi.

6. Texnik-iqtisodiy tahlil: Potentsial aralashuvlar va yaxshilanishlarning maqsadga muvofiqligini baholang. Xarajat, texnologik talablar, kengayish imkoniyati va atrof-muhitga ta'siri kabi omillarni ko'rib chiqing. Taklif etilayotgan strategiyalarni amalga oshirishning hayotiylikini aniqlash uchun moliyalashtirish, infratuzilma va ekspertiza kabi resurslarning mavjudligini baholang.

7. Ta'sirni baholash: Aralashuvlarning oziq-ovqat mahsulotlarining ozuqaviy mavjudligiga potentsial ta'sirini tahlil qiling. Bu ozuqaviy baholashni o'tkazish, stsenariylarni modellashtirish va ozuqaviy moddalarga boy oziq-ovqat variantlariga kirishni yaxshilash natijasida yuzaga kelishi mumkin bo'lgan salomatlik foydalarini baholashni o'z ichiga olishi mumkin.

8. Strategiya va harakatlar rejalarini ishlab chiqish: Oldingi bosqichlar natijalariga asoslanib, aniqlangan kamchiliklar va imkoniyatlarni bartaraf etish uchun strategiya va harakat rejalarini ishlab chiqing. Bu qishloq xo'jaligi amaliyotini takomillashtirish, oziq-ovqat mahsulotlarini qayta ishlash texnikasini takomillashtirish va ovqatlanish bo'yicha ta'limni rivojlantirish kabi bir nechta yondashuvlarni birlashtirishni o'z ichiga olishi mumkin. Mumkin

bo'lgan ta'siri, amalga oshirilishi mumkinligi va maqsadlar va resurslarga muvofiqligi asosida aralashuvlarga ustuvor ahamiyat bering.

9. Amalga oshirish va monitoring qilish: Tanlangan strategiya va harakat rejalarini amalga oshirish, taraqqiyotni kuzatish va aralashuvlar samaradorligini baholash. Amalga oshirilgan tadbirlarning oziq-ovqat mahsulotlarining ozuqaviy mavjudligiga ta'sirini baholash uchun doimiy ravishda ma'lumotlarni to'plash va tahlil qilish.

Xulosa. Oziq-ovqat mahsulotlarining ozuqaviy imkoniyatlarini oshirish inson salomatligi va global oziq-ovqat ta'minoti uchun muhim hisoblanadi. Turli texnologik usullar va ilmiy izlanishlar oziq-ovqat sanoatida innovatsiyalarni joriy etish imkonini beradi. Ozuqaviy imkoniyatni oshirish orqali oziq-ovqat mahsulotlarining qashshoqlik va ochlik muammolarini hal qilishga yordam berishi mumkin. Oziq-ovqat mahsulotlarining ozuqaviy mavjudligini oshirish to'yib ovqatlanmaslik bilan kurashish va aholi salomatligini yaxshilash uchun juda muhimdir. Qishloq xo'jaligi amaliyotini takomillashtirish, oziq-ovqat mahsulotlarini qayta ishlash texnikasini takomillashtirish, ovqatlanish bo'yicha ta'limni targ'ib qilish va texnologik yutuqlarni qo'llash orqali biz oziq-ovqat mahsulotlarining ozuqaviy tarkibini oshirish imkoniyatlarini ochishimiz mumkin. Ushbu strategiyalar ushbu tashabbuslarning muvaffaqiyatli amalga oshirilishini ta'minlash uchun hukumatlar, tadqiqotchilar, sanoat manfaatdor tomonlari va iste'molchilarning birgalikdagi sa'y-harakatlari bilan birga bo'lishi kerak. Birgalikda ishlash orqali biz shaxslar va jamoalarning umumiy farovonligini qo'llab-quvvatlovchi barqaror va to'yimli oziq-ovqat tizimini yaratishimiz mumkin.

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COGNITIVE AND PRAGMATIC ASPECTS OF THE TERM AS A WAY OF ITS STUDYING

***Abstract:** In the article the problem of understanding and explanation of cognitive and pragmatic aspect of studying of terms is investigated. Term creation is considered as a type of activity. The fundamental principles of nominalization in the author's term creation are revealed. The cognitive approach allows us to explain the emergence and evolution of special concepts, to identify the causes and mechanisms of dynamic processes in professional nomination. The question is raised about the influence of linguistic personality on the process of scientific knowledge development in connection with the changing cognitive-communicative needs of scientists. The current tasks of lexicographic description of terms are defined.*

***Key words:** cognitive, concepts, pragmatics, educational purpose, lexical skills, foreign languages, aspect.*

The article describes the definition of the term as a way of its studying. The study of the definition within the framework of scientific and professional discourse is one of the most significant and actively developing directions in terminology and cognitive linguistics.

A term is a verbal designation of a concept that is part of a system of concepts in a certain area of professional knowledge and requires the creation of a definition to establish its meaning. Terminological units are related as follows: as members of a system of concepts - the definition of a scientific concept, and as members of a specific language system (word) - the name of the concept, its verbal designation.

A definition is the second form of expression of a verbal concept, the study of which can be useful for scientific areas of knowledge. After all, clarifying the definition of a scientific concept, that is, specifying the meaning of a term, provides the possibility of a clearer use of this term, increases the level of scientific communication.

The process of defining a term, clarifying its limits by optimizing the set of its essential features is in itself a research process. It should be noted that in modern science the terms "definition" and "definition" are used not as doublets,

that is, complete synonyms. Definition is a logical operation, during which the content of a concept is revealed, while definition is a verbal expression of those specific features (essential attributes) that distinguish a certain concept from its adjacent ones and represent it.

This is only an analytical expression of the concept. Definitions are an integral part of any scientific theory and largely determine its content. It should be noted that today the study of the definition of terms within the framework of scientific and professional discourse is one of the significant and actively developed areas in terminology and cognitive linguistics.

The modern paradigm of terminology has updated the communicative-pragmatic aspect of studying the phenomenon of the term. L. Yu. Buyanova believes that this approach is based on the principle of anthropocentrism, common to language in general and in particular. The creator of the term is considered as a linguistic personality, and his speech acts are considered as having an attitude, intentions (intentionality), explicit or hidden goals, tactics and rules of scientific communication, presupposition [1].

Based on the traditional theory of speech activity, developed by scientists A. N. Leontiev, A. A. Leontiev, L. S. Vygotsky, Yu. V. Slozhenikina proposed a communicative-pragmatic model of terminological activity [2].

The first stage is a motivating cause, a reason for word production, a motive, a need.

The second phase of term formation is goal setting. The goal of the creators of a special neologism is to implement the specific property of the term to express a special concept as accurately as possible.

The third stage is the analysis of the existing state of affairs, i.e. the proposition. The situation of creating a neologism includes the analysis of discourse, extra- and interlinguistic context.

The fourth step is the formulation of the author's intention. As a rule, it is aimed at eliminating the internal inconsistency of an existing designation.

The fifth stage is the creation of a frame, the delimitation of similar and similar phenomena.

The sixth stage is the modeling of the conceptual structure of the term. The new term should reflect the features that the nominator considers fundamental.

The seventh stage is the formation of a judgment, predication: the term should be related to a certain sentence, be its replacement, and, conversely, the sentence can be compressed into a term.

The eighth stage is nominalization, which is understood as the transformation of an expanded syntactic whole into a single name, in the terminology of E.S. Kubryakova - definitional word formation [3].

The ninth step is the choice of a word-formation mode, i.e., a mode of action. V.M. Leychik draws attention to the general language substrate of any specialized word: terms are based on units of either national or classical languages [4].

The tenth stage is evaluation, author's reflection.

The cognitive approach allows us to explain the emergence and evolution of special concepts, identify the causes and mechanisms of dynamic processes in professional nomination, and determine them by the changing cognitive-communicative needs of scientists.

E.I. Golovanova defines 10 promising areas of cognitive terminology. The following tasks are fundamentally important and can be solved using cognitive science methods:

1) studying the professional linguistic personality as a subject of producing and developing professional knowledge, developing a corresponding typology of linguistic personalities;

2) studying the features of representing the most important epistemological categories in terminology;

3) studying the cognitive aspects of education, transforming the development of terminology systems [5].

The speech of specific linguistic personalities is reflected in dictionaries of various types. L. L. Shestakova notes: "The lexicographic method begins not only to serve the purposes of creating a unique base of sources for studying the speech of real individuals in all its diversity, but also simultaneously becomes one of the objective methods for studying linguistic personality" [8].

The problem of designating this phenomenon is important both theoretically and practically. Currently, a number of terminological phrases are used to name the phenomenon in question: "dictionary of the language of a writer", "writer's dictionary", "dictionary of a writer", "dictionary of one author", "author's dictionary", "dictionary of an idiolect", "idiolect dictionary", "dictionary of an idiolect", "dictionary of a personality", "dictionary of a linguistic personality. Thus, the problem of linguistic personality has become relevant in the theory of terminology, languages for special purposes, and has found reflection in terminographic practice.

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THE CONCEPT OF THE IDEA OF FREEDOM

ABSTRACT: *This article does not claim to provide an exhaustive explanation of such a complex subject as the concept of human freedom. The task is much more modest: to outline the main facets of the philosophical interpretation of freedom and to show the practical significance of legal regulation for rooting freedom in social reality. Freedom is a value or a due, i.e. an ideally existing goal, while the ambiguity of the goal threatens many dangers.*

Keywords: *freedom, self-realization, labor, subject, morality, law, human rights.*

INTRODUCTION

The historical discussion of formation of the concept of freedom briefly displays main definitions of freedom, shows interrelations and connections of the concept of freedom with other important notions of the human existence, such as subject, self-realization, law, good, labor, knowledge, otherness. Correct understanding of the phenomenon of freedom implies a principal distinction between law and morality. It is law as a social institute that introduces freedom as such into social life.

Philosophical views on the concept of freedom varied in different historical eras. In ancient times (Ancient Greece), the prevailing position was that freedom was recognized as the highest virtue, good, and therefore was considered the prerogative of the gods, who were not subject to earthly passions. Even in the conditions of life in slave states, there were those who believed that by nature all people are born equally free.

RESEARCH METHODOLOGY

According to the initial definition freedom is a labor of self-realization. As freedom obtains social reality only in a legal form, the more concrete definition of freedom is as follows: freedom is a balance of human rights and duties.

Therefore, the desire for freedom turns out to be a search for oneself, and vice versa. In other words, to comprehend one's freedom means to realize oneself as a subject.

Some modern philosophers believe that man is “doomed” to freedom, since the transformation of the world is a way of human existence and thus creates an

objective condition for freedom. The emergence of the idea of freedom and social thought occurs only when consciousness comes.

ANALYSIS AND RESULTS

By the logic of his existence and the nature of his own activity, each person is immersed in the flow of history. The existence of a person in this flow is contradictory, ambiguous. A person is free and unfree.

A person is unfree, since there is an external world that persistently dictates to people the choice of forms and methods of activity, their sequence. He is unfree because there are always limitations to his activity - the level of physical strength and mental abilities, technical capabilities, the nature of the social system, etc. He is also unfree because there is the so-called alienation of man, which manifests itself at all times and exists in various forms.

Alienation means that the products of human activity go beyond his control and turn into an external force beyond his control. Alienation means strangeness, the externality of the world and even its hostility. Alienation is, as it were, the loss of the world by man and the transformation of this world into an inhuman world. The problem of alienation is an eternal problem for human society.

At the same time, man is free. Freedom is the independent disposal of one's own destiny, the choice of one's life path. Briefly speaking, freedom is non-slavery, emancipation of a person. It means his liberation from the dictates of external forces and circumstances, both natural and social. Freedom implies the ability to act in accordance with one's interests and ideas. Freedom is a fundamental value for a person, but it must have limits. Otherwise, it will turn into arbitrariness, self-will and anarchy, into tyranny and violence against other people, i.e. into negative freedom. The boundaries of freedom are the interests of another person, social groups and society as a whole, as well as nature as the natural basis for the existence of society. When the interests of the individual and society coincide in gaining freedom, the concept of freedom must be supplemented by the idea of regulating people's activities. The state must do this not by violence and coercion, but with the help of an economic mechanism and strict observance of human rights. The state is obliged to guarantee the observance of human rights, recognizing that the value of the human person is higher than any values of a nation, class, group of people, etc. This is a guarantee against totalitarian suppression of human rights. Ignoring or belittling the rights of the individual leads to inevitable degradation of both the individual and society. Freedom is impossible without responsibility and duty of man to the world in which he exists. Responsibility is the inevitable price of freedom, the payment for it. Freedom requires reason, morality and will from man, without which it will inevitably degenerate into arbitrariness and violence against other people, into the destruction of the surrounding world. The measure of man's responsibility is always specific, within the limits of his competence and range of possibilities.

Positive legal principles express justice in a certain area of social relations as due recognition of otherness, for example, public human rights and freedoms

are such principles. Legal principles are not always explicitly stated in the texts of laws - the main content of the latter lies in legislative provisions that enshrine rights and obligations at the achieved level of formal equality. For example, private law principles of good faith or freedom of contract, or public law freedom of speech, or religion, or another public human right is subject to conditions of implementation and is supported by the obligation of the other party, are transformed from a positive legal principle into a model of legal relations provided for by legislative provisions.

Labor is essential for ensuring human freedom, because freedom is not a given. Freedom is the labor of self-realization. Free, not alienated labor is labor as self-realization.

In social life, a working person is guided not so much by the law as by the immediacy of a unifying social feeling, such as friendship or love. The principle of conciliarity is the self-realization of a person in society as a living communication of free people. The intuition of a conciliar social structure captures the sensory content of the legal order, which extends friendly communication to all members of society. Thus, the concepts of conciliarity, public freedom and legal order coincide in all essential moments.

Therefore, a consistent substantive-legal understanding of law leads to a libertarian-conciliar theory of law.

CONCLUSION

Today, in the era of globalization, which unites humanity under the flag of the idea of sharing common universal values for all people and nations, freedom from their imposition can also become one of the angles of consideration of this problem.

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MAKTABGACHA YOSHDAGI BOLALARDA MILLIY URF- ODATLARNI SHAKLLANTIRISHDA MAKTABGACHA TA'LIM TASHKILOTLARINING O'RNI

***Annotatsiya:** Ushbu maqolada bolalar qalbida o'z xalqiga muhabbat va hurmat, urf-odatlarini tarkib toptirish, milliy g'ururni tarbiyalash, ularga o'zbek xalqining mehr-oqibatli, mehmondo'st va kamtarin xalq ekanligini singdirish haqida so'z yuritilgan.*

***Kalit so'zlar:** Urf-odat, an'ana, milliy qadriyatlar, rasm-rusumlar, milliy tuyg'u, komil inson, vatanparvarlik va boshqalar.*

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THE ROLE OF PRESCHOOL EDUCATIONAL ORGANIZATIONS IN THE FORMATION OF NATIONAL TRADITIONS IN PRESCHOOL CHILDREN

***Annotation:** This article is about loving and respecting the minority in the hearts of children, building their traditions, cultivating national pride, instilling in them that the Uzbek people are kind, hospitable and humble people.*

Har bir xalqning ijtimoiy madaniy hayotida azaliy an'ana, urf-odatlar alohida o'rin tutadi. Ular kishilar turmush tarzining o'ziga xos hodisasi sifatida namoyon bo'ladi. Maktabgacha yoshdagi bolalarga har tomonlama mukammal inson bo'lib rivojlanishida miliy urf-odatlarni singdirib borish nihoyatda muhim ahamiyat kasb etadi.

An'ana - tarixiy taraqqiyot jarayonida va ijtimoiy ehtiyojlar orasida vujudga keladigan, avloddan avlodga meros bolib o'tadigan, kishilar ma'naviy hayotiga ta'sir ko'rsatadigan madaniy hodisasi. An'ana o'ziga xos ijtimoiy hodisa majmuasi hisoblanadi. Xalq an'analari-uzoq taraqqiyot jarayonida etnoslarning ijtimoiy ma'naviy ehtiyojlari asosida vujudga kelib, ularning aqliy ijodiy faoliyati asosida, atrof muhit, tabiat, mehnat jarayoniga bog'liq holda avloddan avlodga o'tib, taraqqiy etgan va asrlararo ajdodlar fikri, orzu o'ylari, tajribalari, yutuqlari va boshqa qadriyatlarini mujassamlashtirgan bebaho ijtimoiy madaniy merosga bebaho ijtimoiy madaniy merosga aylangan.

Urf-odat kishilarning turmushiga singib ketgan, ma'lum muddatda takrorlanib turuvchi xatti-harakat, ko'pchilik tomonidan qabul qilingan xulq-atvor qoidalari ko'nikmasidir. Masalan: Kichiklarning kattalarga salom berishi, kattalarni kichiklarni izzat qilishi, uy-xovlini tartibga keltirish, mehmonlarga alohida hurmat ko'rsatish, bayram arafasida keksa qariyalar, kasal ojiz, miskinlar holidan xabar olish, qo'ni- qo'shnilarni biror ishiga yordam berish, hasharga borish kabilar o'zbek xalqiga xos yaxshi odatlar hisoblanadi.⁶

Ozbek xalqi o'z hayoti, turmush tarzida eng oliyjanob g'oyalarni mujassam etgan axloq-odob qoidalariga, ma'naviy qadriyatlarga tayanib kelgan. Shu g'oyalar tufayli elimizda adolat, rostgo'ylik, halollik, pokizalik, miskinlar holidan xabar olish, birovning haqqiga xiyonat qilmaslik, nogironlarga mehrlilik bo'lish, odamiylik, qardoshlik, vatanparvarlik, shirinsuxanlik va boshqa insoniy fazilatlar rivoj topgan.

O'zbek xalqining g'ururini ifodalovchi bir qancha urf-odatlar, rasm rusumlar, marosimlar, odatlar, udumlar, an'analar mavjud. Jumladan, o'zbek xonadonlarida Otaning ko'ziga tik qaramaslik, otani yonida oyog'ini uzatib o'tirmaslik, xatto otasi uyni ichida bo'lsa uyni tomiga chiqmaslik, otaning o'rni naqadar ulug' shaxs sifatida e'tirof etilishi yaqqol namunasidir. Bu esa ajdodlarimizdan bizga meros bo'lib kelayotgan an'analardan biri hisoblanib, qon-qonimizgacha singib ketgan desak mubolag'a bo'lmaydi.

Milliy qadriyatlarning negizini urf-odatlar, rasm-rusumlar, bayramu-sayillar tashkil etadi. O'zbek milliy qadriyatlari mazmunida insonparvarlik g'oyalari yotadi. Uzoq tarix davomida o'zbeklarning o'zaro munosabatlarida, kundalik turmush tarzida o'zaro hamkorlik va hamdardlik, vafodorlik va o'zaro hurmat, bir-biriga suyanish va yaxshi qo'shnichilik, bolalarni sevish va ota-onaga hurmat, mehr-oqibat va sadoqat har tomonlama e'zozlanib kelinadi. Milliy qadriyatlar o'sha millatga mansub har bir kishi tomonidan yaratilgan, insoniylik, odamiylikka xos fazilatlar, xislatlar, xosiyatlarni milliy-madaniy meros xazinasiga qo'shgan hissasini ifodalovchi buyuk ko'rsatkichidir.

Maktabgacha ta'lim yoshidagi bolalarda milliy qadriyatlarini shakllantirish maqsadida o'tilayotgan faoliyatlar bolaning har tomonlama rivojlanishiga, yuksak odob axloqli, komil inson bo'lib tarbiyalashga yordam bermog'i lozim. Maktabgacha yoshdagi bolalarda milliy urf-odatlarini shakllantirishda nafaqat maktabgacha ta'lim tashkilotlari, balki oilaning ham o'rni nihoyatda muhim hisoblanadi. Chunki bolalarning bo'sh vaqti, asosan, uyda, oila davrasida o'tadi. Buni hisobga oladigan bo'lsak, yosh avlod tarbiyasida ota onaning burchi va majburiyati katta ahamiyat kasb etadi.

Milliy tuyg'uni maktabgacha ta'lim tashkilotlari tarbiyalanuvchilari qalbiga singdirishdan maqsad: bolalar qalbiga sevish va faxrlanish, g'ururlanish tuyg'usini uyg'otish. Chunki milliy g'urur har bir xalqning milliy qadriyatlari, urf-odatlari, o'z ona tiliga asoslangan boladi. Shu bois, maktabgacha ta'lim

⁶ <https://fayllar.org/termiz-davlat-universiteti-pedagogika-fakul.html?page=2>

tashkiloti tarbiyalanuvchilarida milliy tuyg'uni shakllantirish kata ahamiyat kasb etadi. Darhaqiqat, ta'lim-tarbiya qanchalik erta boshlansa, uning samarasi shunchalik erta namoyon bo'ladi va insonning butun hayoti tarziga ijobiy ta'sir qiladi.

Mutafakkir olimlarimiz xalqimizning qadimiy bayram an'analari, marosimlari va ular bilan bog'liq urf-odatlar haqida o'z asarlarida qimmatli ma'lumotlarini qoldirganlar. Ularda "Navro'z", "Mehrjon", Qurbon hayiti", "Ramazon hayiti" kabi bayramlar haqida ma'lumot berganlar. Bu bayramlar insonlarni bir-biriga mehr-muruvvatli, xayr-saxovatli bo'lish, yetim-yesirlar, qarindosh-urug'lar holidan xabar olish, o'zbekon odatlarimizga sodiqlik, Vatanni sevish va ardoqlash, u bilan bog'liq urf-odatlar Masalan: "Navro'z" bayramida shirinliklar hadya etish (hayotning shirin bo'lishini tilash), sovg'a-salomlar berish, gul sovg'a qilish (guldek nafis, go'zal hayot tilash), bir-birlariga suv sepish (suvdek mo'l bo'lsin, hosildorlik yuqori bo'sin degan ma'noda) va boshqa urf-odatlar joriy etilgan. Bularning barchasi maktabgacha ta'lim tashkilotlari tarbiyalanuvchilarida milliy tuyg'uni shakllanishiga xizmat qiladi.

O'zbek xalqi o'ziga xos milliy urf-odat, an'analari, jasur, qahramon farzandlari, ilm-fan va san'at, davlat va jamoa buyuk namoyondalari, ona Vatani bilan faxrlanadi. Zero, o'tmishda bu buyuk ajdodlarimiz ko'rsatgan qahramonlik, fidoyilik, maktabgacha ta'lim tashkilotlari tarbiyalanuvchilarida milliy g'urur tuyg'usining shakllanishi va barqaror bo'lishiga xizmat qilishi tabiiydir. Shu sababli ham milliy g'urur ramzi bo'lgan millat, xalqning o'zligini anglashi, o'zining milliy qadriyatlarini, urf-odatlarini unutmasdan, ularni tiklab, avaylab, boyitib o'sib kelayotgan yosh avlodga yetkazish lozim

Xulosa o'rnida shuni aytish joizki, maktabgacha ta'lim tashkilotlari tarbiyalanuvchilari ya'ni farzandlarimizning o'z yurtiga mehr-muhabbatli bo'lishi, uning mustaqilligini mustahkamlanishi, Vatanimiz shon-shuhratini dunyo miqyosiga olib chiqish ruhida tarbiyalash pedagoglar, ota-ona va har birimizning muqaddas burchimizdir. Bunday ezgu maqsadlarni bajarishda har bir O'zbekiston fuqarosi g'urur va iftixor bilan yashaydi va uning me'yoriga amal qilib yashash ham qarz, ham farzdir.

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**TERMIZ TUMANI SHAROITIDA POMIDOR ZARARKUNANDASI
TUTA ABSOLUTA. POPULYATSION - GENETIK KUZATUVI VA
IQTISODIY AHAMIYATI**

Annotatsiya. Pomidor sabzavotlar orasida eng ko'p istemol qilinadigan turdir. Pomidorga hosiliga bir qancha hasharot jiddiy zarar keltiradi. Shular jumlasidan pomidor kuyasi xam barg va mevalarning ashaddiy zararkunandasi xisoblanadi. Ushbu maqolada pomidor kuyasiga qarshi ishlatilgan preparatlar samaradorligi xaqida bayon etilgan.

Kalit so'zlar. Pomidor, preparat, toza mahsulot, bioekologik kurash, qarshi kurash, pomidor kuyasi, hosil, barg, meva, zararlanish.

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**IN THE CONDITIONS OF THE TERMIZ DISTRICT, THE
TOMATO PEST IS *TUTA ABSOLUTA*. POPULATION-GENETIC
MONITORING AND ECONOMIC IMPORTANCE**

Annotation. Tomatoes are the most consumed type of vegetables. A number of insects cause serious damage to tomatoes. Among them, the tomato moth is considered a serious pest of leaves and fruits. This article describes the effectiveness of drugs used against tomato moth.

Key words. Tomato, drug, clean product, bioecological control, control, tomato moth, crop, leaf, fruit, damage.

KIRISH. Pomidor (lotincha: *Solanum lycopersicum*) bir yillik, tropik iqlimlarda ko‘p yillik o‘t o‘simlikdir. Sabzavot ekini sifatida keng ekiladi. Ilmiy terminologiyada tomat nomi ishlatilsa-da, O‘zbekistonda o‘simligi ham, mevasi ham pomidor yoki "pamildori"— (xalq orasida) deb yuritiladi. O‘zbekiston 2022-yilning yanvar—sentabr oylarida 11 ta xorijiy davlatga qiymati 45,1 million dollarga teng bo‘lgan qariyb 60 ming tonna pomidor eksport qildi.

Ushbu maqolada Termiz shahridagi yopiq maydonda avgust, sentyabr va oktabr oylarida olib borilgan kuzatuv natijalari, populyatsion genetik va iqtisodiy ahamiyati yoritiladi. Mazkur kuzatuv laboratoriya sharoitisiz amalga oshirilgan bo‘lsa-da, zararkunandaning populyatsion dinamikasi, faollashuv davri, va pestitsidga chidamliligini boshqarishga doir amaliy xulosalar ishlab chiqildi.

Tadqiqot uslublari. Hisobga olish ishlarida yopiq ekin maydonida olib birildi. Maydon 2 ga bo‘lib 2 bo‘limga ajratilgan, 1 va 2- bo‘limlar 30 bosh qator va ularning har biri 6 kichik qatorlarni o‘z ichiga oladi. har bir kichik qatorda o‘rtacha 145-150 ta ko‘chat ekiladi. Maydonda bizning kuzatuvimiz avgust oyidan boshlanib ekin uchun tuproq tayyorlash va zararsizlantirish ishlari amalga oshirilib, ko‘chatlar ,bachkilar ekildi va shu vaqtdan boshlab kuzatuv ishlari olib borildi. Namunalar feromon tuzoqlar va tabiiy usulda yig‘ilib tekshirish ishlari olib borildi. Har kuni harorat va namlik darajasi aniqlab o‘lchab borildi. Ekin maydonlarining diagonali bo‘yicha har 25 metrdan namuna olinadi. Barglarni zararkunandalar bilan zararlanish darajasi –o‘simlik qattiq zararlangan vaqti kuzatiladi. Hisoblashlar olib borishda kuzatiladigan maydonning 10 ta joydan shaxmat usulida ekin maydoni bo‘ylab joylashtiriladi va har bir o‘simlik (kamida 100) ko‘zdan kechiriladi. 1m² dagi zararkunanda soni aniqlash M.S.Gilyarov formulasi asosida olib borildi.



Termiz tumani issiqxonalarida olib borilgan tadqiqotlar

Tadqiqot natijalari. 2024 yillarda Termiz tumanida O‘tkazilgan kuzatuv Natijalari va Populyatsiya Dinamikasi Avgustdan oktabr oyigacha davom etgan kuzatuvda quyidagi asosiy xulosalar olindi:

1. Faollikning O‘shishi:

– Avgust oyida zararkunanda nisbatan kamroq uchrasa-da, ammo 20-avgustdan 30-avgustgacha feromon tuzoqlarda 1-3 tadan kapalak aniqlandi. Sentyabr oyining birinchi 10 kunligida 3-7 tagacha aniqlangan bo'lsa, ikkinchi 10 kunlikda 5-12 tagacha hasharot aniqlandi, uchinchi 10-kunlikda ham 7-13 tagacha aniqlandi. Sentyabr oyida populyatsiya keskin ko'paydi. Bu mavsumiy haroratning qulayligi va yopiq maydon sharoitining optimal mikroiklimi bilan bog'liq.

– Oktabr oyida zararkunanda faolligi davom etdi, Birinchi 10 -kunlikda 5-11 tagacha bo'lsa, ikkinchi 10 kunlikda esa 4-8 tagacha va oxirgi 10 kunlikda esa 3-5 tagacha zararkunda kapalaklari aniqlandi. Bu esa qish mavsumida ham Tuta absoluta yopiq joylarda yashovchan bo'lishini ko'rsatadi.

2. Feromon Tuzoqlari Yordamida Monitoring:

– Feromon tuzoqlari yordamida kuzatuv olib borildi va har oyda qanchalik ko'p zararkunanda to'planishi kuzatildi. Tuzoqlar zararkunandani samarali boshqarish va faollik davrini aniqlashga yordam berdi.

3. Iqlimga Moslashuvchanlik:

– Zararkunandaning yuqori darajadagi moslashuvchanligi tufayli yopiq maydonda pestitsidlarisiz nazorat qilishning qiyin ekanligi aniqlandi.

Kuzatuvning Iqtisodiy Ahamiyati

1. Kimyoviy Vositalarning Tejamkorligi

– Pestitsidlarga yuqori darajada chidamli populyatsiyalar bilan kurashishda pestitsid sarfi ortadi, bu esa qishloq xo'jaligiga qo'shimcha iqtisodiy yuk bo'ladi. Kuzatuv natijalari asosida pestitsidlarni faqat zarurat tug'ilganda qo'llash tavsiya etiladi, bu esa xarajatlarni kamaytirishga yordam beradi.

2. Hosildorlikni Ta'minlash

– Tuta absoluta sababli pomidor ekinlarida katta yo'qotishlar kuzatilishi mumkin. Zararkunandaning faollik davrlarini aniqlash va unga qarshi tezkor choralarni ko'rish hosildorlikni saqlab qolishga imkon beradi.

3. Barqaror Ekologik Kurash Strategiyalari

– Kimyoviy vositalarni kamroq qo'llash va biologik nazorat usullaridan foydalanish ekologik muvozanatni saqlashga xizmat qiladi. Bu qishloq xo'jaligi mahsulotlarining ekologik tozaligini oshirish va bozorda raqobatbardoshligini ta'minlaydi.

Xulosa. Termiz sharoitida yopiq maydonda olib borilgan *Tuta absoluta* kuzatuv natijalari zararkunandaning populyatsion genetik yangiligi va iqtisodiy ahamiyatini yoritadi. Zararkunanda pestitsidlarga qarshi chidamlilik va mavsumiy moslashuvga ega bo'lgani uchun uning dinamikasini kuzatish va nazorat qilish muhimdir. Kuzatuv natijalari asosida fermerlarga pestitsidlarni samarali qo'llash va feromon tuzoqlaridan foydalanish bo'yicha ko'rsatmalar berilishi mumkin. Kelgusida laboratoriya sharoitida genetik tahlillar amalga oshirilsa, mazkur kuzatuv natijalari ushbu ilmiy izlanishlar uchun poydevor bo'lib xizmat qiladi. Bu esa Tuta absoluta bilan kurashda yanada samarali va barqaror strategiyalar ishlab chiqishga imkon beradi.

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SABZAVOT EKINLARIDAGI ILDIZ PARAZIT NEMATODALAR

***Annotatsiya:** Maqolada Hoplalaimidae oilasiga mansub ildiz parazit nematodalarining o‘rganilganligi, morfologik xarakteristikasi, ayniqsa tanasining tuzilishi va Surxondaryo viloyatidagi sabzavot ekinlarida uchraydigan turlari to‘g‘risida ma‘lumotlar ta‘riflangan.*

***Kalit so‘zlar:** Parazitlar, nematodalar, hoplalaimid, rotilenx, gelikotilenx, lab, tana va dum bo‘limlari.*

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PARASITIC NEMATODES IN ROOTS OF VEGETABLE CROPS

***Abstract:** The article describes the study of root parasites nematodes belonging to the Hoplalaimidae family, their morphological characteristics, especially the structure of their bodies, and the types found in vegetable crops in the Surkhandarya region.*

***Key words:** Parasites, nematodes, hoplalaimid, rotylex, helicotilenx, lip, body and tail sections.*

Hoplalaimidae oilasiga mansub ildiz parazit nematodalari, o‘simliklarning ildizida parazitlik qilib yashovchi nematodalarning faoliyati evolyutsiya jarayonida ekologik muhitlar va "o‘simlik-xo‘jayin"lariga bog‘liq holda shakllangan. Natijada turli-tuman morfo-fiziologik va adaptatsion o‘zgarishlar sodir bo‘lib, parazitlarning muhim vakillari rivojlangan. Jumladan, hoplalaimidae oilasining turlarini ham, ildizda migratsiya qiluvchi ektoparazitlar, yarimendoparazitlar va haqiqiy endoparazitlar holatida kuzatish mumkin

Bu guruhga mansub parazit nematodalarning birinchi vakillarini yuz ellik yil oldin 1876 yilda o‘rganilgan, chunki ko‘pgina madaniy o‘simliklarning zararlanganligi, ildizi chirish natijasida o‘shish va rivojlanishdan orqada qolib, hatto qurib ketishiga sabab bo‘lgan.

Ko‘pgina olimlar, ayniqsa E.S.Kiryanova, N.M.Sveshnikova, T.S.Skarbilovich, E.L.Krall, A.T.To‘laganov va Sh.X.Xurramovlar faunistik tadqiqotlar bilan bir qatorda hoplalaimidaelarni kompleks o‘rganishga oid ilmiy ishlarni ham amalga oshirgan [2].

Tadqiqotlarda birinchilardan bo'lib I.N.Filipyev va A.A.Paramonovlar chuqurroq tahlil qilib, ushbu xavfli parazitlar-sista hosil qiluvchi nematoda (geteroderid) lardan kelib chiqqanligini isbotladi [4].

Amerikalik olim Sher tomonidan qator tadqiqotlar olib borilib , Hoplalaimidaelarning sistematikasi o'rganildi [6].

Surxondaryo viloyatida turli qishloq xo'jalik ekinlarida parazitlik qiluvchi hoplalaimidaelarni Sh.X.Xurramov subtropik mevali daraxtlarda, B. Xoliqnazarov poliz ekinlarida, K. Eshnazarov sabzavot ekinlarida, A.Sh.Xurramov g'alla don ekinlarida, A.B.Bekmurodov anor o'simligida o'rganganlar.

Material va metodika: Tadqiqot materiallari Surxondaryo viloyatida pomidor - *Lycopersicum esculentum* Miel. va bodring - *cucumis sativus* L. ekinlarining ildizi va ildiz oldi tuproq namunalari hisoblanadi. Namunalar marshut metodida yig'ilib, Termiz Davlat Universiteti, Zoologiya kafedrasida qoshidagi fitogelmintologiya ilmiy laboratoriyasida tahlil qilindi. Nematodalarni o'simlik ildizi va tuproqdan ajratib olish uchun Berman tomonidan modifikatsiyalangan voronkali metodidan foydalanildi [1] nematodalar ajratib olindi va TAF (trietanolamin: formalin: 2 nisbatda suv) eritmasida fiksatsiya qilindi. A.A. Paramonov [3], Ye.S. Kiryanova, E.L.Krall [1] uslublari bo'yicha nematodalarning mikropreparatlari tayyorlandi, ularning tur tarkibi aniqlandi.

Hoplalaimidae oilasiga mansub ektoparazit nematodalar, o'ziga xos morfologik xususiyatlariga ega. Ularning tipik belgilari tanasi silindrsimon, cho'ziq, yetuklarida tana uzunligi 0.5-1.9 mm. Eng asosiy belgilaridan biri, ularning tanasi ventral tomonga egilgan bo'ladi. Tanasining har xil bosqichda egilganligi hoplalaimidaelarning aniqlashda, turlarini diagnoz qilishda muhim belgi hisoblanadi, ularning har xil variatsiyada "C" harfiga o'xshashligi, egilib buralganligi "spiral nematodes" spiral nematodalar deb nomlanishiga muayassar qilgan.

Albatta tanasining spiralsimon bo'lishi, hamma turlariga xos bo'lmasdan, parazitlik jarayonida o'zgarib ham turadi. O'simliklar ildizida ektoparazit hayot kechiruvchi, kam harakatli bo'lishi bilan samkalari silindrsimon shaklini o'zgartirib, tanasi shishadi. Tanasini shartli ravishda lab, gavda va dum qismlarga bo'lishi mumkin. Hoplalaimidalarni aniqlashda va sistematikasida lab qismi alohida ahamiyatga ega. U izolyatsiya qilingan yoki izolyatsiyalanmagan bo'ladi, tanasining konturi bo'ylab kutikulasida umumiy 2-7 ko'ndalang chiziqlar bilan jihozlangan. Lab qismining oldingi tomonida juda kuchli rivojlangan disk bo'ladi.

Lab qismidagi kutikulasining bazal halqasi tekis yoki 6-40 tagacha uzunasiga davom etgan chiziqlar bo'ladi, qolgan halqalar ham tekis bo'lishi mumkin, yoki o'ziga xos konturdagi kutikula kuzatiladi. Skleratizatsiya ya'ni ichki skelet, lab qismida juda kuchli rivojlangan. U bir nechta qismdan tuzilgan bo'ladi va ish bajaruvchi kutikula deyiladi. (1-rasmlar).

Bizning tadqiqotlarimizda ham gelikotilenchlarning turlarini aniqlashda ushbu morfologik tuzilmalarni va shakllarini taqqoslab o'rganiladi [5]. Hatto,

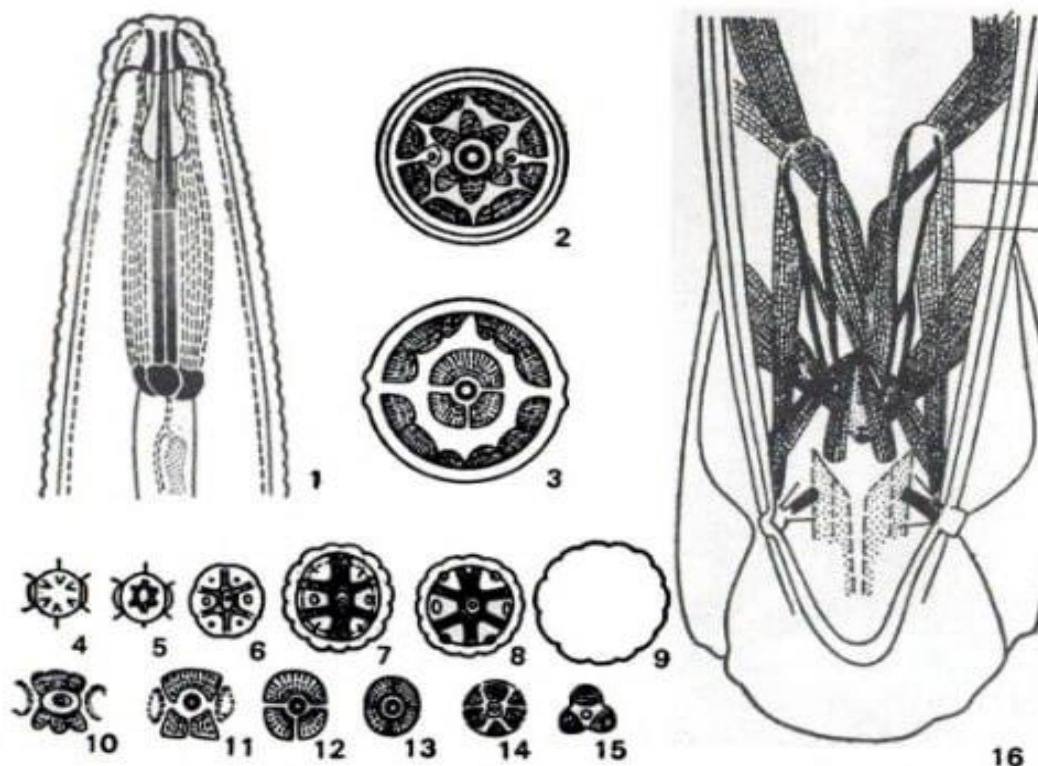
ba'zi hoplolaomid vakillaridagi, lab bo'limining tuzilishida jinsiy dumorfizmni kuzatish mumkin, samkalarida lab bo'limi konussimon, sameslarida esa yarim sferik shaklda bo'ladi. Sameslarida bundan tashqari, old tomonidan qaralganda, lab bo'limi, ko'pincha burchaksimon shaklda ko'rinadi (2-rasm).

Hoplolaomidlarning lab bo'limida kutikula halqasilarining sonini aniqlash, bu oilaning eng muhim diagnostik belgi hisoblanadi. Bir turga mansub, populyatsiyasi ko'p bo'lgan individlarni o'rganiganda ko'proq variantsiyadagi lab halqalarni kuzatish mumkin. Hoplolaomidlar dumining shakli har bir turning o'ziga xos bo'ladi. Ular dumining shakli, ko'pchilik hollarda qisqa va aylana uchli (terminus) shaklda, ba'zi guruhlarda, terminusning vertikal tomonida, ahamiyatsiz o'lchamdagi, kichik o'simta ham bo'ladi, bu o'z navbatida ushbu turlarining sistematikasida ahamiyatli hisoblanadi.

Surxondaryo viloyati sabzavot ekinlarida olib borilgan tadqiqotlarimiz natijalariga muvofiq Hoplolaimoidea (Filipjev, 1934, Paramonov, 1967) oilasiga mansub quyidagi parazit nematodalar aniqlandi.

1. *Scutellonema clathricaudatum* Whitehead, 1959
2. *Rotylenchus robustus* (de Man, 1876) Filipjev, 1936
3. *R. buxophilus* Golden, 1956
4. *Helicotylenchus dihystra* (Cobb, 1893) Sher, 1961
5. *H. digitatus* Siddiqi et Husain, 1964
6. *H. digitiformis* T. Ivanova, 1967
7. *H. digonicus* Perry, 1959
8. *H. erythrinae* (Zimmermann, 1904) Golden, 1956
9. *H. labiodiscinus* Sher, 1966
10. *H. persici* Saxena, Chhabra et Joshi, 1972
11. *H. pseudorobustus* (Steiner, 1914) Golden, 1956
12. *H. pteracercus* S. D. Singh, 1971
13. *Rotylenchoides intermedius* Luc, 1960

Ularning turlarini aniqlashda morfometrik ko'rsatkichlari, ayniqsa bosh qismlari, kutikula tuzilishi, gemizonid, kaudalid, fazmid, hazm sistemasi va jinsiy organlarining tuzilishi alohida e'tibor beriladi va taqqoslab tahlil qilingan holda har bir turga nisbatan diagnoz qo'yildi.



1-rasm. *Rotylenchus goodeyi* tanasining oldingi va keyingi qismlarining tuzilishi

(Coomans 1962 bo'yicha).

1-tanasining oldingi qismi; 2-15- tanasining oldingi qismining har xil darajadagi kesmalari; 16-samesi tanasining keyingi qismi (sp) spikula (b) bursa va (spm) spikulyar muskullari.

Hoplolaimidaelarning tanasi ham boshqa barcha nematodalar singari teri-muskul-nerv qavati bilan ifodalanadi. Kutikula asosan 3 qavatdan iborat ya'ni kortikal matrisa va tolali. Biroq katta e'tibor bilan o'rganilganda eng kichik strukturalari bilan farq qilishi mumkin. Masalan, *Rotylenchus robustus*ning kutikulasi 4 ta asosiy qavatdan : uch qavatli kortikol, ikki qavatli matritsa va bazal tolali qavatlardan iborat. Yon chiziqlar kutikulaning differensiyalashgan hosilalari sifatida tanasining lateral tomonini ta'minlaydi. Yon chiziqlarning vazifasi kutikulaning ko'ndalang halqalarini dorsoventral yo'nalish bo'yicha harakatga keltirishdir.

Hoplolaimidlarda yon chiziqlarning tuzilishi turli-tuman variatsiyada ko'rinadi. Yon chiziqlarning soni va apeolyatsiyasi sistematikada katta o'rin egallaydi. Tanasining uzunasi bo'ylab joylashgan muskullari gipodermaga yopishgan holda bo'lib, aylanuvchan muskul hujayralaridan tashkil topadi (3-rasm). Uzunasi bo'ylab joylashgan muskul kulturasidan tashqari nematodalarni harakatlantiruvchi maxsus ixtisoslashgan ya'ni qizilo'ngach, ichak, anal, vulvar, bursal va spukulyar muskullari rivojlangan bo'ladi (3-rasm).

Xulosa. Hoplolaimidae oilasiga mansub ildiz parazit nematodalari o'ziga xos guruhdagi parazit nematodalar hisoblanadi, ularning turlarini identifikatsiya qilishda, juda nozik anatomo-morfologik tuzilmalarini chuqur tahlil qilish zarur. Helicotilenxlar turlarining orasida morfologik jihatdan juda yaqin o'xshashliklar mavjud. Shu bois kelgusida, zamonaviy tadqiqot metodlari ya'ni molekulyar - genetik usulda o'rganish maqsadga muvofiq.

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O'ZBEKISTON SHAROITIDA O'SIMLIKLARNI O'STIRISHDA FITOGARMONLARNING AHAMIYATI

***Annotatsiya:** Maqolada O'zbekiston iqlim sharoitida o'suvchi o'simliklarning o'sish va rivojlanishida fitogarmonlarning ahamiyati yoritib berilgan hamda qishloq xo'jaligi ekinlarining hosildorligini oshirish maqsadida fitogarmonlardan foydalanish samaradorligi keltirilgan.*

***Tayanch so'zlar:** fitogarmonlar, auksin, gibberellin, sitokinin, Absizin kislota, etilen, o'sish, stressga chidamlilik, indolin-3 sirka kislota.*

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IMPORTANCE OF PHYTOHORMONES IN GROWING PLANTS IN THE CONDITIONS OF UZBEKISTAN

***Annotation** The article highlights the importance of phytohormones in the growth and development of plants growing in the climatic conditions of Uzbekistan and the effectiveness of using phytohormones to increase the productivity of agricultural crops.*

***Keyword:** phytohormones, auxin, gibberellin, cytokinin, abscisic acid, ethylene, growth, stress resistance, indolin-3 acetic acid.*

Kirish. Respublikamizda so'ngi yillarda aholining oziq-ovqat xavfsizligini ta'minlash, sabzavot mahsulotlariga bo'lgan ehtiyojini to'la qondirish va bu mahsulotning assortimentini ko'paytirish bo'yicha keng qamrovli chora-tadbirlar amalga oshirilmoqda. 2017-2021 yillarda O'zbekiston Respublikasini rivojlantirishning beshta ustuvor yo'nalishi bo'yicha Harakatlar strategiyasini amalga oshirishga oid davlat dasturi to'g'risidagi O'zbekiston Respublikasi Prezidenti Farmonida "Qishloq xo'jaligi mahsulotlari ishlab chiqarishini diversifikatsiyalash, qishloq xo'jaligi ekinlari hosildorligini oshirish orqali mamlakat oziq-ovqat xavfsizligini ta'minlash muhim strategik vazifalardan biri ekanligi belgilab berilgan .

O'zbekistonda dehqonchilik va qishloq xo'jaligi mamlakat

iqtisodiyotining muhim tarmoqlaridan biri hisoblanadi. Bu jarayonda o'simliklarning o'sish va rivojlanish jarayonlarini chuqur o'rganish katta ahamiyat kasb etadi. O'simliklarning o'sishida fitogormonlar muhim rol o'ynaydi. Fitogormonlar o'simliklarda topilgan biologik faol moddalar bo'lib, ular o'sish, rivojlanish va atrof-muhit sharoitlariga moslashishni ta'minlaydi. Fitogormonlar turli xil mexanizmlar asosida o'simlik to'qimalarida harakat qiladi: Sinergizm: ma'lum bir to'qimada va ma'lum bir konsentratsiyadagi fitogormon borligi bilan boshqa fitogormonlarga javob borligi kuzatiladi.

Qarama-qarshilik: bitta fitogormonning konsentratsiyasi boshqa o'simlik gormonining ekspresiyasini oldini oladi.

Taqiqlash: fitogormon konsentratsiyasi gormonal funktsiyani sekinlashtiradigan yoki pasaytiradigan tartibga soluvchi moddalar sifatida faoliyat yuritadi.

Kofaktorlar: fitogormon katalitik ta'sir ko'rsatib, tartibga soluvchi moddalar vazifasini bajaradi.[1]

Fitogormonlarning bir qancha turlari mavjud va ular o'simlikda turlicha funksiyalarni amalga oshiradi:

1. Auksinlar. Auksinlar hujayra cho'zilishi va rivojlanishini boshqaruvchi asosiy gormonlardan biridir. O'zbekiston sharoitida paxta, bug'doy, pomidor kabi o'simliklar o'sishini rag'batlantirish uchun auksinlardan foydalanish mumkin. Ular ildiz va kurtaklar rivojlanishini tezlashtiradi, shu bilan birga o'simliklarning o'z-o'zidan tiklanish jarayonlarini qo'llab-quvvatlaydi. Agar auksin urug'lanish amalga oshmagan gullash paytida qo'llanilsa, urug'siz meva rivojlanadi. Urug'siz pomidorlar shu usulda yetishtiriladi. Ammo auksin mevaning rivojlanishida ahamiyatga ega yagona gormon hisoblanmaydi. Geteroauksin (indolin-3 sirka kislotasi) yuksak va tuban o'simlik to'qimalarida mavjud bo'lib, auksinga nisbatan bir necha marta kuchli.[2]

2. Gibberellinlar. Gibberellinlar hujayra cho'zilishiga yordam beradi va o'simliklarning o'sishini rag'batlantiradi. O'zbekiston iqlim sharoitida gibberellinlarning ta'siri bodring, kartoshka va boshqa qishloq xo'jaligi mahsulotlari hosildorligini oshirishda qo'llaniladi. Gibberellinlar o'simliklarning gullash jarayoniga ham ijobiy ta'sir ko'rsatadi. Ular o'simliklarda gipokotil uzayishi, urug'larning unib chiqishi, gullashi va hokazolarni boshqarish bilan bog'liq turli funksiyalarni bajaradigan diterpen tabiatiga mansub fitogormonlar guruhi, aksariyat morfogenetik jarayonlarni boshqarishda gibberellinlar auksinlar bilan bir xil harakat qiladi va sitokininlar va absizin kislotasi (ASA) antagonistlari hisoblanadi.[3]

3. Sitokininlar. Sitokininlar hujayra bo'linishini va o'simliklarning o'sishini rag'batlantiradi. Bu gormon barglarning yashil qolishida, ya'ni keksayish jarayonini kechiktirishda katta ahamiyatga ega. Shuning uchun ular ko'chat va yirik o'simliklarda barglarning yoshligini saqlab qolish uchun

qo'llanadi. Auksinlarning sitokininlarga nisbati hujayralar bo'linishi va o'simlik to'qimalarining differentsiatsiyasida asosiy omil hisoblanadi[4]

4. Abszizin kislotasi (ASA). Abszizin kislotasi o'simliklar uchun stress sharoitida himoya gormoni hisoblanadi. O'zbekistonning quruq va issiq sharoitida ASA suv tanqisligiga qarshi himoya mexanizmini ishga soladi. Ushbu gormon barglarning suv yo'qotishini oldini oladi va o'simliklarning og'ir sharoitlarda yashab qolishiga yordam beradi. Fitogormon angiosperm va gimnospermlarda uchraydi. Yuksak o'simliklarda ASA barcha organlarda uchraydi. Faol holatda ASA (o'simlik o'sishi stimulyatori) ga boy bo'lgan eski yaproqlar, yetuk mevalar, urug'lar va kurtaklarda, ularning oz qismi faol o'sayotgan to'qimalarda (barglar, ko'chatlar) mavjud [5]

Asosiy qism. Fitogormonlarning qo'llanilishi O'zbekistonda qishloq xo'jaligini rivojlantirishda samarali usullardan biri hisoblanadi. Mahsulot yetishtirishda fitogormonlar yordamida hosildorlikni oshirish, mahsulotning sifatini yaxshilash va o'simliklarning atrof-muhit sharoitlariga moslashuvini kuchaytirish mumkin. Paxta, bug'doy, bodring, pomidor va boshqa ko'plab o'simliklarda fitogormonlarning qo'llanilishi fermerlarga hosilni oshirish imkoniyatini beradi va mamlakatda oziq-ovqat xavfsizligini ta'minlashda muhim rol o'ynaydi. O'zbekistonda ko'plab tadqiqotchi olimlar tomonidan izlanishlar olib borilgan va tajribalar o'tkazilgan. Jumladan, O'zbekiston Milliy Universiteti Biologiya fanlari doktori Toshmuxeimedova Sh. va uning shogirdlari tomonidan sitrus o'simlik hisoblangan limonni *in vitro* sharoitida mikroklonal ko'paytirishda fitogormonlarning ahamiyati bo'yicha tadqiqot o'tkazilgan. Tadqiqotda "Verna 51" va "Fino 49" limon navlarining yetuk to'qimalaridan tasodifiy organogenezi, shuningdek ularning endogen sitokininlar va etilen ishlab chiqarish bilan aloqasi o'rganiladi. Bunda kurtaklari butunlay olib tashlangan nodal eksplantlar *in vitro* dan olingan har ikkala limon navining kurtak kulturalari regeneratsiya muhitida yetishtirildi va regeneratsiya tezligi va regeneratsiya qilingan eksplantlar qayd etilgan[7].

Bundan tashqari, Toshkent davlat Agrar Universiteti Qishloq xo'jaligi fitopatologiyasi va Agrobiotexnologiya kafedrasida dotsenti (PhD) A. N. Allayorov va uning shogirdlari bodring o'simligini o'stirishda fitogormonlardan foydalanish bo'yicha tadqiqot olib borishgan. Triakontanol 1,5% EP chin barg fazasi va meva hosil qilish fazasigacha bo'lgan muddatni kamaytirish imkoniyati mavjud[8]

Fitogormonlarni ekinlar intensiv yetishtirilishida qo'llanilishi mohiyati shundan iboratki, birinchidan, ularning endogen kelib chiqqanligidir; ikkinchidan, ularning o'simlikni butun organlar bo'ylab harakatidir; uchinchidan, ularning kam miqdorda ham o'simlikni bo'yiga o'sishiga va shakllanishiga ta'sir etishidir. Fitogormonlarning juda kam konsentratsiyasi ham o'simliklarni o'sishini tezlashtirishi yoki sekinlashtirishi mumkin; to'rtinchidan, fitogormonlarning faqat sintez bo'lgan joyidagina emas, masofadan turib ham ta'sir etishidir.

Xulosa. Mamlakat iqlim sharoitlari va tuproq unumdorligidan kelib chiqib,

o'simliklarda kechadigan fiziologik jarayonlar faolligiga ta'sir etgan holda intensiv tarzda hosil yetishtirish, shuningdek fitogormonlarni qo'llash meyorlarining ilmiy asoslarini amaliyotga bog'liq holda o'simlik turi va navlar kesimida ishlab chiqish hamda qishloq xo'jaligiga tadbiq etish orqali sifatli oziq ovqat ishlab chiqarishni izchil rivojlantirish, mamlakat oziq-ovqat xavfsizligini yanada mustahkamlash, ekologik toza mahsulotlar ishlab chiqarishni kengaytirish, agrar sektorning eksport salohiyatini sezilarli darajada oshirish mumkin. O'zbekistonda fitogormonlar yordamida o'simliklarning o'sishi va rivojlanishini boshqarish katta ahamiyat kasb etadi.

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MAKTABGACHA TA'LIM TASHKILOTLARIDA STEAM TA'LIM TEXNOLOGIYASINI QO'LLASH ORQALI BOLALARDA KREATIV QOBILIYATLARINI RIVOJLANTIRISH

***Annotatsiya:** Ushbu maqolada maktabgacha ta'lim muassasalarida rivojlanish markazlarini zamonaviy yondoshuv asosida tashkil etish masalalari yoritilgan.*

***Kalit so'zlar:** zamonaviy yondoshuv, markaz, rivojlanish, STEAMtanqidiy fikrlash, mustaqil fikrlash, faol muloqot, yakka tartib.*

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DEVELOPMENT OF CREATIVE ABILITIES IN CHILDREN THROUGH THE USE OF STEAM EDUCATIONAL TECHNOLOGY IN PRESCHOOL EDUCATIONAL ORGANIZATIONS

***Abstract:** This article shall be development report on problems how to create modern communication centers in pre-school educations.*

***Key words:** modern communication, center, development, STEAM, critical thinking, direct thinking, active meeting, single order.*

Bugungi dunyo kechagi kabi emas, ertangi kun ham bugungi kabi bo'lmaydi. Inson faoliyati barcha sohalarida dinamik rivojlanayotgan texnologiyalar joriy etilmoqda. Zamonaviy bolalarning 65 foizi bugungi kunda mavjud bo'lmagan kasblarni egallaydi. Kelajakdagi mutaxassislar texnologiya, ilm-fan va muhandislikning turli xil sohalaridan kompleks ta'lim va bilimlarga muhtoj bo'ladi. STEAM farzandlarimizga - ixtirochilar, kashfiyotchilarning kelajak avlodi, olim sifatida tadqiqotlar olib borish, texnologiyani shakllantirish, muhandis sifatida loyihalash, rassom sifatida yaratuvchi, matematik sifatida analitik fikr yuritishni o'yin orqali yuzaga keltiradi. Bugungi kunda STEAMta'lim dunyodagi asosiy tendensiyalardan biri sifatida rivojlanmoqda va amaliyot yondashuvni qo'llashda beshta sohani yagona o'quv sxemasiga integratsiyalashga asoslangan. Bunday ta'limning shartlari uning uzluksizligi va bolalarning guruhlarda o'zaro muloqot qilish qobiliyatini rivojlantirish bo'lib, bunda ular fikrlarni to'plashi va fikrlar almashadi. Shuning uchun, asosiy ta'lim

dasturiga quyidagilar Lego- texnologiyalar, bolalar tadqiqotlari kabi mantiqiy fikrlashni rivojlantirish modullari kiradi. STEAM (S-fan, T-texnologiya, E-muhandislik, A-can'at, M - matematika) - ilm-fan, texnologiya, muhandislik, san'at va matematikani birlashtiruvchi zamonaviy yondashuv.

STEAM bolalarda quyidagi muhim xususiyatlar va ko'nikmalarni rivojlantirishga quyidagicha yordam beradi:

- Muammolarni keng qamrovli tushunish;
- Ijodiy fikrlash;
- Muhandislik yondashuv;
- Tanqidiy fikrlash;
- Ilmiy metodlarni tushunish va qo'llash;
- Dizayn asoslarini tushunish.

Bu yondashuv kelajakda bolalarda hayotiy muammolarni hal etishda yordam beradi. Ko'pgina rivojlangan davlatlarda, jumladan AQSh, Yaponiya, Izrail, Singapur, Rossiyada maktabgacha ta'lim muassalarida bolalarni ijodiy va ixtirochilik qobiliyatlarini rivojlantirish maqsadida mazkur yondashuv metodlaridan samarali foydalanib kelinmoqda.

STEAM yondashuvi tufayli bolalar tabiatni tushunib, dunyoni muntazam o'rganishadi va shu bilan qiziqishlarini, muhandislik fikrlash uslubini, tanqidiy vaziyatlardan chiqish qobiliyatini, jamoaviy ish qobiliyatini rivojlantirish va liderlik, o'z-o'zini namoyon qilish asoslarini o'rganishadi, o'z navbatida, bolalar rivojlanishining tubdan yangi darajasini ta'minlaydi. O'z-o'ziga ishonchni shakllantirish. Bu yondashuvda bolalar o'z qo'llari bilan yaratgan ko'priklar va yo'llar, samolyotlar va avtomobillarni "ishga tushirib", suv osti va havo tuzilmalarini "rivojlantirib", sinovdan o'tkazib, har safar ular maqsadga yaqinlashib borishadi. Yaxshi natija bermagan "mahsulot"ni qayta-qayta sinovdan o'tkazib, takomillashtirib borishadi. Natijada barcha muammolarni o'zi hal qilish, maqsadga erishish bolalar uchun ilhom, g'alaba, adrenalin va quvonch olib keladi. Har bir g'alaba, o'zlarining qobiliyatlariga ko'proq ishonch uyg'otadi. Faol muloqot va jamoaviy ish.

STEAM dasturlari ham faol muloqot va guruh ishi bilan ajralib turadi. Muhokama bosqichida ular fikr bildirishga qo'rqmaslikka o'rganadilar. Ko'pincha, stol atrofida o'tirmaydi, o'zlarining dizaynlari asosidagi "mahsulot"larni sinovdan o'tkazadi va rivojlantiradi. Ular hamma vaqt hamkorlikni ta'minlaydigan jamoada tarbiyachilar va ularning do'stlari bilan muloqot qilish bilan band bo'lishadi. Texnik fanlar bo'yicha qiziqishlarni rivojlantirish. Maktabgacha va boshlang'ich maktab yoshidagi STEAM ta'limi vazifasi qiziqishning rivojlanishi uchun dastlabki shart-sharoitlarni yaratishdir. Bolalar uchun tabiat fanlari va texnik fanlar bo'yicha, qilgan ishni yaxshi ko'rish, qiziqishni rivojlantirish uchun asosdir.

STEAM – bolalar uchun juda qiziqarli va dinamik bo'lib, bolalarning zerikishlariga to'sqinlik qiladi. Ular vaqt o'tayotganini sezmaydilar, lekin ham charchamadilar. Raketalar, avtoulovlar, ko'priklar, osmono'par binolarni qurish,

elektron o‘yinlar, fabrikalar, logistika tarmoqlarini yaratish, dengiz osti kemalari, ilm-fan va texnologiyaga qiziqishi ortib borada. Loyihalar uchun ijodiy va innovatsion yondashuvlar.

Maktabgacha ta’lim muassasalari pedagogik jamoasining o‘rni shundan iboratki, ular har bir bolaning qiziqishi, qobiliyati va ehtiyojini inobatga olgan holda mos keladigan maqsadlar qo‘yishlari, bolalardagi tabiiy qiziqishlarni qo‘llab-quvvatlashlari, ularda borliqni birgalikda o‘zlashtirish ko‘nikmalarini shakllantirishlari kerak.

Rivojlanish markazlaridagi ta’lim jarayonida bolalarning o‘zlari tegishli rivojlanish markazini ixtiyoriy tanlay boshlaydilar. Bolalarni mustaqil guruhlarda ishlashi, individuallashtirishda tarbiyachi shunday faoliyat turlarini o‘ylab topadiki, unda barchaga birdek ko‘rsatma berilsa-da, biroq har bir bola undan kelib chiqqan holda o‘zi mustaqil ravishda muvaffaqiyatga erishishiga imkon beriladi. Individuallashtirish darajasini optimallashtirish mumkin. Epchillik va topqirlik talab etiladigan faoliyat turini tanlagan va bolalarni diqqat bilan kuzatgan holda tarbiyachi zaruriyat tug‘ilib qolsa topshiriq va materiallarni o‘zgartirishi yoki moslashtirishi mumkin.

“Ilk qadam” o‘quv dasturi asosida maktabgacha ta’lim muassasalarida quyidagi rivojlanish markazlari faoliyati yuritilishi nazarda tutiladi: - Qurilish va konstruksiyalash markazi

- Syujet-rolli o‘yinlar va dramalashtirish markazi
- Til va nutq
- Ilm-fan va tabiat markazi
- San’at markazi
- Musiqa va ritmika markazi.

Rivojlanish markazlari bolalarga o‘zlarining shaxsiy ko‘nikmalari va qiziqishlaridan kelib chiqqan holda ta’lim-tarbiya jarayonini mustaqil individuallashtirish imkoniyatini beradi. Masalan, san’at markazida bir bola qog‘oz qirqadi, boshqa bola esa shu qog‘ozdan qaychi bilan o‘zi o‘ylagan shaklchani kesib oladi. Stol ustida o‘ynaladigan o‘yinlar markazida bir bola to‘rtta yog‘och kubikdan shakl yasaydi, boshqa birovi esa yigirma besh bo‘lakli karton qog‘ozli tasvirni tuzishni ma’qul ko‘radi. Tarbiyachi jarayonda bolalarni kuzatadi va ularning rivojlanishiga daxldor fikrlarni yozib boradi. Ancha vaqtdan so‘ng u bolalarga vazifani murakkablashtiruvchi materiallarni taklif etadi yoki vaziyatga qarab ana shu vazifalarni bajarishda bolaga to‘g‘ridan to‘g‘ri yordam beradi. Bunday yo‘l tutish tufayli bola yaxshi sur’atda o‘sib-ulg‘ayishi mumkin.

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HISTORICAL ANALYSIS OF THE SPIRITUAL MORAL EDUCATION OF STUDENTS BASED ON THEORIES OF VALUES

***Abstract:** In this article we can learn about how to conduct spiritual and moral education of students based on theories of values, what is the meaning of the word value, what is the degree of its significance in the upbringing of the younger generation. The analysis of problems related to the essence, content, and forms of manifestation of values has a long history. Since ancient times, people have evaluated the world around them, things, events and phenomena in it, relationships between people, and reflected on their value.*

***Keywords:** value, event, events, people, spiritual development, spirituality, meaning", "meaning"*

Spirituality is a component of social life and, along with the organization of its separate sphere, has an objective reality, like material life. Before talking about spirituality, the role of spiritual life in the life of society, it is necessary to clarify the meaning of the term "spirituality". It is mentioned in the literature that the core of "spirituality" is formed by the words "meaning", "meaning". According to reviewers, the term "spirituality" was formed, on the one hand, from the Arabic "Ma'ni" core. According to the teachings of the early Islamic reformers, the word was divided into one talay parts: life before being— kummun, about atoms— Jawhar al-fard, the doctrine of causal connection — born, considered the science of Essence. [1] The essence, content, manifestation of values has a long history of analysis of problems with forms. From time immemorial, people evaluated the world surrounding them, what is in it, Events and phenomena, relationships between people, thought about their value. Over the course of times, throughout the development of society, problems in this regard have increased, the importance of solving them has increased. [2] The theme of values lay on the basis of a number of world views, which formed the central part of them. Many philosophical currents and thinkers also did not bypass this topic. In books and brochures related to scientists and specialists living in other regions of the West and Europe, Russia and the former Union, dedicated to the philosophical-historical analysis of the topic, this analysis mainly goes about the heritage of European scientists and their contribution to value science. In This Socrates, Plato, Aristotle, Heraclitus, Democritus, J.J.Russo, A.Saint-Simon, Co.Fourier, R.Owen, I.Kant, M.Shaler, N.Gartman, W.Vindelband, G.Rickert, Ujeyms, J.DUI, N.Berdyayev, P.Sorokin, E.Durkheim, T.The names of Parsons and others are mentioned.

We also creatively used the views, conclusions and reflections of these thinkers, scientists and philosophers, during which we turned to some of the works they wrote. Their place in science, the importance of their works, current and teachings such as "sophism", "Platonism", "cantism", "pragmatism", "positivism", "industrial society", "post-industrial society" are associated with the name of these scientists and philosophers. The contribution of the above scientists to value science is diverse, there are many significant services in this area, and we are not going to deny their value for modern Axiology. But the topic of values is not alien to the Kohna and navqiron East, to the thinkers and scientists of Central Asia and Uzbekistan, which are its components! The search for the most thoughtful aspects of the history of value science not only from the West, but also from the East, should not be unprofitable. Khwarazmi, Farabi, Beruniy, Ibn Sina, Najmiddin Kubro, al-Bukhari, at-Termiziy, Yassawi, Ulughbek, Jamiy, Navoi, Mashrab, Bedil, Maxtumquli, Abay, Behbudiy, A. There are traces of this theme in the work of thinkers and scholars such as avlonius. [2] The Point is to look for these traces, not forget them, keep them up to date, interpret them objectively in terms of the realities of time. Relationships between people are called social relations, since they are formed in communication, in labor, in the practice of material delusion. Labor, which forms a person as an active, changing essence, forms the basis of this life. Relations are divided into material and spiritual. The first — in labor, in the entire material life of people, the second — finds content in the spiritual sphere of life. The world of spiritual relations arises on the basis of practical-vokei relations of people. [2]

The result of spiritual development is to find the meaning of human life. The absolutism of this phenomenon testifies to its eternity. Only a person with a certain meaning can move forward in his development. This is a view of Russian philosophers on the question of the meaning of life and how to find it, which can be a methodological basis for the pedagogical theory of the upbringing of the spirituality of Modern School students. Thus, the psychological and logical reconstruction of the concept of "human value" made it possible to formulate the following conclusions: 1. In psychological research, value is considered through the prism of human psychological development. 2. The psychological basis of the subjective spirit is the ability of a person to self-transcendence (V. I. Slobodchikov). 3. Value is realized in the pursuit of the meaning of life (S. L. Frank, W. Frankl, B. S. Bratus, V. I. Slobodchikov). 4. Value is the value-semantic basis of human existence, the truth of which is confirmed by the fact that its absence reduces a person to the level of pure biological animal species, to the level of living organisms. 5. Value is based on self-awareness, including the level of well-being and self-awareness. 6. K. Jung's deep psychology clearly demonstrates the psychological aspect of the development of value: compliance with its goal, listening to the inner voice, "I". The collective unconscious theory explains the phylogenetic and cultural interrelationships in the development of human spirituality. 7. A. Maslow's theory and its synergistic approach allow us to

see the mechanisms of conformity of the "I" dichotomic constructs of an individual explaining the need to support mental structure as a natural balance between irrational and rational in mental processes. That is why speaking on the topic of our national spirituality and values is an argument that proves that we are not ignored in the future of our nation. And the role of spiritual people in our society is incomparable. It is the duty of each of us to teach and boorish the younger generations.

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**THE ROLE OF PLACENTAL PROTEIN PP13 IN THE
PATHOGENESIS OF PLACENTAL INSUFFICIENCY AND
INTRAUTERINE GROWTH RESTRICTION
(LITERATURE REVIEW)**

***Abstract.** Placental protein PP13, which belongs to the lectin family, is one of the key biomarkers that can reflect the functional state of the placenta and the progression of pregnancy. Today, there is increasing interest in studying its role in the pathogenesis of placental insufficiency and fetal growth retardation (FGR), since such conditions are the main causes of perinatal morbidity and mortality.*

***Key words:** placental protein, fetal growth retardation, perinatal mortality*

Placental insufficiency (PI) and fetal growth retardation (FGR) are among the most common complications of pregnancy and pose a serious threat to the health of the mother and child. In recent years, particular attention of scientists has been attracted by the placental protein PP13 (Placental Protein 13), which belongs to the lectin family, which is involved in the regulation of placental functions and can be used as a biomarker for predicting pregnancy complications [1, 2]. PP13 plays a key role in ensuring the adaptation of the mother's vascular system and trophoblast, which is critical for the successful course of pregnancy.

Placental insufficiency, which entails the formation of such a serious complication as fetal growth retardation, is a very important problem not only for obstetricians, but also for many other specialists, since any disorders that occur in the intrauterine period can manifest themselves throughout life. In modern obstetrics, particular importance is attached to the fetal growth retardation syndrome (FGR), since it is associated with high morbidity (16-37%) and mortality (7-23%) of newborns in the perinatal period (WHO).

Placental insufficiency is a clinical syndrome caused by morpho-functional changes in the placental tissue, leading to the development of fetal hypoxia with subsequent delay in its development [3,9]. Any disturbances in the fetus's condition during intrauterine development that arise against the background of placental insufficiency affect the further psychomotor, neurological and physical development of the newborn [6,8].

In modern obstetrics, the term "placental insufficiency" does not fully specify the causes and mechanisms of its formation and long-term consequences for the fetus, and does not always characterize in detail the pathological processes occurring in the placenta-fetus complex. At the same time, quite often there is a discrepancy between the available theoretical knowledge and the practical

capabilities of obstetrics [2,9]. According to modern literature, in women with a history of inflammatory diseases of the urinary system, placental insufficiency (PI) develops in 33.5% of cases; in the presence of cardiovascular pathology, PI occurs in 36.1-44.7% of pregnant women; in the presence of anemia - 31.4%, and in the presence of endocrine pathology - 23.8%. Placental insufficiency in pregnant women with habitual miscarriage during gestation is recorded in 46.7-53.5% of cases.

Reliable morphological criteria of placental insufficiency are signs of delay (insufficiency) of the first (at 6-8 weeks) and, most importantly, the second (at 14-16 weeks) wave of cytotrophoblast invasion into the walls of the uteroplacental arteries [36]. However, clinical signs of the disease do not appear in either the first or second trimesters if there is no extragenital or neuroendocrine pathology. The above facts make it absolutely necessary to predict severe forms of fetal growth retardation, and priority should be given to determining the development of this complication in the first trimester of pregnancy. Usually, properly selected treatment allows avoiding the development of severe forms of IGR.

The physiological course of the gestation process is impossible without the normal functioning of the hemodynamic link of the placenta, in the formation of which not only all kinds of intracellular components, but also angiogenic growth factors take part. A universal pathogenetic process of formation of the most common pathological conditions of gestation is a violation of the expression of angiogenic factors [47]. It follows from this that angiogenesis is a complex process that undergoes significant changes in any obstetric pathology, including placental insufficiency. A number of foreign researchers attribute a leading role in the genesis of placental dysfunction to insufficient production of the PP-13 protein by the placenta [3, 5, 10]. Various studies have been conducted in this direction. Extracellular aggregates of PP13 were discovered around the decidual vein, which suggests that PP13 is released into the intercellular space, then participates in the creation of a certain zone that facilitates the invasion of trophoblast and the transformation of the maternal spiral arteriole [4,5]. Currently, the priority theory for the development of placental insufficiency and fetal growth retardation is the role of endothelial dysfunction, which is manifested by a violation of the expression of angiogenic factors [2,6]. Firstly, they act as angiogenesis stimulators (placental growth factor, vascular endothelial growth factor), and secondly, they have a regulatory effect on the metabolic activity of the trophoblast due to an autocrine mechanism [1, 7, 10].

According to some studies, it has been established that in the dynamics of physiological pregnancy, the level of placental growth factor (PGF) in maternal blood plasma increases, while in women with IGR it decreases [4,6]. The described changes in the content of PGF confirm the role of decreased trophoblast function and endothelial dysfunction in the pathogenesis of fetal growth retardation.

A necessary factor involved in implantation is leukemia inhibitory factor (LIF) and endoglin are expressed, which regulates TR differentiation, limiting the invasiveness of CTR cells [1,8].

Soluble endoglin is most likely produced by the placenta in response to increased production by the cell surface of endoglin-producing cells of the maternal immune system, although there is also a possibility of endoglin production by the maternal endothelium [1,7]. The role of endoglin and leukemia inhibitory factor, as well as many other growth factors expressed in the endometrium, in human implantation remains poorly understood, and further research in this area is needed.

The end result of multistage molecular interactions between the receptive uterus and the mature blastocyst is normal implantation and physiological development of the placenta. This process is carried out with the participation of a large number of proteins, hormones (hCG, progesterone, estriol). Thus, according to some data, progesterone stimulates secretory activity and intensity of stromal edema, increases the volume of blood vessels by 3 times at the site of trophoblast invasion, blocks the action of estrogens, and reduces the levels of immunomodulators. Maternal steroid hormones play a critical role in the receptive phase of implantation, for which the trigger signal is the production of hCG [6,5]. An equally important point characterizing IUGR is the presence of structural and cellular abnormalities in the structure of the hemodynamic system of the fetoplacental complex and the placenta itself [1,9]. In case of fetal growth retardation, spiral arteries retain high resistance due to the limitation of trophoblast villi invasion by their decidual segment. Today, it is already known that the key mechanisms of reproductive processes are the development, growth, and regression of blood vessels [5]. In placental insufficiency and fetal growth retardation, changes in Dopplerograms occur, but they are nonspecific and in a large percentage of cases occur in the second trimester of gestation.

Mechanisms of action of PP13.

PP13 is secreted by the syncytiotrophoblast and has a unique ability to bind to glycoconjugates of maternal vascular endothelial cells. This binding stimulates the production of nitric oxide, promoting vasodilation and reducing vascular resistance in maternal vessels. PP13 also affects trophoblast invasion, vascular adaptation, and maternal immune tolerance to the fetus [1,9]. PP13 protein also helps regulate placental blood supply, exerting a vasodilating effect on spiral arteries, which helps ensure the necessary blood flow for normal fetal development.

Numerous studies confirm that low PP13 levels in early pregnancy are associated with a high risk of fetal growth retardation. IUGR is often caused by a decrease in the transplacental delivery of oxygen and nutrients, which may be a consequence of placental dysfunction due to insufficient PP13 production. Studies show that PP13 helps improve microcirculation and blood supply to the placenta, and prevents the development of fetal hypoxia. In conditions of PP13 deficiency,

pregnant women have an increased risk of giving birth to children with low birth weight, delayed physical development, and a number of other complications.

Use of PP13 as a biomarker

PP13 has been recognized as a promising biomarker for predicting placental insufficiency and fetal growth retardation. Today, PP13 analysis is included in some early screening programs, since its reduced levels before 20 weeks of pregnancy allow us to assess the risk of developing such complications. Early detection of women with reduced PP13 levels allows for timely preventive measures, including drug and non-drug approaches to improve the condition of the placenta and prevent IUGR. Normal PP13 levels maintain adequate blood flow through the spiral arteries in the placenta, providing optimal conditions for fetal growth and development[2,4,5]. When PP13 levels decrease in the early stages of pregnancy, there is insufficient vascular remodeling, which leads to the development of placental insufficiency and can cause fetal growth retardation.

Fetal growth retardation is a common consequence of placental insufficiency. Decreased PP13 levels can serve as a predictor of IGR, as it is involved in the processes that ensure adequate blood supply to the fetus. Studies have shown that women with low PP13 levels have a higher risk of giving birth to low-weight or growth-retarded babies[7,11].

PP13 has potential as an early biomarker for predicting the risks of placental insufficiency and IGR. Including PP13 analysis in a complex of screening tests in the early stages of pregnancy allows identifying women with a high risk of complications, which contributes to the timely implementation of preventive and therapeutic measures. Conclusion

PP13 plays an important role in maintaining normal placental function

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MAKTABGACHA YOSHDAGI BOLALAR TAFAKKURINI RIVOJLANTIRISHDA MNEMONIKA TEXNOLOGIYASINI TAKOMILLASHTIRISH

***Annotatsiya:** Ushbu maqolada maktabgacha yoshdagi bolalarning tafakkurini rivojlantirishda mnemonika texnologiyasidan foydalanishning ahamiyati, bu jarayonning ta'lim tizimiga ta'siri yutuq, kamchiliklari haqida yoritib o'tilgan.*

***Kalit so'zlar:** mnemonika, tafakkur, interfaol metodlar, kognitiv qobiliyat, xotira, diqqat, qiyosiy tafakkur.*

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IMPROVING THE TECHNOLOGY OF MNEMONICS IN THE DEVELOPMENT OF THINKING OF PRESCHOOL CHILDREN

***Annotation:** this article highlights the importance of using mnemonics technology in the development of the thinking of preschool children, the impact of this process on the educational system on achievements, disadvantages.*

***Keywords:** mnemonics, thinking, interactive methods, cognitive ability, memory, attention, comparative thinking.*

Prezidentimiz SH.M.Mirziyoyev o'z nutqida "Hayotimizda hal qiluvchi ahamiyatga ega bo'lgan ta'lim-tarbiya tizimi haqida gapirganda, Abdulla Avloniy bobomizning dono fikrlarini takror va takror aytishga to'g'ri keladi: ta'lim-tarbiya–biz uchun hayot-mamot masalasidir. Qaysi sohani olmaylik, biz zamonaviy yetuk kadrlarni tarbiyalamasdan turib biron-bir o'zgarishga, farovon hayotga erisha olmaymiz. Bunday kadrlarni, millatning sog'lom genofondini tayyorlash, avvalo, maktabgacha ta'lim tizimidan boshlanadi " – deya ta'kidladilar.

Prezidentimizning 2018-yil 30-sentabrdagi "Maktabgacha ta'lim tizimini boshqarishni takomillashtirish chora-tadbirlari to'g'risida" gi PQ-3955-son qarorida ham maktabgacha ta'lim tizimiga yanada alohida e'tibor qaratish lozimligi ko'zlangan. Maktabgacha yoshdagi bolalar tafakkurini rivojlantirishda mnemonika texnologiyasidan foydalanish bolalarning kognitiv qobiliyatlarini

oshirish va ularning xotira, diqqat va ijodiy tafakkurini rivojlantirishga yordam beradi. Mnemonika, ya'ni

axborotni eslab qolish uchun turli xil tasvirlar, assotsiatsiyalar va xotira texnikalaridan foydalanish, maktabgacha yoshdagi bolalar uchun ayniqsa samarali bo'lib, ularning dastlabki ta'lim jarayonlarida mustahkam poydevor yaratishga yordam beradi.

Mnemonika texnologiyasi orqali bolalar murakkab axborotni oddiy, qiziqarli va esda qolarli shakllarga aylantiradilar. Bu esa ularning yangi bilimlarni tezroq o'zlashtirishlariga, qiyosiy va analogik fikrlash qobiliyatlarini rivojlantirishga imkon beradi. Shuningdek, mnemonik usullar bolalarning tasavvurini kengaytirib, ijodiy tafakkur va yangilikka bo'lgan qiziqishni oshiradi. Masalan, bolalarga raqamlar yoki harflarni eslab qolishda ularni turli ranglar, hayvonlar yoki boshqa o'xshash obrazlar bilan bog'lash orqali ta'lim berish mumkin. Bu metod nafaqat axborotni samarali eslab qolishga yordam beradi, balki bolaning umumiy tafakkurini rivojlantirishga ham xizmat qiladi. Shu bilan birga, maktabgacha ta'lim tashkilotlarida mnemonika texnologiyasidan foydalanish bolalarni faoliyat jarayonlariga yanada faolroq jalb etadi va ularda o'rganishga bo'lgan qiziqishni oshiradi. Bu metodning qo'llanilishi natijasida bolalarda eslab qolish, tushunish va axborotni tizimlashtirish qobiliyatlari kuchayadi, bu esa ularning keyingi ta'lim bosqichlariga tayyorgarligini yaxshilaydi.

Mnemonika texnologiyasini maktabgacha yoshdagi bolalarning tafakkurini rivojlantirishda qo'llashning yana bir muhim jihati shundaki, bu usul bolalarning logik tafakkurini, nutq madaniyatini va keng qamrovli tasavvurni rivojlantirishga katta hissa qo'shadi. Xususan, mnemonika vositalari orqali o'qitish jarayonida bolalar ma'lum bir ob'ektni boshqa bir ob'ekt bilan bog'lash, mazmunli hikoyalar tuzish, va xotira texnikalari yordamida murakkab axborotni yaxshiroq anglashni o'rganadilar. Misol uchun, raqamlar ketma-ketligini eslab qolish uchun o'qituvchi har bir raqamni qiziqarli bir obraz yoki vaziyat bilan bog'lab taqdim etishi mumkin. Bolalar raqamlarni shunchaki yodlash o'rniga, ularni bir-biriga bog'liq hikoya sifatida ko'radi, bu esa eslab qolishni osonlashtiradi va shu bilan birga bolalarning ijodiy tafakkurini rivojlantiradi. Shuningdek, mnemonika texnologiyasidan foydalanish bolalarning axborotni kodlash va dekodlash qobiliyatlarini rivojlantiradi. Masalan, ranglar, tovushlar, va shakllarni ma'lum bir axborot bilan bog'lab, bolalar nafaqat eslab qolish jarayonini osonlashtiradi, balki o'zlarining individual o'quv usullarini ham shakllantiradilar. Bu bolalarda o'qishga bo'lgan motivatsiyani oshiradi, ularni mustaqil o'rganish va kashf qilishga rag'batlantiradi. Mnemonika texnologiyasi orqali bolalarda rivojlantiriladigan yana bir muhim jihat - bu qiyosiy tafakkurdir. Bolalar turli obrazlar, ranglar yoki tovushlarni bir-biriga qiyoslash orqali ularning o'xshashlik va farqliligini tushunishga o'rganadilar. Bu qiyosiy fikrlash qobiliyati, o'z navbatida, bolalarning analitik tafakkurini rivojlantiradi, ularni muammolarni hal qilishga tayyorlaydi.

Mnemonika texnologiyasidan maktabgacha yoshdagi bolalarni o'qitishda foydalanish, ularning kognitiv qobiliyatlarini oshirish bilan birga, kelajakda ularning muvaffaqiyatli o'qishini ta'minlaydigan muhim qobiliyatlarni rivojlantirishga yordam beradi. Bu usullar bolalarning intellektual salohiyatini ochib beradi va ularni ijtimoiy va madaniy jihatdan rivojlangan shaxslar sifatida shakllantiradi. Mnemonika texnologiyasi ta'lim jarayoniga joriy etilsa, bu nafaqat o'qitish samaradorligini oshiradi, balki bolalar uchun o'qish jarayonini yanada qiziqarli va mazmunli qiladi. Mnemonika texnologiyasining ta'lim jarayoniga qo'llanilishi bolalarning intellektual rivojlanishida muhim rol o'ynashi bilan birga, ularning ijtimoiy va hissiy jihatdan rivojlanishiga ham ijobiy ta'sir ko'rsatadi. Maktabgacha yoshdagi bolalar uchun ta'limning ushbu shakli nafaqat ularning bilimlarini mustahkamlashga, balki ularning hayotga bo'lgan umumiy munosabatini shakllantirishga yordam beradi. Mnemonik usullar bolalarda o'z-o'zini boshqarish, diqqatni jamlash, va o'z his-tuyg'ularini anglash kabi ko'nikmalarni ham rivojlantiradi. Masalan, bolalar murakkab axborotni eslab qolish yoki tushunishda muvaffaqiyatga erishganda, bu ularda o'ziga bo'lgan ishonchni oshiradi, o'z-o'zini baholash qobiliyatini kuchaytiradi. Bu esa ularning ijtimoiy muhitda o'zini erkin his qilishlariga va o'z his-tuyg'ularini to'g'ri ifoda eta olishlariga yordam beradi.

Bundan tashqari, mnemonika texnologiyasi yordamida ta'lim berish bolalarning ijodkorlik qobiliyatlarini rivojlantiradi. Mnemonik texnikalar ko'pincha tasvirlar, hikoyalar, va assotsiatsiyalar bilan bog'liq bo'lib, bu bolalarning tasavvurini kengaytiradi va ularni yangi fikrlarni kashf etishga undaydi. Masalan, bolalar biron bir hikoyani yaratishda yoki obrazlarni bog'lashda o'zlarining ijodiy qobiliyatlarini ishga soladilar, bu esa ularning ijodiy tafakkurini chuqurlashtiradi va kelajakda yaratish qobiliyatlarini rivojlantiradi. Mnemonik usullarni qo'llash bolalarning til qobiliyatlarini rivojlantirishga ham katta yordam beradi. Tasvirlar, tovushlar va boshqa mnemonik vositalar yordamida bolalar yangi so'zlar va tushunchalarni o'zlashtiradilar, bu esa ularning lug'at boyligini oshiradi va nutqini ravon qilishga yordam beradi. Misol uchun, bolalar biror bir rangni eslab qolishda uning nomini, tasvirini va u bilan bog'liq boshqa xotiralarni bir vaqtning o'zida eslab qolishadi. Bu metod ularning til o'rganish qobiliyatlarini tezlashtiradi va kelajakda murakkab matnlarni tushunish va tahlil qilish qobiliyatini rivojlantiradi.

Mnemonika texnologiyasini ta'lim jarayoniga kiritish, shuningdek, bolalarda o'rganishga bo'lgan qiziqishni va bilim olishga intilishni oshiradi. Ta'limning bunday qiziqarli va samarali shakli, bolalarni bilim olish jarayonida faol ishtirok etishga undaydi, bu esa ularning motivatsiyasini kuchaytiradi. Bolalar o'z bilimlarini mustaqil ravishda kengaytirishga va turli mavzularni o'rganishga harakat qiladilar, bu esa ularning o'z-o'zini rivojlantirish qobiliyatlarini shakllantiradi. Shu tariqa, mnemonika texnologiyasi maktabgacha yoshdagi bolalar ta'limida samarali o'qitish usuli bo'lib, ularning intellektual, ijtimoiy, hissiy va til qobiliyatlarini rivojlantirishga yordam beradi. Bu usul orqali

bolalarning keng qamrovli va muvozanatli rivojlanishiga erishish mumkin, bu esa ularni kelajakda muvaffaqiyatli shaxslar sifatida shakllanishiga zamin yaratadi. Mnemonika texnologiyasining o'quv jarayoniga qo'shilishi bolalarni bilimga qiziqtirish bilan birga, ularning kundalik hayotdagi muammolarni hal qilish qobiliyatlarini ham rivojlantiradi, bu esa ularni hayotda mustahkam poydevor yaratishga yordam beradi. Mnemonika texnologiyasidan foydalanishning yana bir muhim jihati shundaki, bu usul bolalarning o'quv jarayonida o'z-o'zini boshqarish qobiliyatlarini rivojlantiradi. Ta'lim jarayonida bolalar mnemonik usullarni qo'llagan holda ma'lum axborotni mustaqil ravishda qayta ishlash, eslab qolish va foydalanishga o'rganadilar. Bu ularning mustaqil fikrlash va o'z bilimlarini mustahkamlash qobiliyatlarini oshiradi. Bolalar o'z o'qish jarayonlarini tartibga solish, ma'lumotlarni tizimlashtirish va ularni kerakli vaqtda qayta chaqira olish qobiliyatlarini rivojlantiradilar.

Shuningdek, mnemonika texnologiyasini ta'lim jarayoniga joriy etish bolalarda ijtimoiy o'zaro ta'sirlarni yaxshilaydi. Mnemonik texnikalar ko'pincha jamoaviy o'yinlar, guruhli mashg'ulotlar yoki boshqa interaktiv faoliyatlar orqali o'rgatiladi. Bu usullar bolalarni birgalikda ishlash, hamkorlikda o'rganish va bir-birini qo'llab-quvvatlash kabi ijtimoiy ko'nikmalarni rivojlantirishga yordam beradi. Guruhli faoliyatlar bolalarning boshqalar bilan muloqot qilish qobiliyatini oshiradi, ularni o'z fikrlarini ifoda etishga va boshqalar fikrini tinglashga o'rgatadi. Bu esa ularning ijtimoiy moslashuvchanligini oshiradi va ularni kelajakda jamoa ichida muvaffaqiyatli shaxslar bo'lib yetishishiga yordam beradi. Mnemonika texnologiyasi, shuningdek, bolalarning o'qish jarayonida qiziqarli va ijodiy yondashuvlarni rivojlantirish imkonini beradi. Masalan, bolalar yangi mavzularni o'zlashtirishda turli ranglar, tovushlar yoki tasvirlardan foydalanish orqali o'qish jarayonini qiziqarliroq qiladi. Bu nafaqat ularning o'qish motivatsiyasini oshiradi, balki o'rganish jarayonini ijodiy yondashuv orqali yanada boyitadi. Bolalar mnemonik usullarni o'z hayotiy tajribalari bilan bog'lash orqali yangi bilimlarni qabul qilish va tahlil qilish jarayonini tezlashtiradi. Bundan tashqari, mnemonika texnologiyasi yordamida o'qitish, bolalarning xotira qobiliyatlarini mustahkamlash bilan birga, ularning mantiqiy va analitik tafakkurini rivojlantiradi.

Mnemonik usullar axborotni tartibga solish va tuzilmalash orqali bolalarda sabab-oqibat bog'liqliklarini anglash, xulosalar chiqarish va qaror qabul qilish qobiliyatlarini rivojlantiradi. Bu usul orqali bolalar nafaqat eslab qolishni, balki o'rganilgan bilimlarni qo'llash va amalda sinashni ham o'rganadilar. Oxir-oqibat, mnemonika texnologiyasidan foydalanish bolalarning ta'lim jarayonida ularga foydali bo'lgan ko'plab intellektual va ijodiy qobiliyatlarni rivojlantirishga xizmat qiladi. Ushbu usul bolalar uchun o'qish jarayonini nafaqat samarali, balki qiziqarli va ijodiy qilish orqali ularning keng qamrovli rivojlanishiga yordam beradi. Mnemonik usullarni qo'llash, bolalarni mustaqil fikrlashga, ijodkorlikka va o'z-o'zini boshqarishga o'rgatadi, bu esa ularning kelajakda muvaffaqiyatli shaxslar bo'lib yetishishiga zamin yaratadi. Mnemonika texnologiyasining ta'lim

jarayoniga kiritilishi bolalarning fikrlash va xotira qobiliyatlarini rivojlantirish bilan birga, ularning turli jihatlaridagi bilim va ko'nikmalarni chuqurlashtirishga yordam beradi. Bu jarayon bolalarning ma'lumotlarni qayta ishlash, ularni tizimlashtirish va kontekstual ma'noda tushunish qobiliyatlarini oshiradi. Shu bilan birga, mnemonik usullar orqali ta'lim bolalarda kreativ tafakkur va yangi g'oyalarni yaratish qobiliyatlarini rivojlantiradi.

Foydalanilgan adabiyotlar ro'yhati.

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MAKTABGACHA YOSHDAGI BOLALAR TAFAKKURINI RIVOJLANTIRISHDA INTERFAOL METODLARDAN FOYDALANISHNING MAZMUN-MOHİYATI

***Annotatsiya:** Ushbu maqolada maktabgacha yoshdagi bolalar tafakkurini rivojlantirishda interfaol metodlarning ahamiyati va undan foydalanish yo'llari, bolalarda ijodkorlik va mantiqiy fikrlashning rivojlantirib borilishi yoritib ko'rsatilgan.*

***Kalit so'zlar:** Interfaol metod, tafakkur, mustaqil fikrlash, qobiliyat, tanishuv, kooperatsiya, jarayon, fikrlash, emotsional rivojlanish, natijalar tahlili, muhokama va baholash.*

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THE ESSENCE AND ESSENCE OF THE USE OF INTERACTIVE TECHNIQUES IN THE DEVELOPMENT OF THINKING OF PRESCHOOL CHILDREN

***Annotation:** this article highlights the importance and ways of using interactive techniques in the development of preschool children's thinking, the development of creativity and logical thinking in children.*

***Keywords:** interactive method, thinking, independent thinking, ability, dating, cooperation, process, thinking, emotional development, results analysis, discussion and evaluation.*

Hozirgi vaqtda maktabgacha ta'lim jarayonida ham o'qitishning zamonaviy metodlari keng qo'llanilmoqda. O'qitishning zamonaviy metodlarini qo'llash faoliyat jarayonida yuqori samaradorlikka erishishga olib keladi. Bu metodlarni har bir faoliyatning didaktik vazifasidan kelib chiqib tanlash maqsadga muvofiq. An'anaviy faoliyat shaklini saqlab qolgan holda bolalarni faollashtiradigan turli-tuman metodlar bilan boyitish tariyalanuvchilarning o'zlashtirish darajasi o'sishiga olib keladi. Bugungi kunda bir qator rivojlangan mamlakatlarda ta'lim-tarbiya jarayonining samaradorligini kafolatlovchi zamonaviy pedagogik texnologiyalarni qo'llash borasida katta tajriba asoslarini tashkil etuvchi metodlar interfaol metodlar nomi bilan yuritilmoqda. Interfaol ta'lim metodlari hozirda eng ko'p tarqalgan va barcha turdagi ta'lim tashkilotlarida keng qo'llanayotgan

metodlardan hisoblanadi. Shu bilan birga, interfaol ta'lim metodlarining turlari ko'p bo'lib, ta'lim-tarbiya jarayonining deyarlik hamma vazifalarini amalga oshirish maqsadlari uchun moslari hozirda mavjud. Amaliyotda ulardan muayyan maqsadlar uchun moslarini ajratib tegishlicha qo'llash mumkin. Bu holat hozirda interfaol ta'lim metodlarini ma'lum maqsadlarni amalga oshirish uchun to'g'ri tanlash muammosini keltirib chiqargan. Buning uchun faoliyat jarayoni oqilona tashkil qilinishi, pedagog tomonidan tarbiyalanuvchilarning qiziqishini orttirib, ularning faoliyat jarayonida faolligi muttasil rag'batlantirib turilishi, mavzu yuzasidan kichik-kichik bo'laklarga bo'lib mashg'ulotlar tashkil etish, ularning mazmunini ochishda savol-javobdan foydalanish, kichik guruhlarda ishlash, mnemonika, steam, triz texnologiyalari, rolli o'yinlar kabi metodlarni qo'llash va tarbiyalanuvchilarni amaliy mashqlarni mustaqil bajarishga undash talab etiladi. Interfaol metod biror faoliyat yoki muammoni o'zaro muloqotda, o'zaro bahs-munozarada fikrlash asnosida, hamjihatlik bilan hal etishdir. Bu usulning afzalligi shundaki, butun faoliyat ta'lim oluvchini mustaqil fikrlashga o'rgatib, mustaqil hayotga tayyorlaydi.

Interfaol ta'lim metodlari to'liq yoritilgan jarayonlarda muntazam tashkil etilgan mashg'ulot va ta'lim-tarbiya ishlari asosan, misollar orqali tushuntirilib borilganda bolalarda ijodkorlik samaradorligi va mazmuniy boshqarishni ta'minlaydi. Bunday metodlar yoritilgan davrlarda asosan, savollarga javob berish, birlikda ishlash, guruh ishlari, rollar o'ylab sahnalashtirish ishlarni amalga oshirish, boshqa bolalar bilan individual ishlash va boshqalarga o'qish va yozish savodxonlikka tayyorlash ishlarini oson va sifatli amalga oshirishga qaratilgan bo'ladi.

Maktabgacha yoshdagi bolalarning tafakkurini rivojlantirishda interfaol ta'lim metodlaridan foydalanishning nazariy asoslariga quyidagi muhim jihatlarni kiritib o'tishimiz mumkin:

1. Tanishuv: Interfaol ta'lim metodlari, bolalar bilan muomala qilishni osonlashtiradi va ularga o'zlarini izohlash va fikrlarini ifoda qilish imkoniyatini beradi. Tanishuvning o'ziga xos uslubi bilan, bolalarning qobiliyati, tafakkuri hamda o'zlarining shaxsiy sifatlarini ham rivojlantirish mumkin.

2. Ishbilarmonlik: Bolalar interfaol ta'lim metodlaridan foydalanish orqali amaliyotga asoslangan mashg'ulotlar bilan ishlay oladilar. Bu, ularning ijodiy va fikriy qobiliyatlarini rivojlantirishda o'zini ko'rsatish, o'zini bajarish va muammolarni hal qilishga o'rgatadi.

3. Kooperatsiya: Interfaol ta'lim metodlari jamoatchilik ruhiyatini rivojlantirishga yordam beradi. Bolalar guruhlarida bu uslublar asosan alohida yoki hamkorlik qilish orqali o'zlarini boshqalar bilan o'rganishadi, maslahatlar beradi va muammosiz muammolar hal qilish uchun qo'llashadi.

4. Mahoratlar tahlili: Interfaol ta'lim metodlari orqali bolalar o'zlarining mahoratlarini tahlil qilish, belgilab chiqish va rivojlantirish imkoniyatiga ega bo'ladi. Ular o'zlarining qobiliyat va talablariga qarab ta'lim olishlari mumkin, shuningdek, yaratuvchanlik va ijodiylikni mustahkamlashadi.

5. Amaliyotga asoslangan o'qitish: Interfaol ta'lim metodlari amaliyotga asoslangan o'qitish prinsiplariga asoslangan. Bolalarga sabrli tarzda tushuntirilgan konseptlar va ma'lumotlar orqali amaliyotga asoslangan mashg'ulotlar beriladi. Bu, ularning o'rganish jarayonida amaliyot tajribasini qisqartiradi va ularni o'zlashtirishiga imkon beradi.

6. Ta'limiy vositalar va texnologiyalardan foydalanish: Interfaol ta'lim metodlarida texnologiyadan va ta'limiy vositalardan keng qo'llanish mumkin. Bunday vositalar va texnologiyalar, bolalar uchun qiziqarli va interfaol o'rganish imkonini yaratishda muhim rol o'ynaydi. Masalan, kompyuter darslar, onlayn o'quv platformalari, interaktiv dars

7. O'zlashtirish: Interfaol ta'lim metodlari, bolalarga o'zlarining o'rganish jarayonida o'zlashtirish imkonini beradi. Bu metodlar bilan bolalar o'zlarining o'rganish yo'llarini o'zlashtiradi, muammolar va vaziyatlarni o'zining o'zgartirish imkoniyatiga ega bo'ladilar.

8. Har tomonlama rivojlanish: Interfaol ta'lim metodlari, bolalarni har tomonlama rivojlanganligi asnosida o'rganishga yo'l qo'yadi. Bu metodlar bolalarning intellektual, ijodiy, ijtimoiy va hissiy rivojlanishlarini o'zlashtirishga intiladi.

9. Sifatli ta'lim: Interfaol ta'lim metodlarida ta'lim jarayonida sifatli ta'lim prinsiplariga muvofiq amal qilinadi. Bu metodlar bilan bolalarga tarbiyalanish, o'rganish va ijodiylik jarayonida yuqori sifatli ta'lim muhitini ta'minlashda katta ahamiyat beriladi.

10. Buzilishsiz ta'lim: Interfaol ta'lim metodlari, bolalar uchun buzilishsiz ta'lim muhitini yaratishda muhim rol o'ynayadi. Bu metodlar bilan bolalarning xatolaridan, qo'rqishlari va nazorat tashqarisidagi tashvishlari kamayadi, shuningdek, o'z fikrlarini ishlab chiqish va ijodiylikka intilish tushuntirishadi.

11. Muhokama va baholash: Interfaol ta'lim metodlari, bolalarning o'z fikrlarini ifoda qilish, savollarni tushunish va muhokama qilish qobiliyatlarini rivojlantirishga asoslangan. Bu metodlar bilan bolalar o'zlarining ma'lumotlarni tahlil qilish, natijalarni baholash va kelajakdagi o'rganish jarayonini rejalashtirish qobiliyatini oshirishadi.

12. Individual va guruhda o'rganish: Interfaol ta'lim metodlari individual o'rganish va guruhda o'rganishning to'g'ridan-to'g'ri moslashtirilgan kombinatsiyasini taqdim etadi. Bu metodlar bilan bolalar o'zlariga qarab o'rganish, o'zining tez-tez berilgan dasturlariga asoslangan o'rganish, shuningdek, guruhda hamkorlik qilish va tajriba almashish imkoniyatlariga ega bo'ladi.

Maktabgacha yoshdagi bolalar tafakkurini rivojlantirishda interfaol metodlarning ahamiyati katta. Interfaol metodlar bolalarning faolligini, qiziqishini va ijodkorligini oshirishga yordam beradi. Bu metodlarning asosiy afzalliklari quyidagilardan iborat:

1. **Faollikni rag‘batlantirish:** Interfaol metodlar bolalarni o‘yin va amaliy faoliyat orqali o‘qitadi. Bu usul bolalar uchun o‘rgatish jarayonini qiziqarli va jalb etuvchi qiladi, natijada ular faol ishtirok etadi va yangi bilimlarni o‘zlashtirishga tayyor bo‘ladi.

2. **Tafakkur qobiliyatini rivojlantirish:** Bolalar muammolarni hal qilishda, tajriba o‘tkazishda va ijodiy fikrlashda interfaol metodlarni qo‘llash orqali tafakkur qobiliyatlarini rivojlantiradilar. Masalan, konstruktiv o‘yinlar yoki tajribalar orqali bolalar qiziqarli muammolarni hal qilishni o‘rganadilar.

3. **Ijtimoiy ko‘nikmalarni oshirish:** Interfaol metodlar guruhdagi ishlarda bolalarga birgalikda ishlashni, fikr almashishni va hamkorlikni o‘rgatadi. Bu ijtimoiy ko‘nikmalarni rivojlantiradi va bolalarga jamiyatda muvaffaqiyatli bo‘lish uchun zarur bo‘lgan ko‘nikmalarni beradi.

4. **Mustaqil fikrlashni qo‘llab-quvvatlash:** Bolalarga o‘z fikrlarini ifodalash va mustaqil qarorlar qabul qilish imkoniyatini berish orqali interfaol metodlar ularning mustaqil fikrlash va qaror qabul qilish qobiliyatlarini rivojlantiradi.

5. **Emotsional rivojlanishni qo‘llab-quvvatlash:** O‘yinlar va interfaol faoliyat bolalar uchun stressdan xoli va quvnoq muhit yaratadi, bu esa ularning emotsional holatini yaxshilaydi. Bolalar o‘z his-tuyg‘ularini ifodalashda va boshqalarning his-tuyg‘ularini tushunishda yordam beradigan tajribalarni oladilar.

6. **O‘z-o‘zini baholash va o‘zgarishga tayyorlik:** Interfaol metodlar bolalarga o‘z natijalarini baholash, xatolaridan o‘rganish va o‘zgarishga tayyor bo‘lish imkoniyatini beradi. Bu ularda o‘z-o‘zini baholash va yaxshilanishga intilish hissini shakllantiradi.

Interfaol metodlar bolalarning o‘qish va o‘rganishga bo‘lgan qiziqishini oshirish bilan birga, ularning tafakkur va ijtimoiy ko‘nikmalarini rivojlantirishda muhim rol o‘ynaydi. Shuning uchun, ta’lim jarayonida ushbu metodlarni qo‘llash bolalarning umuman rivojlanishi uchun katta ahamiyatga ega. Albatta, interfaol metodlarning maktabgacha yoshdagi bolalar uchun qanday qo‘llanilishi va ularning rivojlanishga ta’siri haqida davom etamiz.

Interfaol metodlar deganda - ta’lim oluvchilarni faollashtiruvchi va mustaqil fikrlashga undovchi, ta’lim jarayonining markazida ta’lim oluvchi bo‘lgan metodlar tushuniladi. Bu metodlar qo‘llanilganda ta’lim beruvchi ta’lim oluvchini faol ishtirok etishga chorlaydi. Ta’lim oluvchi butun jarayon davomida ishtirok etadi. Ta’lim oluvchi markazda bo‘lgan yondashuvning foydali jihatlari quyidagilarda namoyon bo‘ladi:

- ta’lim samarasi yuqoriroq bo‘lgan o‘qish-o‘rganish;
- ta’lim oluvchining yuqori darajada rag‘batlantirilishi;
- ilgari orttirilgan bilimlarning ham e’tiborga olinishi;
- ta’lim jarayoni ta’lim oluvchining maqsad va ehtiyojlariga muvofiq lashtirilishi;

- ta'lim oluvchining tashabbuskorligi va mas'uliyatining qo'llab-quvvatlanishi;

- amalda bajarish orqali o'rganilishi;

- ikki taraflama fikr-mulohazalarga sharoit yaratilishi.

Shunday qilib, fanlarni o'qitish jarayonida interfaol metodlardan foydalanish o'ziga xos xususiyatga ega. Ta'lim amaliyotida foydalanilayotgan har bir interfaol metodni sinchiklab o'rganish va amalda qo'llash ta'lim oluvchilarning fikrlashini kengaytiradi hamda muammoning to'g'ri yechimini topishlariga ijobiy ta'sir ko'rsatadi. Bolalarning ijodkorligini va faolligini oshiradi. Turli xil nazariy va amaliy muammolar interfaol metodlar orqali tahlil etilganda bolalarning bilim, ko'nikma, malakalari kengayishi va chuqurlashishiga erishiladi. Yuqorida aytilganlardan interfaol ta'lim metodlarini tegishlicha tahlil qilish va shu asosda ularni tasniflash zarurati ma'lum bo'ladi.

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THE USE OF COMPUTER TECHNOLOGIES AND INTERNET RESOURCES IN TEACHING VOCABULARY TO STUDENTS

***Abstract:** The use of information and communication technologies allows to significantly increase the efficiency of the process of teaching a foreign language. The use of multimedia programs in teaching vocabulary is especially relevant. Multimedia allows to simultaneously carry out operations with still images, dynamic images (video films, animated graphic images), text and sound. Synchronous impact on human hearing and vision increases the volume and degree of assimilation of information transmitted per unit of time.*

***Key words:** computer technologies in the process of teaching foreign languages, practical exercises for teaching vocabulary using a computer program.*

The aim of the study is to theoretically substantiate the methodology of using computer technologies in the process of teaching foreign languages and to develop practical exercises for teaching vocabulary using a computer program.

The use of a computer also provides certain conveniences for the teacher, since he does not have the opportunity to bring to school all the items he needs, and their visual representation requires a lot of time.

Vocabulary is central to English language teaching because without sufficient vocabulary pupils cannot understand others or express their own ideas. Why is vocabulary learning so important? To understand a text, one must understand the words that represent the ideas or concepts. Studies confirm the high correlation between vocabulary knowledge and reading comprehension.

Let's consider the possibilities of using a computer at all stages of vocabulary learning.

Familiarization with words includes the disclosure of their form, meaning and use. Using a computer allows you to form a graphic image of a word simultaneously with its sound and motor image. At the demonstration stage, words and corresponding pictures appear on the screen. Simultaneously with the graphic image of words, younger students have the opportunity to listen to the word (in this case, the sound image of words is formed). Written recording of vocabulary helps to strengthen the connections of words (speech motor, auditory, visual) and thus contributes to their better memorization.

Visual and auditory perception helps the child to actively, consciously assimilate lexical material.

The stages of working with computer programs are as follows: demonstration, consolidation, control. Using the example of the computer program "English on holidays", we will consider these stages.

The computer helps to organize and control vocabulary at all stages of its study. When teaching with the use of a computer, children perform exercises simultaneously, and each student is immediately informed of the result. Without the use of a computer, it is very difficult for a teacher to check the performance of all exercises by all students simultaneously due to lack of time in the lesson. In this regard, the teacher assumes that if a student can perform some operation with lexical material when performing one specific exercise, then he or she can probably perform the same operation (or a similar one) in other exercises that this student has not been tested. The teacher has to draw conclusions about the level of formation of the lexical skill based on individual answers not only for individual children, but also for the entire class.

Control by the teacher consists of direct observation of the performance of training exercises, while the teacher calls on individual students to check whether they have been performed correctly or incorrectly, or uses a delayed check in oral and written form. And the delay in communicating the results to the student (with delayed control) is inversely proportional to the effectiveness of the training. When teaching with the use of a computer, control is carried out at all stages of teaching vocabulary due to the fact that with its help the problem of feedback is solved. Thus, the computer creates conditions for individualization and intensification of the process of teaching vocabulary, ensuring that all students perform exercises of equal complexity simultaneously.

One of the most revolutionary achievements in recent decades, which has significantly influenced the educational process throughout the world, was the creation of a worldwide computer network called the Internet, which literally means "international network".

The Internet has no meaning without communication - it is an international multinational, cultural society whose life is based on electronic communication of millions of people around the world, speaking at the same time - the most gigantic conversation in terms of size and number of participants that has ever taken place. By joining it in a foreign language lesson, we create a model of real communication.

Communicating in a true language environment provided by the Internet, students find themselves in real life situations. Involved in solving a wide range of meaningful, realistic, interesting and achievable problems, schoolchildren learn to respond to them spontaneously and adequately, which stimulates the creation of original statements, and not the template manipulation of language formulas.

Primary importance is given to understanding, conveying content and expressing meaning, which motivates the study of the structure and vocabulary of the foreign language, which serve this purpose. Thus, the attention of students is concentrated on the use of forms, rather than on the forms themselves, and

grammar is taught indirectly, in direct communication, excluding the pure study of grammar rules.

Mastering communicative and intercultural competence is impossible without communication practice, and the use of Internet resources in a foreign language lesson is simply irreplaceable in this sense: the virtual environment of the Internet allows you to go beyond time and space, providing its users with the opportunity for authentic communication with real interlocutors on topics that are relevant to both parties. However, we must not forget that the Internet is only an auxiliary technical means of teaching, and in order to achieve optimal results, it is necessary to competently integrate its use into the lesson process.

The main goal of the educational process is the holistic development of the student's personality. The means of developing the personality, revealing its potential internal abilities, is independent cognitive and thinking activity. Therefore, my task was to provide such activity in the lesson, which is facilitated by modern interactive technologies."

"In interactive technology, students act as full participants, their experience is no less important than the experience of the teacher, who does not so much give ready-made knowledge as encourages students to independently search. The educational environment acts as a reality in which the student finds for himself an area of mastered experience. The student's experience is the central activator of educational cognition.

The interactive methods and forms through which I implemented the interactive teaching model within the lesson were universal, interesting, exciting, made the lesson dynamic, more intense, created a positive emotional mood, involved all students in the work. An enthusiastic and involved child learned the educational material better.

The essence of the methods, as well as the use of computer technology and the Internet is to make students active participants in the educational process, increase their motivation, and interest them in the subject being studied. As practice shows, all this leads to an increase in the level of mastery of a foreign language, which is especially important at present, due to the increased demands on graduates.

The effectiveness of the educational process largely depends on the teacher's ability to properly organize a lesson and competently choose one or another form of conducting a lesson.

It is difficult for a modern teacher not to get lost in the methods and means of teaching, and the most important task for him is to highlight the most effective, creatively oriented ones.

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BIOECOLOGY AND HARM OF THE LEAF MINING FLY

Annotation: *This article is focused on a number of references referring to bioecological characteristics of *Liriomyza cicerna* Rodani type of leaf mining flies. The article also comprises the observation references on the damage of the larvae of this pest to types of plants. Apart from it, a number of observations were carried out on the damage level of leaf mining fly to agriocultural plants.*

Key words: *pest, *Liriomyza cicerna* Rodani, bioecology, harm, protection.*

All over the world it is observed that numerous problems have been appeared in protecting vegetable plants from pesticides and diseases in the process of their germination and that average 20-40% of vegetable plants grown in the world is being destroyed under the influence of pesticides and diseases⁷. Vegetable growing is developing rapidly as other farm branches in our Republic. Especially, its development is important in increasing the export share of fruit-vegetables and developing the economy of agriculture. In developing vegetable growing creating new sorts, developing the measures of fighting against pesticides is considered to be very important questions of today. Protecting plants from harmful organisms is considered to be of governmental importance. At present it is obvious that it is impossible to apply protecting measures practically not having objective information about pesticides, diseases and weeds of agricultural plants on one hand and being aware of objective knowledge on environment and its changing tendencies on the other hand. Therefore, it is important to study the development, spread of harmful organisms in agricultural plants and the level of their harm to plants.

Vegetable plants are harmed by a number of pesticides and some members of *Agromyzidae* family are considered to be main pesticides. Protection of vegetable plants from pesticides, diseases and weeds is considered to vital in supplying food security and developing export share in or Republic in order to preserve the crop fertility of agricultural plants and supply the population with qualitative food. As Sh.T.Hujayev regards, the lowest favorable temperature for the development of eggs, larvae and puparium of leaf mining flies is +9-10°C. In +25-30°C temperature, 7-9 days is needed for the development of eggs and larvae of the leaf mining fly. Under the same temperature for the development of puparium 8-9 days are needed. In 15°C the growth and development of eggs, larvae and puparium last 25-30 days [1.].

⁷FAO, 2016.

Liriomyza cicerina Rodani started to appear in Turkey from the 2nd half of April when the air temperature was 9-14.3°C and the soil temperature was 19.2-21.2°C. In 3-20 days after imago appeared and when the plant height was 5-10 cm, the larvae started to appear. The pesticide density was high 2 times, at the end of May and June [2]. The forehead of *Liriomyza cicerina* Rodani is 1.5 times larger than its eyes, the wings are 1.3-1.5 mm. the color of its forehead is reddish-yellow, the 3rd part of its mustachio is of dark color. Legs are black, pelvis is mainly yellow. Puparium is reddish, back respirators have 7-9 joints. In Europe *L.cicerina* harms chickpeas, *L. Brynoe* harms tomato and pumpkins, *L. neitzkei* harms onions mainly[3].

During 2022-2023 we carried out a number of investigations on determining the fertility of *L.Ciceirna* type of leaf mining fliers in the laboratory of Andijan agriculture and agrotechnologies Institute. In order to study the fertility of female flies, the experiments were carried out in 3 repetitions in 4 different air temperature varieties (18-20°,20-25°,25-30°,30-35°C) and 3 relative humidity (40%,60%,80%). The results of the carried experiments are given in table 1.

Table 1.

**Fertility of *L.ciccerina* in different conditions
(Laboratory experiment, 2022-2023).**

| Experiment versions | Air temperature, t ⁰ | Relative humidity of the air, % | | |
|---------------------------|---------------------------------|---------------------------------|-------|-------|
| | | 40% | 60% | 80% |
| Level of fertility, piece | | | | |
| 1 | 18-20°C | 30.4 | 74.2 | 37.6 |
| 2 | 20 - 25°C | 136.4 | 201.6 | 129.3 |
| 3 | 25-30 °C | 189.4 | 205.3 | 190.7 |
| 4 | 30-35 °C | 71.6 | 148.6 | 79.3 |

Here, it was confirmed that in conditions with 18-20°C of air temperature and 40% of air humidity fertility of pesticides composed 30.4 pieces, under 60% of air humidity fertility was equal to 74.2 pieces and when the air humidity was 80% the fertility composed 37.6 pieces.

In the 2nd version when the air temperature was 20-25°C and the air humidity was 40% the fertility of leaf mining flies composed 136.4 pieces, when the air humidity was relatively 60% it composed 20.6 pieces and when the humidity was 80% the fertility composed 129.3 pieces.

In the 3rd version the air temperature was appointed to be 25-30°C. In this version we studied the fertility of pesticides under three kinds of relative air humidity too. Here, when the relative air humidity was 40%, the average quantity of pesticide eggs composed 189.9 pieces, when the relative air humidity was 60%

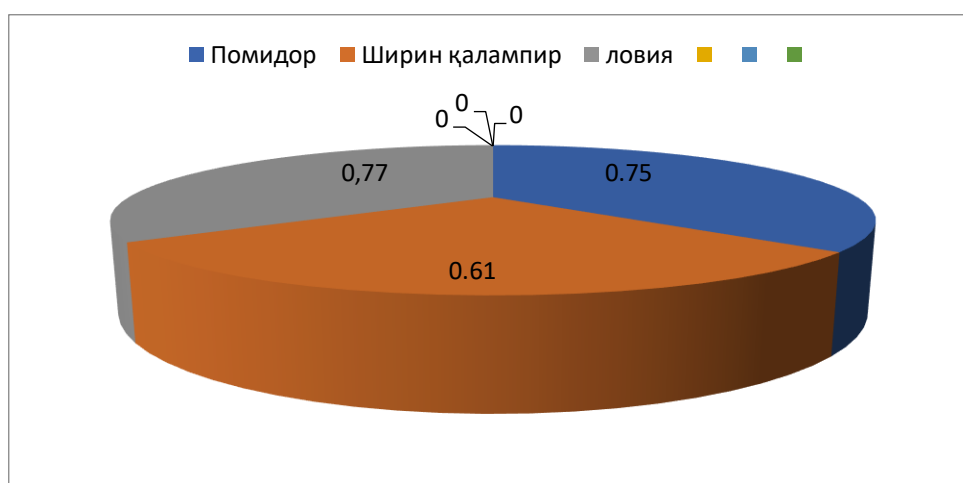
it composed 205.3 pieces. When the relative air humidity was 80% the fertility composed 190.7 pieces.

In the 4th version, the air temperature was appointed to be 30-35°C. When the the relative air humidity is 40%, the fertility of leaf mining flies composed 71.6 pieces, when the relative air humidity was 60% it composed 148.6 pieces. When the relative air humidity was 80% the fertility composed 79.3.

We can see from it that the most favorable condition for *Liriomyza ciccernae* type of leaf mining flies is 25-30° and 60% of relative air humidity. Here, the pesticide may lay up to 205.3 pieces of eggs. When the air temperature is 16°C the pesticides stops feeding and starts to prepare for diapauses. Thus 20°C of air temperature is considered to be relatively low degree for the development, reproduction of the pesticide and that 30-35°C of air temperature is not a favorable condition for the pesticide development.

In order to determine the harm of leaf mining fly- *L.ciccernae* to beans, tomato and bell peeper, we grew tomatoes, bell peppers and beans in the flower pot for laboratory experiments. Puparia of the pesticide were brought from the damaged plant leaves and were put in 10 test tubes, they were kept until they turned into flies. As soon as the flies appeared they were put into the plants isolated from each other. Observations on the time of laying eggs, the time and place of larvae coming out hollows were carried out. We took 15 hollows so that observe the statee of larvae development and they were observed with magnifying glass, their sizes were defined with the help of micrometer lens. The harms made larvae to plants were identified every 24 hours.

Picture 1. Harm of leaf mining fly (*L.ciccernae*) to the surface of beans, tomato, bell pepper during its larvae period (cm²)



According to it, the larvae of the pesticide has its larvae period during 5-5.3 days. The results of the experiment are given in the picture 1.2. We can see from the picture above that a leaf mining fly- *L.ciccernae* harmed 0.77cm² of bean plant surface, 0.61 cm² of the leaf surface of bell pepper and 0.75cm² of the leaf surface of tomato plant during its larvae period.

| № | Types of plants | Number of pests on one plant leaf, piece | | | | |
|---|-----------------|--|-------|--------|--------|--------|
| | | Day | Day 7 | Day 14 | Day 21 | Day 28 |
| 1 | Tomato | - | 0.4 | 1.6 | 3.6 | 4.7 |
| 2 | Beans | - | 0.7 | 2.4 | 4.2 | 5.1 |
| 3 | Cucumber | - | 0.3 | 2.1 | 3.8 | 4.9 |
| 4 | Egg-plant | - | 0.1 | 1.3 | 2.1 | 2.8 |
| 5 | Bell pepper | - | 0.3 | 1.8 | 2.9 | 4.1 |

Table 2.

Levels of damaging different plants by *L.cicerna* type of leaf mining flies (Andijan region, Andijan district 2022-2023).

For this, first of all the best master plant was chosen. Tomato, beans, cucumber, egg plants, bell pepper were sown and grown in 10 flower pots each. When it was time of blossoming we harmed the plants with *L.sativae* type of leaf mining flies. For this, we brought the plant leaves damaged with leaf mining flies and spread them among plant leaves.

In 3 days after harming the plants with *L. Cicerna* type of leaf mining flies we started to observe them. Because, we had to know how the pesticide adapted the plant. On the 7th day of our observation we witnessed that there were average 0.4 piece of pesticide on one tomato leaf, 0.7 piece on a bean leaf, 0.3 piece on one cucumber and bell pepper leaf and 0.1 piece on egg plant leaf.

On Day 14th, we determined that there were average 1.6 pieces on one tomato leaf, 2.4 pieces on a bean leaf, 2.1 pieces on a cucumber leaf, 1.8 pieces on a bell pepper leaf, 1.3 pieces on an egg plant leaf. On the 21st day of the experiment, there were average 3.6 pieces on one tomato leaf, 4.2 pieces on a bean leaf, 3.8 pieces on a cucumber leaf, 2.9 pieces on a bell pepper leaf, 2.1 pieces on an egg plant leaf. On the 28th day of our investigations we observed average 4.7 pieces on one tomato leaf, 5.1 pieces on a bean leaf, 4.9 pieces on a cucumber leaf, 4.1 pieces on a bell pepper leaf, 2.8 pieces on an egg plant leaf.

Based on the above investigation results we can say that as the most favorable master plant for *L. Cicerna* type of leaf mining fly, bean plant was determined.



Picture 2. Bean plants sown in order to reproduce the leaf mining flies.

In investigations carried out on beans the formation of pests population was observed to be frequent in June and July months.

In conclusion, it should be noted that the pore-forming fly - *liriomyza cicerna* is considered cosmopolitan and is distributed in all countries of the world. It harms a number of plants in our country. The climatic conditions of our republic are favorable conditions for the development of pests.

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O'ZBEKISTON SHAROITIDA TO'QIMACHILIK MAHSULOTLARI EKSPORT SALOHIYATINI OSHIRISHDA LOGISTIKANING O'RNI

***Annotatsiya:** Ushbu maqolada to'qimachilik korxonalarini uchun ishlab chiqarishni tashkil etishning uzluksiz shakllarini joriy etish mamlakat to'qimachilik sanoatini rivojlantirish va eksportga yo'naltirilgan mahsulotlar ishlab chiqarishning eng muhim sharti va manbai sifatida ustuvor vazifa sifatida belgilandi. Shu munosabat bilan maqolada O'zbekiston Respublikasida zamonaviy raqobatbardosh milliy to'qimachilik sanoatini shakllantirishning ayrim muammolari ko'rib chiqilgan. Va shu asosda o'rta muddatli istiqbolda to'qimachilik sanoatini rivojlantirishning ustuvor yo'nalishlari ishlab chiqildi. Shu bilan bir qatorda to'qimachilik sanoati korxonalarini raqobatbardoshligini oshirish strategiyalari, strategik xatti-xarakatlarni samarali tashkil etish, ularni rivojlantirish va taraqqiy ettirish ko'zda tutilgan. To'qimachilik mahsulotlarini eksport qilishda logistika xizmatlarini o'rni, samarasi haqida so'z yuritildi. Hamda O'zbekiston iqtisodiyotini rivojlantirishda logistika xizmatlarining ahamiyati ko'rib chiqildi, xalqaro savdo yuk tashish, yuk aylanmasi va iqtisodiy ko'rsatkichlar tahlil qilindi.*

***Kalit so'zlar:** To'qimachilik, tikuvchilik va trikotaj sanoati, eksport, kiyim va trikotaj.*

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independent researcher*

THE ROLE OF LOGISTICS IN INCREASING THE EXPORT POTENTIAL OF TEXTILE PRODUCTS IN UZBEKISTAN

***Abstract:** In this article, the priority task for textile enterprises is the introduction of continuous forms of production organization as the most important condition and source of development of the country's textile industry and the production of export-oriented products. In this regard, the article considers some problems of the formation of a modern competitive national textile industry in the Republic of Uzbekistan. And on this basis, priority directions for the development of the textile industry in the medium term have been developed. At the same time, strategies are provided for improving the competitiveness of textile industry enterprises, effective organization of strategic behavior, their development and promotion. The role and effectiveness of logistics services in the export of textile products were discussed. Logistics services in the development of the economy of Uzbekistan, international trade transportation, cargo turnover and economic indicators were analyzed.*

Keywords: textile, sewing and knitting industry, export, clothing and knitwear.

KIRISH

Zamonaviy dunyoda to'qimachilik sanoati eksport bilan shug'ullanuvchi tarmoqlar orasida yuqori o'rinni egallaydi. Unda eksport qilinadigan mahsulotlarning keng assortimenti mavjud ip-kalavadan tortib tayyor mahsulotlargacha (kiyim va trikotaj). Shu nuqtai nazardan, sanoatning eksport salohiyati katta bo'lib, uning rivojlanishi qaror qabul qilish paytidagi shartlardan tanlanishi mumkin: strategik investorning mavjudligi, jahon tovar bozori, joriy biznes-rejaning samaradorligi, eksport ishlab chiqarish talablariga muvofiq kadrlar tayyorlash darajasi.

Bugungi kunda O'zbekiston to'qimachilik, tikuvchilik va trikotaj sanoati yetakchi va jadal rivojlanayotgan tarmoqlardan biridir. Mustaqillik yillarida mamlakatimiz makroiqtisodiyot majmuasida mustahkam o'rin egalladi. Prezidentimiz rahnamoligida yaratilayotgan qulay shart-sharoit, imtiyoz va preferensiyalar, mustahkam me'yoriy-huquqiy baza tufayli soha korxonalari ulkan muvaffaqiyatlarga erishib, rivojlanishning sifat jihatidan yangi bosqichiga qadam qo'yimoqda.

Bu paxta xomashyosidan keng turdagi mahsulotlar ishlab chiqarish, uni qayta ishlashdan paxta tolasi, kalava, gazlama, trikotaj, tayyor tikuvchilik, trikotaj va paypoq mahsulotlari ishlab chiqarishdir.

Yangi quvvatlar yaratilib, mavjudlari modernizatsiya qilindi. 150 mingdan ortiq ish o'rni yaratildi. Gazlamalar, trikotaj gazlamalar va tayyor mahsulotlar, paypoq mahsulotlari ishlab chiqarish, shuningdek, zamonaviy bo'yash va pardozlash tarmoqlarini yaratishga qaratilgan loyihalar yaratilmoqda.

Tarmoq tarkibiga 1750 ta to'qimachilik, tikuvchilik va trikotaj korxonalari kiradi, jumladan:

410 ta to'qimachilik sanoati, 10 ta mashinasozlik, 1330 ta tikuv-trikotaj sanoati, 75 ta paxta-to'qimachilik klasteri.

Paxta-to'qimachilik klasterlari 2020-yilda 91 ta loyihada ishtirok etib, 117 ta tumanda (respublika umumiy paxta ekiladigan maydonning 87 foizini) egallaydi.

Asosiy ishlab chiqarish assortimentining ishlab chiqarish quvvati: ip - 705 ming tonna; gazlamalar – 1,2 mlrd. kv.m.; trikotaj - 140 ming tonna; tayyor mahsulot – 2,2 milliard dona; paypoq - 132 million dona⁸.

2024- yilning yanvar- avgust oylarida Farg'ona viloyati xorijga jami 1,2 mln AQSh dollari qiymatidagi 6,0 ming tonna quritilgan pomidor mahsuloti eksportini amalga oshirdi. Bu ko'rsatkich o'tgan yilning shu davri bilan solishtirilganda 5,8 ming tonnaga ko'pdir⁹.

⁸ <https://www.agro.uz/11-0295/>

⁹ <https://www.farstat.uz/uz/matbuot-markazi/qo-mita-yangiliklar/15587-farg-ona-viloyati-8-oyda-xorijga-qancha-quritilgan-pomidor-pomidor-qoqi-eksport-qildi.htm>

ADABIYOTLAR TAHLILI VA METODOLOGIYA

O'zbekistonning Yevropa va Osiyo chorrahasida joylashganligi logistikani rivojlantirish uchun katta imkoniyatlar ochmoqda. Biroq, mamlakatda logistika infratuzilmasi va ish samaradorligi etarlicha rivojlanmaganligicha qolmoqda. Jahon bankining 2020-yilgi logistika samaradorligi indeksiga (LPI) ko'ra, O'zbekiston 160 mamlakat ichida 102-o'rinni egalladi, bu esa yaxshilanish uchun muhim imkoniyatlarni ko'rsatadi. LPI shuningdek, bojxona faoliyati, infratuzilma sifati va logistika kompetentsiyasini O'zbekiston logistika tizimining eng zaif sohalari sifatida belgilab berdi.

O'zbekiston Respublikasi Prezidenti Shavkat Mirziyoevning 22.12.2017 yil Oliy Majlisga Murojatnomasida¹⁰ Kelgusi yilda O'zbekiston Respublikasining tashqi savdo yuklarini jahondagi va mintaqadagi asosiy bozorlarga olib chiqadigan ishonchli transport va tranzit yo'laklarini izchil shakllantirishga alohida e'tibor qaratish lozim. Bugungi kunda bizning asosiy yuklarimiz Qozog'iston tranzit yo'laklari orqali, ayniqsa, eng ko'p yuklar "Sariog'och" stanciyasidan o'tadi va bu marshrut imkoniyatlari bizning extiyojlarimizni to'liq qondirmoqda, deb aytolmaymiz. Ushbu stanciyadan tovarlarni O'zbekiston hududiga olib kirishda elektrovozlar, zamonaviy terminallar etishmasligi, temir yo'l tarmoqlaridagi bandlik mahsulotlarning uzoq muddat qolib ketishiga sabab bo'lmoqda. Bu esa mamlakatimiz iqtisodiyotiga salbiy ta'sir ko'rsatmoqda. Shu sababli logistik ARM marshrutlarni diversifikatsiya qilish, bu borada qo'shnilarimiz bilan amaliy muzokaralar o'tkazish zarur.

NATIJALAR

To'qimachilik sanoati barqarorligini ta'minlash va pandemiyaning sohaga ta'sirini yumshatish maqsadida hukumat tomonidan bir qator imtiyoz va imtiyozlar berildi:

Hisobot davri yakuni bo'yicha umumiy tushumda tayyor tikuvchilik va trikotaj mahsulotlari eksportidagi ulushi kamida 60 foizni tashkil etgan korxonalar 2023-yil 1-yanvarga qadar mol-mulk solig'ini to'lashdan ozod etildi.

To'qimachilik, tikuv-trikotaj, charm-poyabzal va mo'yna sanoati korxonalarining daromad solig'i bo'yicha soliq solinadigan baza yetti yil davomida teng ulushlarda zamonaviy tozalash va kanalizatsiya inshootlarini qurish xarajatlari summasiga kamaytiriladi.

Zamonaviy avtomatlashtirilgan so'yish majmualari va terini qayta ishlash korxonalarini ishga tushiruvchi tashkilotlar 2023-yil 1-yanvarga qadar yer solig'ini to'lashdan ozod etildi.

“O'zto'qimachilik sanoati” uyushmasining xorijiy maslahatchilari O'zbekiston Respublikasidagi manbalardan olinadigan daromatlardan uning

¹⁰ O'zbekiston Respublikasini yanada rivojlantirish bo'yicha harakatlar strategiyasi to'rtinchi qonuni. 2017 y.

belgilangan stavkasining 50 foizi miqdorida jismoniy shaxslardan olinadigan daromad solig'i to'laydilar¹¹.

2022-yil fevral oyida Rossiya-Ukraina mojarosi boshlanganidan so'ng, N&m, Zara, Bershka, Uniqlo kabi mashhur kiyim brendlari mamlakatni ommaviy ravishda tark eta boshladi. O'zbekiston Rossiya Federatsiyasida trikotaj kiyim-kechak ishlab chiqarish va etkazib berishni ko'paytirib, ushbu joyni egalladi.

Biroq, o'zbek mahsulotlariga bo'lgan qiziqishning o'sishi nafaqat G'arb kompaniyalarining Rossiyadan chiqib ketishi bilan bog'liq bo'lishi mumkin. Yana bir sabab-tikuvchilik va logistika narxlarining oshishi, Rossiya bozoriga tanish bo'lgan eksportchilar Xitoy va Bangladeshdan tovarlarni yetkazib berish muddatlarining oshishi, kechikishlar bir necha oyga yetadi. Shu vaqt ichida O'zbekiston mahsulotlarini tikishga, Rossiyaga olib kelishga va hatto sotishga muvaffaq bo'ldi.

Shuningdek, mintaqada erkin ishlab chiqarish quvvatlarining mavjudligi, qo'shma ishlab chiqarishlarni yaratish uchun yanada qulay va tushunarli sharoitlar, rublda to'lovlar va Xitoy bilan taqqoslaganda tannarxning pasayishi, masalan, 20-50% muhim rol o'ynadi. Bularning barchasi Rossiya biznesiga ta'minot zanjiri bo'ylab xarajatlarni optimallashtirish va yakuniy mahsulotlar narxlarining o'sishini cheklash imkonini beradi.

Ekologik toza, sifatli va arzon narxlar tufayli o'zbek trikotaj va to'qimachilik mahsulotlari Rossiyada talabga ega. Bugungi kunda O'zbekiston korxonalarida o'z mahsulotlarini qovun Fashion Group, Concept Group, Sportmaster, ozon Marketplace, Gloria Jeans oilaviy kiyim do'konlari tarmog'i, Funday, Zolla erkaklar va ayollar kiyimlari sotuvchisi, Cozy Home uy to'qimachilik va uy-ro'zg'or buyumlari tarmog'i, Crockid bolalar kiyimlari brendlari, Cherubino kabi Rossiya xoldinglari ishlab chiqaradi., Bubl-Gum, Nicolo Angi erkaklar kiyimlari brendi, limé ayollar kiyimlari va aksessuarlari brendi va boshqalar.

Ular ishlayotgan korxonalar orasida Uztex Group, Diva-teks, Samarkand Euro Asia Textile, andijan-TEX yirik xoldinglari bor.

Ushbu afzalliklarga qaramay, O'zbekistonning eksport salohiyati deyarli foydalanilmayapti. Mamlakat eksporti asosan paxta, oltin va tabiiy gaz kabi tovarlar bilan cheklangan bo'lib, qo'shimcha qiymat ishlab chiqarish kam. Eksportda diversifikatsiya va qiymat qo'shilishining etishmasligi savdo defitsitiga olib keldi, import esa eksportdan oshib ketdi. 2022-yil yanvar-dekabr oylarida O'zbekiston eksporti 19,31 milliard dollarni tashkil etdi, bu 2019-yilning shu davriga nisbatan 20,6 foizga ko'pdir.

Eksport salohiyatining pastligi sabablaridan biri O'zbekistonda logistika infratuzilmasining rivojlanmaganligidir. Logistika tizimi xarajatlarni kamaytirish, samaradorlikni oshirish va eksportning umumiy raqobatbardoshligini oshirishda

¹¹ O'zbekiston Respublikasi Prezidentining 2019-yil 16-sentabrdagi PQ-4453-son qarori asosida

muhim rol o'ynaydi. O'zbekistonda samarali logistika operatsiyalarining yo'qligi transport xarajatlarining oshishiga, qo'rg'oshin muddatlarining uzoqlashishiga va ishonchlikning pasayishiga olib keldi, natijada eksport raqobatbardoshligini pasaytirdi. Bundan tashqari, samarasiz logistika tizimi inventarizatsiya xarajatlarining oshishiga, etkazib berishning kechikishiga va pasayishiga olib keladi

ta'minot zanjirini boshqarishning umumiy jarayoniga ta'sir qilishi mumkin bo'lgan mijozlar ehtiyojini qondirish.

O'zbekistonning eksport salohiyatini oshirish uchun samarali va samarali logistika tizimini rivojlantirish juda muhimdir. Buning uchun O'zbekistondagi logistika tizimlarining hozirgi holati, ularni rivojlantirish muammolari va imkoniyatlari, ularning samaradorligini oshirish uchun qabul qilinishi mumkin bo'lgan strategiyalarni har tomonlama tushunish talab etiladi.

Logistika tizimlari va ularning eksportni rivojlantirishdagi ahamiyati. Logistika tizimlari deganda tovarlar, xizmatlar va ma'lumotlarning kelib chiqish nuqtasidan iste'mol nuqtasiga qadar oqimini rejalashtirish, bajarish va nazorat qilish bilan bog'liq faoliyat tarmog'i tushuniladi. Logistika operatsiyalari transport, omborxonalar, inventarizatsiyani boshqarish, qadoqlash va axborotni boshqarishni o'z ichiga oladi. Logistika tizimlarining maqsadi tovarlar va xizmatlarning mijozlarga kerakli miqdorda, o'z vaqtida va kerakli narxda etkazib berilishini ta'minlashdir.

Logistika tizimlari xarajatlarni kamaytirish, samaradorlikni oshirish va eksportning raqobatbardoshligini oshirish orqali eksportni rivojlantirishda muhim rol o'ynaydi. Samarali logistika operatsiyalari transport xarajatlarini, inventarizatsiya xarajatlarini va etkazib berish vaqtini kamaytirishga yordam beradi, natijada eksport narxini pasaytiradi. Bundan tashqari, samarali logistika operatsiyalari etkazib berishning ishonchligini oshirishi, zarar yoki yo'qotish xavfini kamaytirishi va mijozlar ehtiyojini qondirishi mumkin, bu esa eksportning raqobatbardoshligini oshirishi mumkin. Portlar, aeroportlar va avtomobil yo'llari kabi logistika infratuzilmasining rivojlanishi mamlakatlarni jahon bozorlari bilan bog'lashga va ularning xalqaro savdodagi ishtirokini oshirishga yordam beradi. Biroq, logistika tizimlarini rivojlantirish infratuzilma, texnologiya va inson resurslariga katta sarmoyalarni talab qiladi.

O'zbekistonda logistika tizimlarining hozirgi holati. O'zbekistonning logistika infratuzilmasi rivojlanmagan, bu esa eksport salohiyatini rivojlantirishga katta qiyinchilik tug'dirmoqda. Mamlakat transport tarmog'i birinchi navbatda avtomobil transportiga qaratilgan bo'lib, bu yuk tashishning 80% dan ortig'ini tashkil qiladi. Temir yo'l tizimi ham ahamiyatli bo'lib, umumiy uzunligi taxminan 4000 km bo'lib, O'zbekistonni qo'shni davlatlar bilan bog'laydi. Biroq, temir yo'l tizimi past samaradorlik, cheklangan imkoniyatlar va infratuzilmaning etarli emasligidan aziyat chekmoqda, bu uning xalqaro savdoni qo'llab-quvvatlash qobiliyatiga to'sqinlik qiladi. O'zbekistonda bir qancha aeroportlar, jumladan, Toshkent, Samarqand va Buxorodagi xalqaro aeroportlar ham mavjud. Biroq,

aeroportlar cheklangan imkoniyatlar va infratuzilmaning etarli emasligidan aziyat chekmoqda, bu ularning havo yuklarini tashishni qo'llab-quvvatlashga to'sqinlik qilmoqda. Mamlakatning dengiz porti infratuzilmasi ham cheklangan, dengizga to'g'ridan-to'g'ri kirish imkoni yo'q, bu uning dengiz transportini qo'llab-quvvatlash qobiliyatiga to'sqinlik qiladi.

MUHOKAMA

To'qimachilik sanoatining eksport salohiyatini oshirish bo'yicha olib borilayotgan izchil siyosat hozirdan sezilarli natijalar bermoqda: sanoatda texnik jihatdan rivojlangan korxonalar soni ko'paydi, hosildorlik, rentabellik, mahsulot sifati va uning assortimenti kengligi bo'yicha yetakchi ko'rsatkichlar, o'rtacha sanoat ko'rsatkichlariga nisbatan ish haqi; O'zbekiston ichki bozoriga jozibador, zamonaviy buyumlar (kostyumlar, kurtkalar, kiyim-kechaklar, trikotaj buyumlar va boshqalar) qo'shildi. Mamlakat aholisi jahon andozalari darajasidagi arzon, sifatli tovarlarni xarid qilish imkoniyatiga ega bo'ldi; sanoat ishlab chiqarilayotgan mahsulotlarning umumiy hajmida tayyor iste'mol tovarlari ulushini muttasil oshirib bormoqda, u xomashyodan xoli bo'lib, mahalliy xomashyoni chuqur qayta ishlashga tushadi, bu esa xomashyo birligiga qo'shilgan qiymatning bir necha barobar oshishini ta'minlaydi; eksportga yo'naltirilgan korxonalarda ko'plab yangi ish o'rinlari paydo bo'ldi va ularda ishlash nufuzli.

O'zbekiston milliy iqtisodiyotini modernizatsiya qilish tovar oqimlarini boshqarishning logistika usullarini joriy etish va rivojlantirishni xolisona talab qildi.

Tovarlarni taqsimlash sohasida sezilarli o'zgarishlar ro'y berdi, logistika kontseptsiyasiga asoslangan tovarlarni etkazib berishning yangi usullari va texnologiyalari qo'llanila boshlandi, logistika oqimlarini tashkil etishning yangi shakllari va usullari paydo bo'ldi. Buning sababi shundaki, mahsulot narxining 70% dan ortig'i logistika xarajatlari, ya'ni transport, saqlash, qadoqlash va boshqalar. Sanoati rivojlangan mamlakatlarda logistika uzoq vaqtdan beri moddiy oqimlarning harakatini boshqarish samaradorligini oshirish xizmatiga qo'yilgan. O'zbekistonda bozor munosabatlari rivojlanishining yuqori sur'atlari, shuningdek, tovar oqimlarini tashkil etishda ilg'or xorijiy texnologiyalardan foydalanish imkoniyati integratsion hamkorlikni rivojlantirish jarayonlariga yanada dinamizm bag'ishlashga imkon beradi. Bu tovarlarni taqsimlash nazariyasini etarli darajada rivojlantirishni, integratsiya jarayonlarini, ichki iqtisodiyotda logistika markazlarini shakllantirish mohiyati va qonuniyatlarini o'rganishni talab qiladi.

Janubi-Sharqiy Osiyo va Yevropa mamlakatlari o'rtasida har yili ortib borayotgan savdo hajmi, shuningdek, O'zbekistonning transport-tranzit salohiyatidan foydalanish istiqbollari hisobga olgan holda, eksport-import yuklarini saqlash, qayta ishlash, saqlash va tarqatish uchun zamonaviy ombor komplekslarini yaratishni o'z ichiga olgan transport va savdo infratuzilmasini

takomillashtirish zarur¹². Shubhasiz, ushbu ombor terminallari ichki yuklarga ham, O'zbekiston orqali tranzit qilingan yuklarga ham xizmat ko'rsatishi mumkin edi. Xususiyatlari va barcha tegishli "quruq port" infratuzilmasi bilan logistika markazlarini yaratish xalqaro yuk tashishni optimallashtirish uchun yaxshi echim bo'lishi mumkin¹³.

Shuningdek, o'tgan davrda transport sohasidagi davlat siyosati natijasida mamlakatda iqtisodiyot va aholining transportning barcha turlari bo'yicha transport xizmatlariga bo'lgan ehtiyojlarini qondiradigan samarali transport tizimini tashkil etish bo'yicha keng ko'lamli ishlar amalga oshirildi.

Hozirgi vaqtda mamlakatning barcha mintaqalarining fazoviy aloqasi ta'minlandi, yo'lovchi va yuk avtomobil va havo transporti sohasida tarkibiy islohotlar amalga oshirildi, jahon transport makoniga faol va samarali integratsiya qilish uchun sharoit yaratildi.

Shunday qilib, transport tizimi uning samaradorligiga ta'sir qiladigan bir qator jiddiy muammolarni hal qilishi kerak. Bu tomon transport siyosatini takomillashtirish, yo'lovchi va yuk tashish sifati va hajmini ta'minlash, iste'molchilar uchun xarajatlarni kamaytirish, O'zbekiston hududi orqali yuk tranziti hajmini oshirish va raqobatbardosh transport-logistika bozorini shakllantirish, xavfsizlik va atrof-muhitni muhofaza qilish darajasini oshirishga qaratilgan jiddiy institutsional o'zgarishlarni talab qiladi¹⁴.

Ma'lum bo'lishicha, joriy yilning 5 oyida O'zbekiston to'qimachilik mahsulotlarini 1,2 milliard dollardan ortiq eksport qilgan. Bu O'zbekiston Respublikasi statistika agentligi ma'lumotlaridan kelib chiqadi.

Mazkur ma'lumotlarga ko'ra, 2024-yilning yanvar-may oylarida O'zbekiston 1 285,8 million dollarlik to'qimachilik mahsulotlari eksportini amalga oshirdi. O'tgan yilning shu davriga nisbatan eksport ko'rsatkichi 0,5 foizga oshdi.

Ko'rib chiqilayotgan davrda o'zbek to'qimachilik mahsulotlari dunyoning 55 mamlakatiga jo'natildi. Jami 496 turdagi to'qimachilik mahsulotlari eksport qilindi.

To'qimachilik mahsulotlarini eksport qilish tarkibida hali ham ustunlik mavjud:

- * Ip (46,8%);
- * Tayyor to'qimachilik mahsulotlari (37,6%);
- * Trikotaj mato (9,3%);
- * Matolar (5,0%);
- * Paypoq mahsulotlari (1,4%).¹⁵

¹² Омонов Б.Ш., Жураев М.Н., Юсуфхонов З.Ю. У., & Абсатторов И.Х. У. (2022). ОПТИМИЗАЦИЯ СКЛАДСКОЙ ПЛОЩАДИ В ЦЕПЯХ ПОСТАВОК. Universum: технические науки, (4-5 (97)), 9-13.

¹³ Mirsalih M., & Zokirkhon Y. (2022). CHOICE OF THE OPTIMUM FORECASTING MODEL IN DIFFERENT VALUE OF INITIAL INFORMATION. Universum: технические науки, (6-7 (99)), 23-26.

¹⁴ Yusufkhonov Z., Ravshanov M., Kamolov A., & Kamalova E. (2021). Improving the position of the logistics performance index of Uzbekistan. In E3S Web of Conferences (Vol. 264, p. 05028). EDP Sciences.

¹⁵ <https://upl.uz/economy/42722-news.html>

So'nggi yillarda O'zbekistonning yengil sanoatida yuqori qo'shimcha qiymatga ega mahsulotlar ishlab chiqarishni rivojlantirish tendentsiyasi kuzatilmoqda. Bu mamlakatda eksportni diversifikatsiya qilish va mahalliy mahsulotlarning raqobatbardoshligini oshirishga qaratilgan islohotlar tufayli amalga oshirildi.

Yengil sanoat O'zbekiston iqtisodiyotining eng muhim tarmoqlaridan biridir. Bu aholi bandligining yuqori darajasini ta'minlaydi, mamlakat yalpi ichki mahsulotiga katta hissa qo'shadi va uning jahon bozoridagi mavqeini mustahkamlaydi.

To'qimachilik mahsulotlari eksportining o'sishi hukumatning qulay investitsiya muhitini yaratish, ishlab chiqarishni modernizatsiya qilish va innovatsion texnologiyalarni joriy etish bo'yicha izchil ishlari natijasidir. Kelgusida O'zbekiston to'qimachilik mahsulotlari eksportini yanada kengaytirish, yetkazib berish geografiyasini kengaytirish va yangi savdo bozorlarini o'zlashtirishni rejalashtirmoqda.

XULOSALAR

O'zbekiston Respublikasi to'qimachilik sanoati yuqori eksport salohiyatiga ega jadal rivojlanayotgan sanoatdir. Sanoat mahsulotlarini tashqi bozorlarga yo'naltirish, tashqi bozor talablariga javob beradigan eksportbop to'qimachilik mahsulotlari ishlab chiqarishni tashkil etish, ularni tashqi bozorlarga yo'naltirish uchun keng imkoniyatlar mavjud. Shu munosabat bilan korxonalarining eksport salohiyatini oshirish uchun zarur mahsulot sifatini yaxshilash har bir mahsulot jahon standartlari talablariga javob berishi uchun.

Bugungi kunda jahon bozori yigiruv va to'quv mahsulotlari bilan to'yingan, bu esa past foyda va hatto zararga olib keladi. Shunday qilib, respublikaning to'qimachilik va yengil sanoatini rivojlantirish, shuningdek, uning eksport salohiyatini oshirish maqsadida yuqori qo'shimcha qiymatga ega bo'lgan yuqori sifatli tayyor to'qimachilik va yengil sanoat mahsulotlari ishlab chiqarishni va ularning eksportdagi ulushini ko'paytirish zarur. Maqsadli faoliyatni amalga oshirish maqsadga muvofiqdir.

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FORMATION OF CREATIVE ACTIVITY OF PRESCHOOL OLDER CHILDREN

***Annotation:** this article talks about the importance of forming the creative activity of preschoolers in preschool educational organizations. The cognitive process of a preschooler develops in the process of creative activity. In order for the child to seek and show his creative activity in the process of completing the task, there is a need for self-conscious activity that is aimed at a specific goal, planned, has standards and criteria.*

***Key words:** preschool age, child, cognition, creativity, activity, research, creative activity, orientation, regularity, norm, criterion, environment, objects, cognition, mastery;*

Today in our country there are many problems in the development of creative qualities in preschool children, many new laws and decrees are being adopted in our state to solve them. Through creative images in preparatory groups, the school seeks to take into account specific cooperation between the social environment, peers, all representatives of the family in order to develop moral qualities and relate to human interests, as well as to reflect in the life of society. However, as a result of the changing demands of the Times and the worldview of people, problems arise with the provision of moral education in preschool children.

In a preschool child, the process of cognition develops in the process of creative activities. In the process of completing the given task, the need for activities aimed at a specific goal, Planned, having norms and criteria, realizing oneself is felt for the manifestation of a child's creative activity. This entails mastering in the child the objects of the environment and knowledge about them; generating educational efficiency, relying on previous types of activity.

In particular, "how to educate the features of creativity in preschool children?"- the actual problem did not arise today. Azal-the issue of the development of creative abilities in a person, which has long been the beginning of creativity, interests both educators and researchers who are directly involved in children's educational education until the present time. Education and upbringing, the formation of personality in society, the development of abilities still remain relevant issues. The problem of developing the technology for the formation of creative activity in preschool children is one of the multifaceted pedagogical - psychological social tasks and is one of the urgent tasks for the social development and development of society. [3]

Creativity-appears in different situations of activity. Curiosity involves the process of inspiration, aspiration, etc., from the appearance of creativity in the human mind in the highest way to its manifestation. The need for creative activity of a person indicates a new, previously unfulfilled desire for creativity in the activity. In children of preschool age, any shoots of creative activity cannot mature beyond Education, Activity. In the educational process, the emergence of hidden talents in children, the creation of opportunities for their activity from preschool age, the development of creativity in them is considered a pledge of adulthood of competitive personnel who in the future will be able to show high potential, socially active, sharp mentality, the ability to innovate.

This corresponds to one of the priorities of our state – the idea of maturing a harmonious person in every possible way. The formation of creative activity in children in preschool education is considered an important component of the educational process. The age and psychological characteristics of children, active and leading subjects of preschool education, as well as the peculiarities of Fine Arts, labor, music and physical education, require a creative approach from the educator.

Of course, this kind of innovation aimed at updating preschool education both in form and content requires all educators from parents to the upbringing of the child, his approach to education, based on the requirements of the time. Processes in development centers, which are organized in groups of preschool educational organizations, help children to constantly master, consolidate new knowledge.[2] teaching children to independently replenish their knowledge, to adapt appropriately to the processes of renewal that are taking place is the main goal of development centers.

In the research of many educators and psychologists, scientific research has been carried out on the problem of creativity and creativity. In Particular L. S. Vygotsky, B. M. Teplov, S. L. Rubinstein, W. I. Druzhinin, A. N. Leontiev, A. R. Luria, D. B. Bogoyavlensky. A. Ponomarev, N. F. Vishnyakova, A. A. Melik-Pashaeva, V. A. Kan-Kalika, K.V. Gavriloven V. V. Poznyakova and other foreign psychologists who conducted research on this problem: D. Wexler, J.V. Poznyakova et al. Guilford, R. Sternberg, G. Eisenak, A. Tannenbaum et al.

The analysis of psychological and pedagogical literature made it possible to describe the concept of “creativity” as “one of the types of human activity aimed at solving a contradiction (solving a creative problem), for which objective (social, material) and subjective personal conditions (knowledge, skills, creativity) are required. It Is Known That B. M. Teplov skills refers to certain individual psychological abilities that distinguish one person from another, they are not reduced to the existing reserve of skills and knowledge that a person has, but determine the convenience and speed of finding them.[3]

Taking into account the structure of abilities, S. L. Rubinstein identifies two main components: “operational” - mental processes in which activities are carried out, and “nuclear” - mental processes that regulate operations: the quality of the

processes of analysis and synthesis. S. L. It is determined by the modern implementation of the ability structure planned by Rubinstein. V. D. According to Shadrikov's theory, ability is defined by him as "the property of functional systems that carry out individual psychological functions with a measure of individual violence." The "core" is represented by functional mechanisms that depend on inclination and a system of operating components that develop during environmental activities.[5] V. D. Methodological foundations of shadrikov's theory of abilities, as well as B. F. A systematic approach developed in Lomov psychology, P. S. The theory of functional systems of anoxin and B. G. Contains Ananyev's ideas about the ontogenesis of mental functions, the relationship between the functional and operational mechanisms of the psyche. In modern psychological and pedagogical research, there is no single interpretation of the concept of "creativity". Many psychologists evaluate creative abilities in terms of children's attitude to creativity, artistic abilities, the degree of manifestation of creative actions and the effectiveness of activities. Thus, a.A.Melik-Pashaev considers children's creativity to be the result of the child's need to express his inner world. Traditionally, it identifies three levels of artistic talent: the aesthetic position of the individual; creative imagination; a special set of knowledge, skills and skills. I. P. Volkov combines the concepts of "creativity" and "ability" to talk about the ability to think unusually, to perceive unusual things as usual, to see problems, to analyze events, phenomena, and to find patterns in them. Common creative abilities include special musical, literary, artistic, etc.

There are enough psychological grounds to believe that every child has the potential for creativity. In practice, some restrictions must be overcome. First, it is impossible to convey creativity as knowledge or skill, to "broadcast". Secondly, real creativity in any area "creates a strong psychological dominant, embraces the whole person." The task is to help the child get in touch with the position of the creator. By nature, children's creativity is synthetic and often improvisational in nature. A leading role in musical creativity is played by emotional sensitivity and the synthesis of thinking, logic and intuition, creative imagination and the ability to make quick decisions. The process of children's creativity awakens in children the desire to act sincerely and naturally. In conclusion, I would like to note that when working in this direction, I was convinced that performing creative work by children using various methods and techniques, materials, original techniques, creative tasks will allow children to feel unforgettable positive emotions. Children open up great opportunities for their fantasies, desires and self-expression in general, children are interested in creative research and solutions, children learn to work with different materials, children develop confidence in their abilities, their artistic horizons are expanding.

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GLOBALLASHUV JARAYONIDA MA'NAVY-AXLOQIY TARBIYALASHNING ILMIY- METODOLOGIK IMKONIYATLARI

Annotatsiya. Yoshlarimizda turli xil yot va zararli g'oyalarga qarshi kurashish uchun mafkuraviy immunitetni yanada rivojlantirish, ularni turli xil g'oyaviy va mafkuraviy tahdidlardan asrash, jamiyatda mafkuraviy immunitet hosil qilish orqali taraqqiyot qonunlarini chuqur aks ettiradigan sog'lom, barkamol avlodlarni tarbiyalab voyaga yetkazish lozim. Shundagina biz istiqbolda ma'naviy barkamol insonni, sog'lom avlodni tarbiyalashga erishamiz. Jamiyatimizning ustuvor vazifalaridan biri ham barkamol avlodni tarbiyalashdan iboratdir. Zero, ma'naviy barkamol insonlarga buyuk kelajakni yarata oladilar.

Kalit so'zlar: globallashuv, g'oya, ma'naviyat, mafkura, tahdid, immunitet, qadriyat, madaniyat, ma'rifat, urf-odat, marosim, interfaol metod, diniy-ekstremizm.

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SCIENTIFIC AND METHODOLOGICAL POSSIBILITIES OF SPIRITUAL AND ETHICAL EDUCATION IN THE PROCESS OF GLOBALIZATION

Abstract. In order to fight against various foreign and harmful ideas in our youth, it is necessary to further develop ideological immunity, to protect them from various ideological and ideological threats, to raise healthy and mature generations who deeply reflect the laws of development by creating ideological immunity in society. Only then will we be able to raise a spiritually mature person and a healthy generation in the future. One of the priority tasks of our society is to raise a mature generation. After all, only spiritually perfect people can create a great future.

Key words: globalization, idea, spirituality, ideology, threat, immunity, value, culture, enlightenment, tradition, ritual, interactive method, religious extremism.

Hozirgi kunda hayotimiz tobora o'z-o'zimizni anglab borayotganligimiz, umuminsoniy-ma'naviy qadriyatlariga e'tibor kuchaytirilayotganligi bilan izohlanadi. Mavjud ta'lim jarayonini har tomonlama takomillashtirmasdan turib, bu jarayonlarni ijobiy hal etib bo'lmaydi. Chunki ma'naviyatimizda sodir bo'lgan

kamchiliklarni bartaraf etish ko‘p jihatdan ta‘lim tizimining maqsadga muvofiq tarzda bo‘lishiga bevosita bog‘liqdir. Yoshlar tafakkurini o‘stirish, berilayotgan axborotni qabul qilgan zahotiy oq uni qayta ishlab chiqib, tegishli xulosalar chiqarish bilan bog‘liq holatlarga erishish hamda zarur ko‘nikmalarni shakllantirish shu kunning dolzarb vazifalaridan biri bo‘lib turibdi.

O‘quvchi shaxsi faoliyatda, tabiatga, jamiyatga, odamlarga va o‘z-o‘ziga bo‘lgan munosabatlarida shakllanadi. Eng muhimi, ana shu jarayonlarda shakllangan yaxshi sifatlar o‘quvchining kelajak faoliyati, munosabatlari uchun juda zarurdir. Har bir yosh avlod tabiat va jamiyatning ma‘lum rivojlanish bosqichlarida tug‘ilar ekan, u shu jamiyatda shakllangan ma‘naviy muhitda voyaga yetadi. Unda o‘zi tug‘ilgan bosqichdagi hayot taqozo etayotgan faoliyat va munosabatlarga asta-sekin kirishib ketishi uchun ruhiy, ma‘naviy va jismoniy imkoniyatlar mavjuddir. O‘zbek oilasi zimmasiga yosh avlodni har tomonlama mukammal shaxs qilib tarbiyalashdek yuksak mas‘uliyatli vazifa yuklatilgan. Eng yuksak insoniy his-tuyg‘ular, ezgu-niyatlar, betakror ma‘naviyat, iqtidor, aql-zakovat, salohiyat ham oila bag‘rida tarkib topadi. Oilada yosh avlod xarakteriga xos bo‘lgan xususiyatlar tarkib topa boshlaydi. Maktabda esa bu tarbiyani amalga oshirish uchun tizimli ish tashkil etiladi. Avdulla Avloniyning ta‘lim - tarbiyaga oid asarlaridan biri bo‘lgan 1913-yilda yozilgan «Turkiy guliston yoxud ahloq» kitobida yoshlarda ilk yoshdan boshlab axloq va odob tarbiyasini berish kerakligini ta‘kidlanadi. Uningcha yoshlarda axloqiy me‘yorlarning tarkib topishida muhit, sharoit va kishilar g‘oyatda muhim rol o‘ynaydilar. «Tarbiyani tug‘ilgan kundan boshlamoq, vujudimizni quvvatlantirmoq, axloqimizni go‘zallandurmak, zehnimizni ravshanlashdurmak lozim ekan»¹⁶.

Bu fazilatlar avvalo o‘qituvchining o‘zida shakllangan bo‘lishi zarur. Shundagina bunday fazilatlar yoshlarda tarbiyalashga kompetentli bo‘ladi. Buning uchun u ma‘naviy – axloqiy tarbiya vazifalarini aniq tasavvur qilishi lozim.

Ma‘naviy-axloqiy tarbiya vazifalari quyidagilardan iborat:

1. Yoshlarda ma‘naviy-axloqiy ongini shakllantirish.
2. Ularda ma‘naviy-axloqiy his-tuyg‘ularni tarbiyalash va rivojlantirish.
3. Yoshlarda ma‘naviy-axloqiy xulq-atvor ko‘nikma va odatlarini tarkib toptirish.

Ma‘naviy-axloqiy tarbiya mohiyatiga ko‘ra inson ongining jamiyat bilan aloqadorligi, jamiyat oldida burchli ekanligi, o‘z xulq-atvorini jamiyat taraqqiyoti darajasiga bog‘liqligini tushunishi, jamiyat tomonidan tan olingan axloqiy me‘yor, ideal hamda talablarni bajarishda mas‘uliyatni his etishi, ma‘naviy-axloqiy bilimlarning e‘tiqodga aylanishi va bu e‘tiqodlarning tizimliliigi, mustahkam ma‘naviy-axloqiy his-tuyg‘u va xislatlarni shakllantirish, yoshlar tomonidan ma‘naviy-axloqiy xulq-atvor jamiyat a‘zolariga bo‘lgan hurmat-

¹⁶ Abdulla Avloniy. Turkiy guliston yoxud axloq. T., "O‘qituvchi", 1992 y. 13-bet.

e'tiborni namoyon etuvchi mezonlardan ekanligining anglab yetilishi, ma'naviy-axloqiy odatlarning shakllanishi va boshqalardan iborat.

Yoshlar anglashi va uni chuqur o'zlashtirishi zarur bo'lgan masalalardan biri ma'naviy-axloqiy tarbiya mazmunida milliy va umuminsoniy qadriyatlarni tiklash masalasining kun tartibiga qo'yish zaruriyatining yuzaga kelganligi munosabati bilan ta'lim-tarbiya mazmunida tub o'zgarishlar yuz berganligidir.

Eng muhim qadriyat inson omili hisoblanadi. Hayot insonga bir marta beriladi, shuning uchun ham milliy va umuminsoniy qadriyatlarda uni mazmunli, o'zgarlar va o'zining hayoti ma'nosini anglagan holda o'tkazish kerakligi haqida ko'plab rivoyat, hikmat va pand-nasihatlar mavjud.

Bundan tashqari ta'lim muassasasida insonga qadriyat sifatida munosabatda bo'lish ham dolzarb ahamiyatga ega bo'lib bormoqda. Zero, ta'lim tamoyillarida eng muhim, asosiy tamoyillardan biri ta'limni insonparvarlashtirish va demokratlashtirish bo'lib, uning asosiy mohiyati o'quvchi shaxsiga insoniy munosabatda bo'lishni, ta'lim jarayonini erkinlashtirishni talab etadi.

Ma'naviy-axloqiy tarbiyada yana bir eng qimmatli qadriyat erkinlikdir. Ta'limni demokratlashtirish bilan birga shaxs erki va huquqini hurmat qilish rivojlanadi. Bu esa o'z navbatida o'quvchi shaxsida mas'uliyatni his etish, ongli intizomga rioya etish ko'nikmalarini tarbiyalaydi. Shuningdek, vatanparvarlik, insonparvarlik, yuksak axloq, mehnatsevarlik, xalqlar o'rtasida do'stlik va hamkorlik, mas'uliyatni his etish, burch, or-nomus, vijdonlilik, tartiblilik, adolatlilik va boshqa xislatlar tarbiyasi katta ahamiyatga ega.

Bugungi kunda jinsiy tarbiya, mehnat tarbiyasi yanada muhim ahamiyat kasb etmoqda. Sog'lom turmush tarzini tarkib toptirish, ayniqsa, zarurligini kundalik hayot tarzida yanada yaqqol namoyon etmoqda.

Ma'naviy-axloqiy tarbiya tizimida ma'naviy-axloqiy his-tuyg'ular inson tomonidan, uning voqea-hodisalar, kishilar hamda o'z xulqiga nisbatan his-tuyg'ularni uyg'otishga rag'bat paydo qiluvchi tarbiyaviy ishlar tizimli tashkil etilgandagina samarali kechadi. Mazkur tizimda xulq-atvorni shakllantirishga oid tarbiyaviy ishlar aks etadi. Shunga ko'ra ma'naviy-axloqiy xulq-odobga doir xislatlarni shakllantirishga undovchi rag'bat bilan hosil bo'ladigan faoliyat eng asosiy bo'lib hisoblanadi.

Shuningdek, o'quvchida ma'naviy-axloqiy xislatlarni shakllantirishga nisbatan ehtiyoj bo'lishi shart. Demak, ma'naviy-axloqiy tarbiyani tashkil etish jarayonida uyushtiriluvchi tadbirlar xulq-odobga doir xatti-harakatlar zanjiridan iborat bo'ladi. Ma'naviy-axloqiy xatti-harakatlar esa o'quvchi tomonidan axloqiy me'yor va tamoyillar mohiyatini o'rganish, ularni anglab yetishdan iboratdir.

XULOSA

Ma'naviy-axloqiy tarbiyani tashkil etishda yoshlar xatti-harakatlarida ko'zga tashlanadigan salbiy odatlar – jamoat joylarida qattiq gapirish, qo'pol so'zlarni ishlatish, hissiyotga berilish, o'ylamay gapirish, ishonchli bo'lmagan hamda dalillar bilan tasdiqlanmagan voqea-hodisalar haqida fikr yuritish,

boshqalarning suhbatini bo‘lish, qo‘lini silkitib gapirish kabilarning bartaraf etib borilishiga alohida e’tibor qaratish zarur.

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ISHLAB CHIQARISHNI DIVERSIFIKATSIYA QILISH ASOSLARI

***Annotatsiya.** Diversifikatsiya da yuqori samaradorlikka erishish, iqtisodiy foyda olish, bankrotlikka barham berish va boshqa maqsadlarda amalga oshiriladi. Ushbu maqolada diversifikatsiyalash masalalari hamda ishlab chiqarishni diversifikatsiya qilish asoslari haqida soʻz boradi.*

***Kalit soʻzlar.** Modernizatsiya, diversifikatsiya, raqobatbardosh, tarmoq, jarayon, islohot, iqtisod.*

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BASICS OF PRODUCTION DIVERSIFICATION

***Abstract.** Diversification is carried out to achieve higher efficiency, obtain economic benefits, avoid bankruptcy and other purposes. This article discusses the issues of diversification and the basics of diversification of production.*

***Key words.** Modernization, diversification, competitiveness, network, process, reform, economy.*

Yurtimizda iqtisodiy islohotlar borgan sari chuqurlashib, bozor munosabatlariga asoslangan yangi mustaqil milliy iqtisodiyotni barpo etish jarayonlari tezlashmoqda. Bu jarayonlarni tezlashtirishda ishlab chiqarish korxonalarini modernizatsiyalash va raqobatbardoshligini boshqarish oʻrni katta ahamiyatga ega. Oʻzbekiston Respublikasi birinchi Prezidenti I.A.Karimov taʼkidlaganlaridek, “bugungi kunda koʻplab rivojlangan va jahon iqtisodiyotida yetakchi oʻrinlarda turadigan mamlakatlar tajribasi shuni soʻzsiz isbotlab bermoqdaki, raqobatbardosh mahsulot ishlab chiqarishga erishish va dunyo bozorlariga chiqish, birinchi navbatda iqtisodiyotni izchil isloh etish, tarkibiy jihatdan oʻzgartirish va diversifikatsiya qilishni chuqurlashtirish, yuqori texnologiyalarga asoslangan yangi korxonalar va ishlab chiqarish tarmoqlarining jadal rivojlanishini taʼminlash, faoliyat koʻrsatayotgan ishlab chiqarish quvvatlarini modernizatsiya qilish va texnik yangilash jarayonlarini tezlashtirish hisobidan amalga oshirilishi mumkin”.

Shu nuqtai nazardan iqtisodiyotni modernizatsiyalash bozor iqtisodiyoti sharoitida iqtisodiyotning real sektori korxonalarini qoʻllabquvvatlash boʻyicha birinchi navbatda ishlab chiqarishni modernizatsiya qilish, raqobatbardosh

mahsulot ishlab chiqarish, hamkorlik aloqalarini kengaytirish, mustahkan hamkorlikni yo'lga qo'yish, mamlakatimizda ishlab chiqarigan mahsulotlarga ichki talabni rag'batlantirish masalalari alohida o'rin tutadi. O'zbekiston Respublikasi keyingi 28 yil davomida iqtisodiyotni bosqichma-bosqich tarkibiy o'zgartirish bo'yicha islohotlarni amalga oshirmoqda. Bu islohotlarning asosiy maqsadlari boshida yalpi milliy mahsulotni raqobatbardoshligini oshirishga qaratilgan iqtisodiyotni modernizatsiyalashdan iborat.

Mamlakatimizda o'z vaqtida tanlab olingan iqtisodiy taraqqiyot modelining asosiy tamoyillari asosida ishlab chiqilgan, chuqur va har tomonlama o'ylangan iqtisodiyotni tarkibiy o'zgartirish va modernizatsiyalash bo'yicha ishlar amalga oshirilishi natijasida 2019-yil yakunlariga ko'ra, mamlakatning yalpi ichki mahsuloti – 8,0 foizga, qishloq xo'jaligi – 6,8 foizga, sanoat mahsulotlari ishlab chiqarish hajmi – 8,8 foizga, chakana savdo aylanmasi – 14,8 foizga oshdi.

Respublikamizda ishlab chiqarishni diversifikatsiyalash va modernizatsiyalash hamda mahsulot raqobatbardoshligini boshqarishni takomillashtirish, rivojlangan mamlakatlar qatori zamonaviy asbob-uskunalar bilan ta'minlash va mahsulot raqobatbardoshligiga erishish uchun uning sifatini oshirish jarayonida qo'l keladigan taklif va tavsiyalarni tahlil qilish va uni amalga qo'llay olish hisoblanadi. Prezidentimiz Shavkat Mirziyoyev Miromonovich aytganlaridek, “tadbirkorlik va ishlab chiqarish sohalarini rivojlantirish, ularni zamonga mos holda diversifikatsiya va modernizatsiya qilish, ularning imkoniyatlardan to'la foydalanish xalqimiz farovonligini yanada yuksaltirishga xizmat qiladi va shunda biz qurayotgan jamiyat o'z-o'zidan rivojlanish yo'liga qadam qo'yadi”

Bozor iqtisodiyoti tizimiga o'tish davrida tashkilotlar o'rtasidagi raqobatning kuchayishi raqobatbardoshlikni oshirish va tanlangan bozor segmentida tashkilotning mavqeini mustahkamlash uchun biznesni rivojlantirishning yangi yo'nalishlarini izlash zarurligiga olib keldi. Shu munosabat bilan, so'nggi yillarda, ko'pincha, ko'plab tashkilotlar biznes samaradorligini oshirish uchun ishlab chiqarishni diversifikatsiyalash kabi iqtisodiy vositalardan foydalanishni boshladilar, bu esa tadqiqotning dolzarbligini belgilab beradi. Biznesni diversifikatsiya qilish - bu moliyaviy yoki ishlab chiqarish resurslarini turli sohalar va tarmoqlarda taqsimlash bilan bog'liq ishlab chiqarish yoki savdo jarayonida yuzaga keladigan xavflarni minimallashtirishga qaratilgan usul. Turli xil diversifikatsiya dasturlari orqali biznesni modernizatsiya qilish tendentsiyasi 1950-yillarning o'rtalarida butun dunyo bo'ylab ishbilarmonlar tomonidan tan olingan.

Diversifikatsiya (lotinchadan diversus - har xil va facere - qilmoq, bajarmoq) – bu ishlab chiqarishning samaradorligini oshirish, mahsulot va xizmatlarni sotish bozorlarini kengaytirish maqsadida tarmoq va korxonalar faoliyat sohalarini kengaytirish, mahsulot va xizmatlar assortimentlarini ko'paytirish demakdir. Diversifikatsiya strategiyasi – korxonalar faoliyatini mavjud

mahsulotlar va bozorlar turini kengaytirish orqali rivojlanish strategiyasidir. Diversifikatsiya strategiyasi korxonalarining ishlab chiqarish va tijorat faoliyatini rivojlantirishning eng yetakchi zamonaviy tendensiyalardan biri hisoblanib, u orqali korxonalarni bozor sharoitida vujudga keladigan turli qaltisliklarga boʻlgan raqobatbardoshligini oshiradi. Diversifikatsiya strategiyasi – korxonalarda yangi mahsulotlar liniyalarini ishga tushirish, qoʻshma korxonalar tuzish, boshqa korxonalarni sotib olish va boshqa turli uslublarda amalga oshirishi mumkin (1-rasm). Korxonalarni texnik qayta qurollantirish - alohida ishlab chiqarish turlarini zamonaviy talablarga asosan yangi texnika va texnologiyalarni kiritish, ishlab chiqarish jarayonlarini mexanizatsiyalash va avtomatlashtirish, eskirgan qurilma va uskunalarni yangilash va almashtirish, ishlab chiqarish tuzilmasi va tashkil etilishini yaxshilash yoʻli bilan, korxonaning texnik darajasini oshirish boʻyicha chora-tadbirlar majmuasi. U ishlab chiqarish intensivligini kuchaytirish, ishlab chiqarish quvvatlarini oshirish va ishlab chiqarilayotgan mahsulotlar sifatini yaxshilashga yoʻnaltirilgan boʻladi.

Ijtimoiy jihatdan biznesni diversifikatsiya qilish samaradorligi tashkilot faoliyatining kengayishi, maqsadli auditoriya va yangi jalb qilingan iste'molchilarning ehtiyojlarini toʻliq qondiradigan yaxshilangan sifatli mahsulotlarning yangi turlarini ishlab chiqarish natijasida yangi ish oʻrinlari sonining koʻpayishida namoyon boʻladi. Biznesni diversifikatsiya qilishning asosiy yoʻnalishi yangi turdagi mahsulotlarni ishlab chiqarishni tashkil etish boʻlganligi sababli, strategik tahlil va rejalashtirish alohida ahamiyatga ega boʻlib, tanlangan diversifikatsiya strategiyasini amalga oshirishdan tashkilot qanday foyda olishini real baholash imkonini beradi. masalan:

yangi mahsulotlarni chiqarish doimiy va shartli belgilangan xarajatlarni oʻtkazish orqali koʻproq daromad olishga hissa qoʻshishi mumkin (yaʼni, ishlab chiqarish hajmi koʻproq mahsulotga oʻsishiga qaraganda kamroq darajada oʻsadigan xarajatlar);

tashkilot ishlab chiqarish hajmini oshirish va yangi mahsulotlarni ilgari surish uchun mavjud infratuzilmadan foydalanishi mumkin; qoʻshimcha kadrlarni jalb qilish zarurati, ayniqsa, xodimlar ishlab chiqarish jarayonini saqlash va boshqarish bilan shugʻullanadigan hollarda kamayadi;

- yangi mahsulotlar ishlab chiqarilgandan soʻng daromadning oʻsishi, asosan, qoʻshimcha xarajatlarni tejash hisobiga, shuningdek, yangi bozorlarni oʻzlashtirish va daromadning koʻpayishi natijasida yuzaga kelishi mumkin.

Mumkin boʻlgan imtiyozlarni tahlil qilish faqat tegishli tarmoqlarga diversifikatsiya qilingan taqdirda, tashkilot yangi mahsulotlarni chiqarish uchun mavjud texnologiyalar va uskunalardan foydalanganda qabul qilinadi. Adekvat prognozlash turdosh tarmoqlarga diversifikatsiyaning maksimal mumkin boʻlgan diapazonini aniqlash imkonini beradi.

Zamonaviy adabiyotda diversifikatsiya, birinchi navbatda, kengroq assortimentga ega boʻlgan koʻp tarmoqli ishlab chiqarishga oʻtish yoʻli sifatida koʻrib chiqiladi va uning mohiyatining ikkita asosiy jihati ajratiladi.

Diversifikatsiya - bu kompaniyaning strategik sohalari va mahsulot assortimentini to'liq o'zgartirish bilan bog'liq strategiya. Tashkilotning rivojlanish strategiyasining bir qismi sifatida diversifikatsiya strategiyalaridan foydalanish joriy biznes jarayonlarini optimallashtirish va rivojlanishning ustuvor yo'nalishlarini aniqlash imkonini beradi. Shunday qilib, biznesni diversifikatsiya qilish tashkilotga o'z faoliyatining barqarorlashuvi va ijobiy dinamikasini ta'minlashga, shuningdek, moliyaviy-iqtisodiy ko'rsatkichlarni yaxshilash va iqtisodiy o'sishni ta'minlashga imkon beradi, bu esa tashkilotning bozor qiymatining oshishiga va aktsiyadorlarning daromadini o'sishiga yordam beradi.

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WATER EXCHANGE OF WHEAT SPECIES IN THE MILKY RIPENESS PHASE IN THE CONDITIONS OF THE SURKHANDARYA REGION

***Abstract:** it has been learned features of water exchange during the milky ripeness phase of wheat varieties in soil climatic condition in surkhandarya region*

***Key words:** milky ripeness, triticum v. growth, development, number of grain, transpiration, ecological factors.*

Crops require more than thirty agrotechnological processes from planting to ripening. Because the planned harvest cannot be achieved without cultivation, irrigation, protection from diseases, insects, weeds and other measures from planting to ripening. [4].

These events between Water exchange characteristics of plants are one of the main indicators that ensure their growth, development, yield and quality of the crop. [2].

Based on the above information, we studied the water exchange characteristics of wheat varieties, their growth and development phases.

In the table given from the data as it turns out , plants on the leaf water exchange features their variety features based on from each other difference does In the leaves common water quantity Andijan 1 variety by 73.5% equal to and 75.0 % in Andijon 2 variety equal to It is Andijan 1 variety 1.5 % more it is century wheat variety in the leaves common water The amount is 75.4% of the Andijan 1 variety compared to 1.9% more it is good luck wheat variety in the leaves common water if the amount is 78.5% , it is Andijan 1 variety in the leaves common water by 5.0% of the amount a lot the fact that was determined . Grom variety 79.1% total in leaves water quantity if it is , it is 5.6% higher than the Andijan 1 variety a lot Tanya wheat 83.3 % water in leaves and Andijan 1 variety by 9.8 % abundance was determined .

From the data It was found that Andijan-1 wheat of the variety in the leaves common water to the amount relative to the Tanya variety in the leaves water the most a lot to be was determined .

Transpiration speed of plants water exchange feature pointer from pointers one is considered It is presented in Table 1.1 data based on Andijan 1 wheat variety 1m² of leaves leaf 1 hour above the level during 23.5 g of water polished Andijan 2 wheat variety in the leaves that's it 22.2 g of water per term steamed ie Andijan 2 variety 1.3 g less than Andijan 1 navi water polished century wheat type 21 , 1 g of water polished 2.4 g less than Andijan 1 variety water polished good luck and Grom wheat varieties Andijan 1 wheat type 5.1g and 6.8g of water respectively less polished was observed . Tanya variety 1 hour during 14.7 g of water from the leaves polished , 8.8 g less than Andijan 1 variety water polished These are pointers of varieties transpiration speed from each other sharp difference to do is showing .

Water shortage is also a variety features depends without will change Andijan 1 variety in the leaves water the deficit is 6.8 % of the Tanya variety this indicator by 2.7% equal to It is Andijan 1 variety compared to 4.1 % less the fact that was observed . The rest varieties are also intermediate place take over Andijan 1 variety relatively water shortage less ie Andijan 2 grade 1.5%, Asr variety 1.8 %, Omad grade 2.5%, Grom that the variety is 2.7% was determined .

Water storage ability also plants to drought endurance characterizing important is a pointer . Andijan 1 wheat variety leaves water storage the ability another to varieties relatively the lowest is 1 hour during spent water if the amount is 5.8% , that's it Tanya wheat in term grade by 3.5% equal , that is, Tanya variety Andijan 1 variety compared to 2.3% less water spent Andijan 2, Asr , Omad and Grom wheat varieties that's it in term i.e. in 1 hour spent water quantity Andijan 1 wheat type relatively Andijan 2 variety 0.5%, Asr variety 0.1 %, Omad grade 0.9%, Grom grade 1.3% water less spent This is the data Andijan 1 wheat of the variety water storage ability is the lowest. Tanya variety water storage ability the most high that showed . The rest varieties intermediate in places settled down .

Wheat varieties water exchange features based on without their to drought endurance level the following in order placing possible : Andijan 1 < Andijan 2 < Asr < Omad < Grom < Tanya i.e. Tanya wheat variety to drought endurance the most high was determined . I can't stand it Andijan 1 variety being came out The rest varieties intermediate in places settled down .

Wheat varieties to drought endurance level pointer the most important physiological process of the leaves water is a shortage .

Wheat varieties to drought endurance level pointer the most important physiological process of leaves the water storage is the ability . Other to pointers relatively this pointer straight away of varieties to drought endurance level characterizes

Wheat varieties to drought endurance level descriptive ie their water shortage according to collected data as shown all studied varieties between relatively to drought durable variety is the Tanya variety is considered Of this variety 1 hour on the leaves during water that the deficit is 2.7 % was determined

. Relatively unbearable estimated Andijan-1 wheat variety 1 hour from the leaves during 6.8 % of water shortage was observed .

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SALVIA L. MORPHOPHYSIOLOGICAL INDICATORS

Abstract: *In this article shows that growth of curative mawrak(salvia) in accordance with climate condition of termiz that they are fully adopted to local condition.*

Key words: *medicinal salvia officinalis, growth, development, number of seeds, fertility, ecological factors.*

Growth characteristics of medicinal mavrak. As a result of the growth process of the sprout, young branches grow in it, and they, in turn, begin to branch, as a result of such continuous branching, the plant's branches are formed. A stem consists of three parts, the point where the leaf joins the stem joint, the space between the two joints, the angle formed between the leaf and the stem at the stem joint, and the leaf axil. is called [1] .

Dorivor mavrakin in studies The study of seed germination was carried out in two conditions: 1. Seed germination in room conditions. 2. Seed germination under field conditions.

At room temperature, 20 seeds were sown on moistened paper in a Petri dish. Researches were conducted in 3 different periods in February, March and April (Table 1.1) .

Table 1.1

D orivore Mavrak seed germination %
(February, room conditions)

| No | Observed days | | | | | | | | | |
|---------------------|---------------|---|----|----|----|----|---|---|---|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| germinated seeds, % | 3 | 7 | 11 | 16 | 20 | 11 | 9 | 6 | 4 | 1 |

In February, under room conditions, the seeds began to germinate in 5 days. 2% on the day the seeds started to germinate, maximum germination at 10 days (89%) and reduced seed germination after 15 days (1%). Thus , a total of 89% of seeds germinated in room conditions. Seed germination energy was 15.7%.

The value of the introduced plants is determined by the quality of the wood, decorative level, sanitary-hygienic, biological properties, as well as heat and cold resistance. Therefore , the response of plants to environmental factors in different climatic conditions has been widely studied. According to scientific sources, cold tolerance of plants is a feature reinforced by genetic characteristics of the species.

A plant's resistance to cold or heat is usually more pronounced in extreme conditions. A number of studies show that the resistance of plants to cold or heat depends on their age. Cold tolerance is related to the geographical origin of plants. As such, plants with a large natural area are quickly adaptable and resistant to environmental factors. In Termiz conditions, frequent winter warmth and evening cold in spring are a serious obstacle in the acclimatization of plants.

Germination rates of both seeds under irrigated field conditions were comparable to those under room conditions. The germination rate of the seeds planted in the irrigated soil at the corresponding periods was 45%, 39% and 35%, respectively. The lower seed germination in field conditions compared to room conditions can be explained by the influence of soil and climate. As mentioned, air and soil temperature changes dramatically during the day. The average air temperature during the day is 30-35 °C, and in the evening it reaches 12-18 °C. This makes it difficult for the seed to gather the necessary temperature for germination and for the sprout to germinate.

Drivore Mavrak root growth was checked every 5 days. 5 days after seed germination, the length of the main root is 1.5 cm and the diameter is 0.2 cm, and the seed coat is 0.3 cm and 0.2 cm, the hypocotyl is also 0.3 cm and 0.2 cm, and It was 0.2 cm and 0.2 cm. Rapid growth of the root system was detected 20 days after seed germination.

Drivore Mavrak age of phenologist. Seed germination in field conditions was studied in two different periods: in autumn (20.10.2018) and in spring (25.03.2019). These studies showed that seeds germinated in both variants, but the percentage of seed germination when planted in autumn was higher than in the variant planted in spring (45-55% and 25-35%, respectively). The different number of flowers was observed in plants of different ages and under different conditions. Phenological observations are important not only in determining the transition periods of different phases, but also in determining the durability, productivity, decorativeness of plants, as well as the rhythm of life processes in them. Species originating from different geographic locations start their growing season in a certain sequence, depending on how spring arrives. It will be preserved regardless. If the temperature is the main factor, this process is controlled by the genotypic characteristics of the plant, strengthened in its natural range. The seasonal development pattern of the plant reflects the historical development of the species under the influence of the external environment. Annual meteorological factors (heat, precipitation, relative humidity of the atmosphere, etc.) have an effect on the seasonal development of the plant. It is noted that they are well acclimatized in the conditions of introduction, when they correspond to the conditions of the plant in its natural area. Different plants start spring vegetation at different times. In many scientific sources, the period of seasonal development of plants of one or another species has reached a certain level of useful temperature.

Medicinal properties of medicinal mavrak . Juice obtained from fresh fruits is prescribed for gastric and duodenal ulcers, hypoacid gastritis, spastic colitis, mixed with honey for diseases of the upper respiratory tract. In diabetes, rheumatism, gout, tuberculosis of the lymph nodes, cystitis, kidney-stone disease, colds, and as a diuretic, blackcurrant leaves are recommended to be drunk instead of tea. Medicinal medicine buds with fruits for example put drinking If you drink it , drink it will be Sugar sprinkling if eaten man happy opened , soul refreshes . [2,3]

the medicinal mavrak is a diuretic and removes kidney stones. In medicine, blackcurrant fruit and leaves are used to treat eczema, joint pain, boils, kidney stone disease, cystitis, and colds. When there is a lack of vitamin C, it is regularly consumed in the case of anemia and enterolith. Patients with hypertensive diseases are advised to consume 200-250 g of the freshly cut fruit of the black mulberry every day. Patients suffering from diabetes are recommended to consume as follows: 1 tablespoon (20 g) of dried black currant leaves in 1 glass of boiling water, steeped for 15-20 minutes and consumed 3-4 times a day before meals.

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THE IMPORTANCE OF THE SOYBEAN PLANT IN THE NATIONAL ECONOMY

***Annotation:** An alternative to meat, a cheap source of high-quality protein in the face of rising prices for livestock products in the world market, soybeans have been studied in Surkhandarya region, and the analysis has identified promising areas for food security in the region.*

***Key words:** Soybean, food - food safety, protein, fat, productivity.*

Today, the problem of food security has become a major problem in the development of the world economy and politics. Droughts and natural disasters have severely affected food prices and the developing world. According to experts, if a person gets at least 90g of complete protein per day, a high level of food security and sustainable development will be ensured. However, the diet of more than half of the world's population does not meet healthy eating standards: there is a shortage of protein foods, the main sources of which are animal products and some plant products. However, due to the high cost of meat for the majority of the population, in such conditions, the plant that replaces it - soy - becomes the most important protein food.

In Uzbekistan, especially in recent years, the problem of supply of vegetable oil is urgent, as the population's demand for it is growing every year. Vegetable oils have a high potential for use not only in the food industry, but also as a valuable technical raw material - they serve as raw materials in the production of drying oils, linoleum, paints and varnishes, soap and medicine. Due to the presence of unsaturated fatty acids, they are more beneficial than animal fats.

The results of the study of the basics of the soybean market in Uzbekistan show that it is expedient to develop and increase soybean production, which is one of the most effective ways to solve the food problem. But at the same time, it is necessary to pay attention to the level of state support for the livestock industry, which is the main consumer of soy products.

In this regard, the government has adopted a number of normative documents to improve the quality of products in this sector and expand its promising range, to regulate the full and efficient use of raw materials. In particular, in accordance with the program of the Cabinet of Ministers of January 31, 2017 "Measures to be taken by the Council of Ministers of the Republic of Karakalpakstan and regional administrations and JSC" Uzpakhtayog "on the cultivation of oilseeds in 2017" Work is underway to increase production volumes and to regularly monitor the timely and full implementation of measures

developed on the basis of this program, to eliminate the identified shortcomings and problems in a timely manner. Resolution of the President of the Republic of Uzbekistan dated March 14, 2017 No PQ-2832 "On measures to increase the sowing of soybeans and soybeans in the Republic in 2017-2021" provides the population with cheap and high-quality vegetable oil to attract foreign partners with advanced experience in the cultivation and cultivation of soybeans, varieties and hybrids of early maturing, high-yielding, disease and pest resistant, adapted to different soil and climatic conditions. work to accomplish important tasks is recognized [1].

Growing soybeans in agricultural production is one of the most cost-effective methods because the production of vegetable oils is 5-7 times cheaper than that of animals [2].

Assessing the prospects for the development of the production and market of soy products, we can say with confidence that they occupy at least one of the most important places in the diet of people in this century. This assessment is based on all the evidence, the most important of which is of global importance. It is the desire of all countries to implement the concept of sustainable development, one of the key aspects of which is to solve the food problem in the context of the gradual growth of the world's population. This opens the way for the transition of most human beings from consuming animal proteins to plant proteins to alleviate the severity of the food problem.

Of the 350 species of plants that humans use for food, soy contains the most harmonious combination of protein, fat, mineral salts and vitamins. For example, soy protein reduces the cost of producing meat products and improves the production process. Every year, the world's demand for soy protein for food, feed and industrial use is growing.

Soybean is a valuable oil and high protein crop. The amino acid composition of soy protein is the most balanced of all plant protein sources and, with some exceptions, is similar to that of high quality animal protein. As a result, soybeans rank first in the world among annual legumes and oilseeds in terms of sown area and gross grain yield [3].

In this context, the need to study ways to shape the market for soy and its processed products is becoming increasingly important for Uzbekistan in addressing the shortage of vegetable and animal proteins. In this regard, the experiments conducted at the Surkhandarya Scientific Experimental Station of the Scientific Research Institute of Cotton Breeding, Seed Production and Agrotechnology on 4 promising varieties of soybean (local Baraka, Tomaris-man 60, Ustoz MM-60 and foreign Vilona) show that The yield was 20-21 centners per hectare in Vilona and Tomaris-man 60 varieties, 27-30 centners per hectare in Baraka and Ustoz MM-60 varieties, and the chemical composition was 45-52% of protein. and the presence of 17-25% fat was found.

In addition, soybeans are a major supplier of protein, nutritious food for livestock and poultry, as well as increasing soil fertility.

CONCLUSION

In conclusion, it is possible to increase meat production by expanding the area of soybeans and establishing its processing, strengthening the country's food security, creating jobs, reducing the cost of meat production. and help improve quality, increase budget revenues, and effectively manage available resources.

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UZBEKISTAN FOLK MEDICINE HEALING MOROCCO (SALVIA INSIGNIS) PLANT SIGNIFICANCE

Abstract: *In this article shows that growth of curative mawrak(salvia) in accordance with climate condition of termiz that they are fully adopted to local condition.*

Key words: *medicinal salvia officinalis, growth, development, number of seeds, fertility, ecological factors.*

Doctors have been treating people based on folk medicine in the East for thousands of years. According to scientists, 70-80 percent of medicinal plants were used in folk medicine , the rest consisted of animals and their products, and a small part consisted of natural minerals ¹⁷.

At present, in countries such as China, Japan, Vietnam , Korea, Laos, and Malaysia, folk medicine has been granted state status. In China alone, 40 percent of medical services are provided by traditional healers. In the last years of the last century, the International Health Organization of the United Nations (WHO) made several decisions on the in-depth study of folk medicine and the further expansion of research in this field ¹⁸.

It should be noted that due to the limited resources of naturally growing medicinal plants, the pharmaceutical industry and enterprises are interested in the raw materials of medicinal plants . mainly by growing medicinal plants can satisfy. Plantations can be established in the irrigated areas of the forest-mountain hills, in the irrigated areas where the main agriculture is cultivated.

When talking about the use of medicinal plants in folk medicine, its composition, what diseases are treated, the period of preparation of medicinal plants, the methods of preparing medicine from them, and the ways of using them in diseases, in folk medicine, the tincture made from the flowers and leaves of marigold is used for bronchitis, pyelitis, cystitis, hepatitis, enteritis, gastroenteritis, It is one of the effective means of folk medicine to be prescribed for the treatment of stomach ulcers, mouth and throat rinse during stomatitis, angina, skin diseases and canker sores.

Decoctions made from Mavrak flowers are used to treat heartburn and impotence, the fruits are fried and given to children with bloody diarrhea. Mavrak herb is prescribed as an aromatic and appetite suppressant, as well as for kidney diseases and fever, and when sexual function is reduced.

¹⁷ Folk medicine // <https://muslimaat.uz/maqola/1227>

¹⁸ Folk medicine // <https://muslimaat.uz/maqola/1227>

In modern medicine, galenic preparations prepared from mavrak are used for inflammatory diseases of the oral cavity, nasopharynx and upper respiratory tract, bronchitis, bronchial asthma, hepatitis, cholecystitis, gastric and duodenal ulcers, cystitis, pyelitis, purulent wounds, black wounds and other skin diseases. prescribed for the treatment of diseases. Mavrak reduces sweating, so it is used in places where a person sweats a lot, during the climacteric period. A type of this plant called medicinal mavrak is used as an astringent, hemostatic and anti-inflammatory agent; it is also used as a medicine that calms the central nervous system in the case of hypertension, tremor paralysis ¹⁹.

In this case, take 10 g of mavrak leaves (2 tablespoons) and put them in an enameled container, pour 200 ml of boiling water over it, put the container in boiling water for 15 minutes, then take it out and cool it at room temperature for at least 15 minutes, strain it well. and pour boiled water on this tincture until the volume reaches 200 ml. It is used to rinse the mouth and throat.

Also, take 10 g of mavrak leaves, fennel seeds and pine buds, 20 g of Altai root and sweet brain root, pour 1 cup of boiling water over it, infuse for 30-40 minutes, then strain and use this tincture in bronchoectatic disease. it is drunk in three parts throughout the day.

Take 2 teaspoons of chopped sedum grass and leaves, pour 2 cups of boiling water over it, let it brew a little and strain it. Drink this tincture warm every 2-3 hours , 1 tablespoon. It can also be used as a mouthwash ²⁰.

3 parts of lemongrass, nettle and 1 part of sage are taken and mixed well. Then take 1 teaspoon of it and put it in a thermos. Half a liter of boiling water is added to it, then it is left to rest for 3 hours. Then strain the tincture, add 2 teaspoons of honey, and drink half a cup - 100 ml every day after breakfast ²¹.

The length of this healing cord is 80 cm A shrub that grows up to (sometimes up to 100 cm). The root is strong, woody, branched up to the 4th order, spreading, the main part of the root is located in the 10-15 cm layer of the soil, it reaches a depth of 60 cm. The stems are four-sided, the lower part is woody, gray in color, the upper part is hairy, green. The leaves are opposite, long, banded, small brown, length 2-8, width 0.8-2.5 cm, wrinkled, hairy, gray-green. A ball is a spike-like part at the top of the stem, which is single or branched, consisting of false rings. The flowers are double-lipped, blue-purple. The fruit consists of 4 nuts. The seeds are spherical, 2.2-3 mm in size. The weight of 1000 seeds is 7-8 gr. mavrak plant grows naturally in the mountainous regions of the Mediterranean countries.

¹⁹Karimov V.A., Shomahmudov A. Medicinal plants used in folk medicine and modern science . - Tashkent , publishing house named after Ibn Sina . 1993. - B. 117-118.

²⁰Karimov V.A., Shomahmudov A. Medicinal plants used in folk medicine and modern science. - Tashkent, Ibn Sino Publishing Association. 1993. - B. 117-118.

²¹ MEDICINAL PLANTS ALSO HELP TO INCREASE IMMUNITY IN FOLK MEDICINE.

In Uzbekistan, the medicinal plant is cultivated in small areas for the purpose of obtaining raw materials²²

It should also be said that it is better for a master of his profession to be aware of the available knowledge in folk medicine. It can be understood that they drink tea with raspberry jam or lemon when they are windy, and in radiculitis they wrap a warm scarf around their waists. Also, 90 percent of every pain, from the common cold to cancer, is psychosomatic in nature. If a patient suffering from an oncological disease consumes tinctures prepared according to folk medicine recipes instead of chemotherapy, valuable time will be lost. However, the use of herbal remedies in the treatment of oncological diseases is successful as an additional therapy, as well as on the condition that it is carried out on the basis of a doctor's recommendation and observation. There will be symptoms that indicate that the treatments using various folk methods are not appropriate. If you increase the amount of any herb and continue its consumption for a long time, it can harm your health. For example, wormwood, which is used to cleanse the liver, or sage, which is considered a good remedy for colds. If the amount is slightly increased, there are terpenoids that show toxic properties²³.

the conditions of Uzbekistan, when the winter is very cold, the unwooded branches of this medicinal herb are affected by cold. The plant is heat-loving, light-loving, drought-resistant. A good harvest is obtained from the fields for 13-15 years. Taking into account its biological properties, weed-free, fertile, irrigated areas, where water does not stand for long, deep seepage, and far from traffic roads are selected for its planting.

During autumn plowing, 30-50 tons of manure and 100 kg of phosphorus are applied per hectare. In November-December, it is plowed to a depth of 30 cm. The plant is sown from seed in late fall or spring. Before planting, the field is ground and leveled. The seed is sown in vegetable planting equipment at a row spacing of 60-70 cm and a depth of 2 cm. 8-10 kg of seeds are used per hectare²⁴.

In the spring, after planting, the seed germinates for 18-22 hours. Germinated seeds are resistant to frost. Therefore, after the rains, such a field should be treated with a needle roller or the soil surface should be kept moist until the grass emerges. When a lot of seed is sown, when weeds multiply, or when spring sorghum arrives, gray fungi multiply on plants²⁵.

When the second pair of leaves is formed in the plant, it is made uniform by leaving 2 plants in the cells at a distance of 15 cm. Mavrak is watered 8 times during the season, cultivated 3-4 times and cared for by hand.

The leaf crop is collected in the first year - in September, and in subsequent years it is collected twice during the season: at the beginning of flowering - in

²² D orivor mavrak - sage lekarstvennyy - salvia officinalis l. //https://urmon.uz/uz/10032/

²³ Myths and truths about folk medicine //https://darakchi.uz/uz/28066

²⁴ Dorivor mavrak - sage lekarstvennyy - salvia officinalis l. //https://urmon.uz/uz/10032/

²⁵ Akhmedov O'. and others. Technology of cultivation of medicinal plants. Tashkent, 2020. - B. 147-148.

mid-May and in late September - early October. Leaf collection should not be delayed. Therefore, as soon as young branches reach 5-8 centimeters in length, leaves are collected. Leaves are dried in dryers or sheds at a temperature of 35-40 degrees. During drying, 25-35% of the weight of raw materials remains, it is loaded from 50 kg and stored in dry land for 1 year ²⁶.

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WATER EXCHANGE CHARACTERISTICS OF WINTER WHEAT VARIETIES

Abstract: it has been learned features of water exchange during the flowering phase of wheat varieties in soil climatic condition in surkhandarya region

Key words: Triticum v. growth, development, number of grain, transpiration, ecological factors.

Currently, the wheat grown in the region consists of several varieties, which differ from each other in terms of overall yield and crop quality. In some years, the lack of precipitation and the water used for irrigation is less than planned, which has a negative impact on the total amount and quality of the harvest. Therefore, determining the level of drought resistance of wheat varieties and recommending the development of relatively resistant varieties is an urgent problem.

The water exchange characteristics of plants are one of the main indicators that ensure their growth, development, yield and quality of the crop. [4].

Plants in his life of water place , plants tissues 70-95% of its composition is water consists of of the plant all in the organs water will be : in the leaf-90%, in the branch-70-80%, in the root-50-60%, in the seed-10%, in the vacuole-98%, in the cytoplasm- 80%, in the shell- around 50% water occurs . Some wet in fruits very a lot : in tomato-94%, in watermelon- up to 92% water will be [1,3] .

Above from the data come came out without , we wheat varieties water exchange their characteristics growth and development phases according to we learned good luck wheat variety on the leaf common of water amount by 78.9% equal to and Andijan 1 variety by 3.3 % a lot the fact that was observed . Grom of the variety common water the amount is 82.4% gat eng to Andijan 1 by 6.8 % a lot the fact that was determined . Tanya wheat 84.4 % of the variety water is Andijon1 variety a majority of 8.8% was determined .

this information It was determined that Andijan 1 wheat of the variety in the leaves water to the amount compared to Tanya wheat of the variety in the leaves water the most a lot to be and another varieties intermediate in place the fact that was determined .

Plant in the leaves happened to be transpiration speed also plants water exchange from the features one is considered In the table from the data shown (Table 1.1). as determined Andijan 1 wheat of the variety 1 m² of leaves level of 25.0 g of water for 1 hour polished if that's it Tanya wheat in term of the variety

10.5 g of water from the leaves evaporated ie that's it Tanya variety in term Andijan type compared to 14.5 g of water less polished The rest varieties are also intermediate seats take over According to Andijan 1 navigation less water polished , that is Andijan 2 variety 3.9 g, Asr type 5.0 g, Omad variety 8.3 g, Grom variety 11.8 g less water polished This is a pointer of varieties transpiration speed from each other sharp difference to do shows .

Wheat varieties in the leaves water shortage is also a variety features depends without will change . Andijan 1 variety in the leaves water deficit by 6.8% equal to Andijon 2 variety is equal to 6.3 % and it belongs to Andijan 1 variety relatively compared to 0.3 %, Omad in the variety 1.8%, Grom 2.3% in the variety and 4.3% in the Tanya variety . Andijan 1 wheat variety to the leaves relatively water shortage less the fact that was determined .

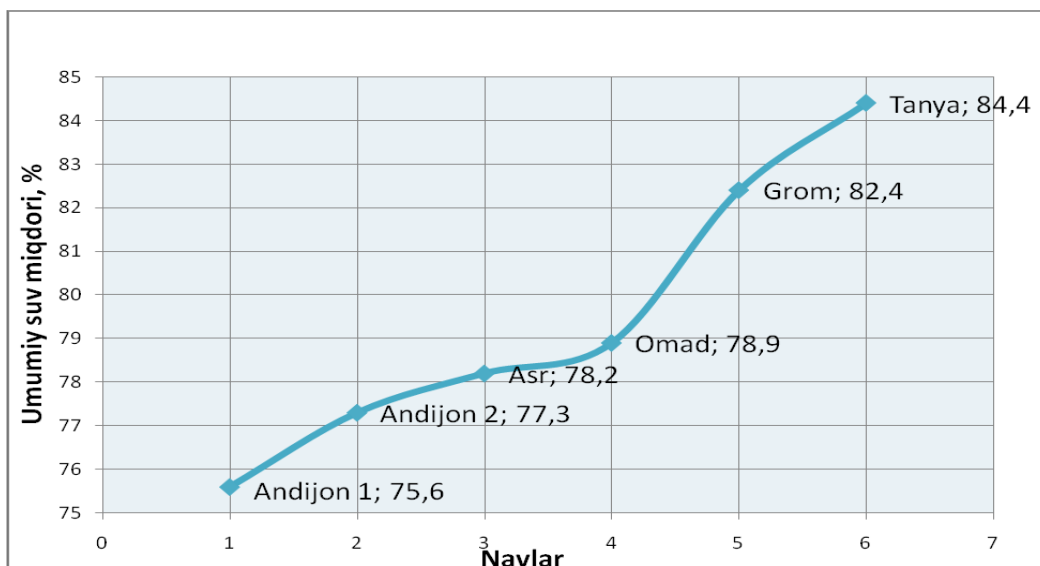
Just like that water to the shortage similar of the leaves water storage the ability of plants to drought endurance level characterizing the most important pointer is considered Andijan 1 wheat variety of the leaves water storage the ability another to varieties relatively the lowest is 1 hour during spent water amount by 6.09% equal to Andijan 2 wheat variety that's it 5.33% water in term spent and they are between the difference is 0.76% equal to

century wheat variety from the leaves spent water amount by 5.63% equal to is 0.46 % less , good luck wheat of the variety leaves that's it 3.98% water in term polished If so , Andijan 1 variety compared to 2.15%, Grom wheat type 3.37% water in 1 hour shine To Andijan 1 compared to 2.72 % and Tanya wheat variety 1 hour 2.59% water during polished , 3.5% less than Andijan 1 variety water polished

This is the data Andijan 1 wheat of the variety water storage the ability the lowest , Tanya wheat of the variety water storage the ability the most high that shows . The rest varieties the water storage the ability according to intermediate place occupies So by doing wheat varieties water exchange features based on without their to drought endurance level the following in order placing possible : Andijan 1 < Andijan 2 < Age < Omad < Grom <

That is Tanya studied varieties between Andijan 1 variety to drought endurance if the lowest , Tanya wheat of the variety to drought endurance the most high and the rest options intermediate in place located

Wheat varieties to drought endurance level pointer the most important physiological process in the leaves common water is the amount . Other to pointers relatively this pointer straight away of varieties to drought endurance level characterizes Ours in our experience received this More information in Figure 1.1 more precisely described



1.1 - picture . Wheat varieties bloom phase common water amount

Wheat varieties to drought endurance level descriptive ie their common water quantity according to collected data as shown all studied varieties between relatively to drought durable variety is the Tanya variety is considered Of this variety in the leaves common water that the amount is 84.4 % was determined . Relatively unbearable estimated Andijan-1 wheat variety in the leaves common water the amount is equal to 75.6 % . The rest varieties intermediate in place located

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THE ASSESSMENT OF THE FACTORS AFFECTING POVERTY IN TASHKENT REGION AND THEIR IMPACT LEVEL

Abstract

This article describes the factors influencing poverty in the Tashkent region and issues of assessing their impact. The article also develops and analyzes measures to reduce the impact of geographic factors that negatively affect the growth of poverty in the region.

Key words: *Poverty, state program, natural and geographical factors, socio-economic geographical factors, economic factors, political and geographical factors, erosion of fertile soils, inflation, employment, entrepreneurship, investment.*

The scientific research of geographical factors affecting poverty is relevant today. Therefore, it is very important to assess the factors affecting poverty in Tashkent region and their level of influence.

The factors affecting poverty in the studied regions and the results of the assessment of their level of influence are given in Table 1.

According to the results of the assessment of factors affecting poverty in Tashkent region and their level of influence, there are five: ++++ very strong; +++ strong; ++ average; + low; - divided into levels such as no effect.

Natural-geographic, socio-economic geographic, economic and political-geographical factors were taken as the basis of the factors affecting poverty. Factors affecting poverty and their level of influence were assessed separately by region, cities and districts subordinate to the region.

The results of a sociological survey, statistical and internet data were used as evaluation criteria.

At first, the influence of natural and geographical factors was evaluated in scientific research works. According to the level of the first factors, it was found that there are no administrative units in the region with a very strong level of influence.

The strong influence of natural and geographical factors on poverty in Oqqurgan, Quyi Chirchik, Boka and Quyi Chirchik districts of the region, in all cities subordinate to the region and in Ohangaron, Bekobod, Bostonliq, Parkent,

Piskent, Orta Chirchik districts. average, it was found to have a low level in Zangiota, Yuqori Chirchik, Qibray, Chinoz, Yangiyol, Tashkent districts (Table 1). The reason for the low influence of natural and geographical factors on poverty in these districts is the lack of acute water problems in these regions, relatively high rainfall, low soil salinity and degradation, availability of fertile soils, erosion and the like. natural disasters are rare. It was also taken into account that the ecological situation in these areas is relatively stable.

Table-1

The assessment of the factors affecting poverty in Tashkent region and their level of influence

| Administrative-territorial units | Factors affecting poverty and their level of influence | | | |
|------------------------------------|--|---------------------------|------------|------------------------|
| | Natural-geographical | Socio-economic geographic | Economical | Political-geographical |
| Tashkent region | ++ | ++ | +++ | + |
| Cities subordinate to the province | | | | |
| Almalyk city | ++ | ++ | ++ | - |
| Angren city | ++ | ++ | ++ | - |
| Bekobad city | ++ | +++ | ++ | - |
| Ohangaron city | ++ | ++ | ++ | - |
| Chirchik city | ++ | + | ++ | - |
| Yangyol city | ++ | + | +++ | - |
| Districts | | | | |
| Akkurgan district | +++ | ++++ | ++++ | - |
| Ohangaron district | ++ | +++ | +++ | + |
| Bekobad district | ++ | +++ | +++ | + |
| Bostanliq district | ++ | ++ | ++ | + |
| Buka district | +++ | ++++ | ++++ | - |
| Quy Chirchik district | +++ | ++++ | ++++ | - |
| Zangiota district | + | + | ++ | + |
| Yukori Chirchik district | + | + | ++ | - |
| Kibrai district | + | + | ++ | + |
| Parkent district | ++ | + | ++ | - |
| Piskent district | ++ | ++++ | ++++ | + |
| Urta Chirchik district | ++ | + | ++ | - |
| Chinoz district | + | + | +++ | + |
| Yangiyol district | + | + | ++ | + |
| Tashkent district | + | + | ++ | + |

The table is compiled by the author.

Note: The levels of effect: +++++ very strong; +++ strong; ++ average; + low; - has no effect.

The impact of natural and geographical factors on poverty in the region is increasing today. These factors have an increasing influence on global poverty and its strengthening, which will not affect the studied area to some extent.

The impact of natural and geographical factors on poverty was estimated on average for the Tashkent region.

According to the level of influence of socio-economic geographical factors, it was determined that the administrative units with a very strong level of influence include Boka, Oqqurgon, Quyi Chirchik and Piskent districts. This is due to the disadvantage of the economic and geographical location of these districts, the lack of natural resources, including mineral wealth, the large number of inhabitants and the high rate of natural population increase, the absence of large cities and industrial enterprises in the district, the low level of urbanization, and good transport networks. lack of development is the main reason.

The strong influence of socio-economic geographical factors on poverty in the city of Bekobod, Ohangaron, Bekobod, among the cities and districts of Almalyk, Angren, Ohangaron, only in Bostonliq district, Chirchik, Yangiyol cities, Zangiota, Yuqori Chirchik, it was found to have a low level in Qibray, Chinoz, Yangiyol, Tashkent districts (Table 1).

The influence of socio-economic geographical factors on poverty was estimated on average for the Tashkent region.

In order to reduce the impact of socio-economic geographical factors on the increase of poverty in the region, it is appropriate to implement measures such as increasing the level of urbanization of the region, increasing the number of industrial enterprises, developing the processing of agricultural products, and improving the transport system. . Through the above works, it is necessary to pay great attention to increasing the employment level of the population and strengthening their financial capabilities.

The economic factors have a great impact on poverty. According to the level of influence of economic factors, it was found that there are no administrative units that meet the criteria of low and no influence. This indicates that the influence of economic factors on the region is significant.

It was determined that the administrative units with a very strong level of influence include Boka, Oqqurgon, Quyi Chirchik and Piskent districts.

It was found that economic factors have a strong impact on poverty in the city of Yangiyol, Ohangaron, Bekobod, Chinoz, and it has an average level in all other cities and districts (Table 1).

In general, the impact of economic factors on poverty was assessed with a strong degree in the Tashkent region.

Therefore, in the development of economic sectors, it is necessary to use the model of advanced countries and learn ways to apply their achievements in our republic, including Tashkent region. In order to reduce the negative impact of economic factors on poverty, it is advisable to carry out the following actions:

- increasing the role of the private sector in economic sectors;

- constant monitoring of price increases;
- reducing the level of unemployment;
- full and effective use of the economic potential of the regions;
- allocating preferential loans for the support and development of private business (in all districts of the region);
- encourage the attraction of foreign investment to the region;
- organization of logistics centers;
- increase financial and economic literacy of the population and x.

According to the impact of political-geographical factors, it was evaluated with only two levels of low and no impact. The impact of this factor on the level of poverty in the region is felt in the Qibray, Chinoz, Yangiyol, Tashkent, Piskent, Tashkent, Ohangaron, Bostonliq, Bekobod and Zangiota districts bordering the neighboring countries of Kazakhstan, the Kyrgyz Republic and Tajikistan. is felt.

The impact of political and geographical factors on poverty was assessed at a low level in the Tashkent region. The reason for this is peace and tranquility in the neighboring countries and the establishment of friendly and mutually beneficial economic relations between our countries.

In conclusion, it should be noted that the main goal of each of the suggestions and conclusions given above is to provide employment to the population through the development of all economic sectors in the region, thereby creating favorable opportunities for the population to live, and to increase the income of the population. These works, in turn, serve to reduce poverty and prevent it.

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ISHSIZLIK- KAMBAG'ALLIKNI VUJUDGA KELTIRUVCHI OMIL SIFATIDA (TOSHKENT VILOYATI MISOLIDA)

Annotatsiya. Ushbu maqolada Toshkent viloyatidagi ishsizlik muammosi va uning kambag'allikka ta'siri ko'rib chiqilgan. Bundan tashqari, maqolada Toshkent viloyati hududlarida iqtisodiy faol aholi, ish bilan band va ishsizlar soni tahlil qilingan.

Kalit so'zlar: Kambag'allik, davlat dasturi, inflyatsiya, ayollar bandligi, tadbirkorlik, mehnat resurslari, iqtisodiy faol aholi, ishsizlik darajasi, ish o'rinlari, iqtisodiyot.

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UNEMPLOYMENT AS A FACTOR CAUSING POVERTY (TASHKENT REGION AS AN EXAMPLE)

Abstract. In this article examines the problem of unemployment in Tashkent region and its impact on poverty. In addition, the article analyzes the number of economically active population, employed and unemployed in the regions of Tashkent region.

Key words: Poverty, government program, inflation, women's employment, entrepreneurship, labor resources, economically active population, unemployment rate, jobs, economy.

Bizga ma'lumki, iqtisodiyotning samarali ishlashiga har qanday mamlakatdagi ishsizlik darajasi muhim ta'sir ko'rsatadi. Ishsizlik - mamlakatdagi mavjud ishchi kuchi bir qismining foydalanilmay qolishini namoyon etuvchi ijtimoiy-iqtisodiy hodisa hisoblanadi. Mehnatga layoqatli bo'lib, ishlashni xohlagan ishchi kuchining ish bilan ta'minlanmagan qismi ishsizlar deyiladi [4].

Ishsizlik ayniqsa uning yuqori darajasi yomon oqibatlarga olib keladi. Ishsizlikning iqtisodiy oqibatlari uning ta'sirida ishlab chiqarilmay qolgan mahsulot hajmi orqali baholanadi. Iqtisodiyot barcha ishlashni xohlagan va ishlay oladiganlar uchun yetarli miqdorda ish joylarini yaratish holatiga ega bo'lmasa mahsulot ishlab chiqarish potensial imkoniyatining bir qismi yo'qotiladi.

Iqtisodiy adabiyotlarda bu yo'qotish yalpi ichki mahsulot (YalM) hajmining orqada qolishi sifatida aniqlanadi hamda u haqiqiy YalMning potensial

YalMdan kam bo'lgan hajmi sifatida ko'rinadi. Ishsizlik darajasi qanchalik yuqori bo'lsa, YalM hajmining orqada qolishi shunchalik katta bo'ladi. Makroiqtisodiyot sohasidagi taniqli tadqiqotchi A.Ouken ishsizlik darajasi va YalM hajmining orqada qolishi o'rtasidagi nisbatini matematik ifodalab beradi. Bu nisbat iqtisodchilar orasida Ouken qonuni sifatida tanilgan bo'lib, agar ishsizlikning haqiqiy darajasi uning tabiiy darajasidan bir foizga ortiq bo'lsa, YalM hajmining orqada qolishi 2,5 foizni tashkil qilishini ko'rsatadi [4]. Ayrim hollarda milliy mahsulotning haqiqiy hajmi potensial hajmidan ortib ketishi ham mumkin. Bunday hol ishsizlik darajasi tabiiy darajadan ham past bo'lgan davrlarda ro'y beradi. Ishlab chiqarishga ishchilarning qo'shimcha smenalarini jalb qilish, kapital uskunalardan belgilangan me'yordan ortiqcha darajada foydalanish, ish vaqtidan keyin qo'shimcha ishlash va o'rindosh ishlarda band bo'lish kabilar buning asosiy sabablaridir [4].

Ishsizlikning ijtimoiy oqibatlari ham mamlakat iqtisodiyotiga sezilarli ta'sir o'tkazishi mumkin. Jumladan, ishsizlikning ba'zi turlarining uzoq muddatli tavsifi ishchilarning o'z malakalarini yo'qotishlari hamda daromad va ijtimoiy mavqei jihatidan aholining nisbatan past toifasiga o'tib qolishiga va yakuniy natijada kambag'allikka olib keladi. Bu esa ularda o'z turmush tarzidan qoniqmaslik, ijtimoiy faollikning yo'qolishi, atrofdagilarga nisbatan loqaydlikning paydo bo'lishi kabi holatlamini keltirib chiqaradi. Natijada uzoq davom etgan surunkali ishsizlik millatning ruhiy sog'ligiga putur yetkazishi mumkin. Ishsizlik o'sishining muqarrar oqibati bo'lib mamlakatdagi jinoyatchilikning o'sishi va ijtimoiy keskinlik darajasining kuchayishi hisoblanadi. Ishsizlik shuningdek juda ko'p muammolarga zamin yaratadi - oilalarda notinchlik paydo bo'ladi, bolalarning tarbiyasi buziladi. Ishsizlik darajasining yuqori cho'qqiga yetishi hatto davlatchilik tanazzuliga ham sabab bo'lishi mumkin.

Shunga ko'ra, mamlakatdagi ishchi kuchi bandligini ta'minlash va ishsizlarni ijtimoiy himoyalash davlat iqtisodiy siyosatining asosiy yo'nalishlaridan biri hisoblanishi zarur [4].

Ishsizlik muammosi Toshkent viloyatida ham asosiy muammolardan biri hisoblanadi. Toshkent viloyatida umumiy mehnat resurslari soni 1 643 900 tani tashkil qiladi. Bu doimiy aholiga nisbatan 53,8 foizga teng. Shu jumladan viloyatda mehnatga layoqatli yoshdagi mehnatga layoqatli aholi soni 1627 400 kishini tashkil qiladi. Mehnat resurslariga nisbatan 99 foizni tashkil qilgan. Mehnatga layoqatli yoshdan kichik va katta yoshdagi ishlovchilar soni 16 500 kishiga teng bo'lib, mehnat resurslariga nisbatan 1% ni tashkil qiladi. Statistik ma'lumotlarga ko'ra viloyatda mehnat resurslari soni 2017 yildan 2023 yilgacha (2022 yilni hisobga olmaganda) oshib berishi, doimiy aholiga nisbatan foizda kamayib borishi kuzatilgan (1-jadval).

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Mehnat resurslari | 1623,9 | 1627,2 | 1607,3 | 1614,9 | 1622,5 | 1616,3 | 1643,9 |
| doimiy aholiga nisbatan, foizda | 57,1 | 56,5 | 55,0 | 54,7 | 55,2 | 54,0 | 53,9 |
| shu jumladan: | | | | | | | |
| mehnatga layoqatli yoshdagi mehnatga layoqatli aholi | 1610,5 | 1613,7 | 1597,2 | 1604,6 | 1608,4 | 1602,7 | 1627,4 |
| doimiy aholiga nisbatan, foizda | 56,6 | 56,0 | 54,7 | 54,4 | 54,7 | 53,5 | 53,3 |
| mehnat resurslariga nisbatan, foizda | 99,2 | 99,2 | 99,4 | 99,4 | 99,1 | 99,2 | 99,0 |
| mehnatga layoqatli yoshdan kichik va katta yoshdagi ishlovchilar | 13,4 | 13,5 | 10,1 | 10,3 | 14,1 | 13,6 | 16,5 |
| doimiy aholiga nisbatan, foizda | 0,5 | 0,5 | 0,3 | 0,3 | 0,5 | 0,5 | 0,5 |
| mehnat resurslariga nisbatan, foizda | 0,8 | 0,8 | 0,6 | 0,6 | 0,9 | 0,8 | 1,0 |

1. Jadval. Toshkent viloyati mehnat resurslari tarkibi

Izoh: Jadval Toshkent viloyat statistika boshqarmasi ma'lumotlari asosida tuzilgan.

Toshkent viloyati hududlari bo'yicha iqtisodiy faol aholi, bandlar va ishsizlar soni bo'yicha ma'lumotlar 2-jadvalda berilgan.

Bizga ma'lumki iqtisodiy faol aholi tarkibiga mehnat bilan band bo'lgan fuqarolar va ishsizlar kiradi. Iqtisodiy faol bo'lmagan aholi tarkibiga esa mehnat bilan band deb hisoblanmaydigan shaxslar, shu jumladan: ishlab chiqarishdan ajralgan holda ta'lim olayotgan o'quvchilar va talabalar, uy bekalari va bolalarni parvarish qilish bilan band bo'lgan ishlayotgan ayollar hamda ixtiyoriy ravishda mehnat bilan band bo'lmagan shaxslar kiradi [1].

Toshkent viloyatida iqtisodiy faol aholi soni jami 1 329 100 kishini tashkil qilgan. Ulardan iqtisodiyotda bandlar 93.1%, yoki 1 238 600 kishini, ishsizlar soni 90 500 kishini tashkil qiladi. Viloyat miqiyosida umumiy ishsizlik darajasi

6.8 foizga yetadi. Viloyatda iqtisodiy nafaol aholi soni jami 314 800 kishini tashkil qiladi.

Iqtisodiy faol aholi soni bo'yicha viloyatda shaharlar ichida Olmaliq shahari yetakchi bo'lib, shaharda 72 100 kishiga tengdir. Eng kam ko'rsatkich Ohangaron shaharida kuzatiladi (19 600 kishi) (2-jadval).

Viloyat tumanlaridan iqtisodiy faol aholi soni bo'yicha Yangiyo'l 94 500 kishi bilan birinchi o'rinda turadi. Keyingi o'rinlarda Zangiota (82 200), Toshkent (82 500), Bo'stonliq (81 200), Qibray (79 300) tumanlari egallaydi. So'ngi o'rinda Ohangaron tumani egallaydi. Bu tumanda jami 43 600 iqtisodiy faol aholi mavjud.

Iqtisodiy faol aholi tarkibida iqtisodiyotda bandlar soni shaharlar ichida Olmaliq shahri birinchi o'rinda. Olmaliqda 72 100 kishi iqtisodiyotda band. Keyingi o'rinlarda Chirchiq (67 100), Angren (66 000), Bekobod (42 000), Nurafshon (35 200), Yangiyo'l (24 700) va so'ngi o'rinda Ohangaron (18 200) shahri egallaydi (2 jadval).

Bu ko'rsatkich bo'yicha tumanlar kesimida tahlil qilinganda birinchi o'rinda Yangiyo'l tumani turadi. Tumanda 88 000 kishi tuman iqtisodiyotining barcha tarmoqlarida banddir. Keyingi o'rinlarda Zangiota, Toshkent, Bo'stonliq, Qibray kabi tumanlari, so'ngi o'rinda Ohangaron tumani egallaydi.

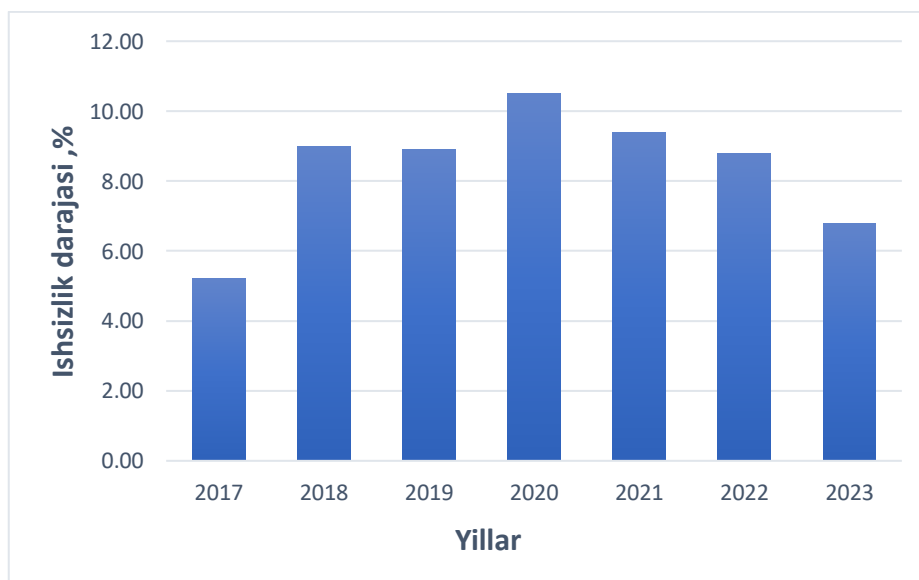
2. Jadval. Toshkent viloyati hududlari bo'yicha iqtisodiy faol aholi, bandlar va ishsizlar soni

| | Iqtisodiy faol aholi soni jami, ming kishi | ulardan: | | Ishsizlik darajasi, foizda |
|------------------|--|-----------------------|--------------|----------------------------|
| | | iqtisodiyotda bandlar | ar ishsizlar | |
| 2023 | | | | |
| Toshkent | 1 329,1 | 1 238,6 | 90,5 | 6,8 |
| Angren sh. | 70,7 | 66,0 | 4,7 | 6,7 |
| Olmaliq sh. | 72,1 | 67,5 | 4,6 | 6,3 |
| Bekobod sh. | 45,0 | 42,0 | 3,0 | 6,7 |
| Chirchiq sh. | 71,8 | 67,1 | 4,7 | 6,6 |
| Yangiyo'l sh. | 26,5 | 24,7 | 1,8 | 6,8 |
| Nurafshon sh. | 37,6 | 35,2 | 2,4 | 6,3 |
| Ohangaron sh. | 19,6 | 18,2 | 1,4 | 6,4 |
| tumanlar: | | | | |
| Ohangaron | 43,6 | 40,8 | 2,8 | 6,4 |
| Oqqo'rg'on | 48,2 | 44,7 | 3,5 | 7,3 |
| Bekobod | 66,9 | 62,2 | 4,7 | 7,0 |
| Bo'stonliq | 81,2 | 75,7 | 5,5 | 6,9 |
| Bo'ka | 55,5 | 51,5 | 4,0 | 7,2 |
| Qibray | 79,3 | 73,8 | 5,5 | 7,0 |

| | | | | |
|---------------|------|------|-----|-----|
| Zangiota | 82,2 | 76,7 | 5,5 | 6,7 |
| Parkent | 70,2 | 65,3 | 4,9 | 7,0 |
| Pskent | 46,9 | 43,6 | 3,3 | 6,9 |
| Chinoz | 59,0 | 54,9 | 4,1 | 6,9 |
| Quyichirchi | 51,6 | 48,0 | 3,6 | 7,1 |
| O'rtachirchiq | 65,4 | 61,0 | 4,4 | 6,8 |
| Yuqorichirch | 59,1 | 55,0 | 4,1 | 6,9 |
| Yangiyo'l | 94,5 | 88,0 | 6,5 | 6,9 |
| Toshkent | 82,2 | 76,7 | 5,5 | 6,6 |

Izoh: Jadval Toshkent viloyat statistika boshqarmasi ma'lumotlari asosida tuzilgan.

Toshkent viloyatida ishsizlik muammosi bugungi kunda dolzarb muammolardan hisoblanadi. Viloyatning yirik shaharlari va tumanlarida ishsizlik darajasi haqidagi ma'lumotlar 1-rasmda berilgan. Diagramma ma'lumotlariga ko'ra viloyatda ishsizlik darajasi 6.8% tashkil etadi. Bu 2022-yilga nisbatan 2% ga kamdir. 2022-yilda ishsizlik darajasi 8.8% ga ega bo'lgan (1-Rasm). 2017-2023 yillar oralig'ida uning eng past darajasi 2017-yilda kuzatilib 5.2% ni tashkil qilgan. 2020-yildagi pandemiya davrida ko'plab ishlab chiqarish, xizmat ko'rsatish, transport korxonalarida vaqtincha ishlamaganligi sababli ishsizlik darajasi yuqori bo'lgan (1-Rasm).



1. Rasm. Toshkent viloyatida ishsizlik darajasi dinamikasi

Izoh: Diagramma Toshkent viloyat statistika boshqarmasi ma'lumotlari asosida tuzilgan.

Pandemiya qoidalari yumshatilishi va keyinchalik barcha cheklovlar olib tashlanishi hisobiga iqtisodiyot tarmoqlari to'liq quvvat bilan ishlashi natijasida uning darajasi asta sekinlik bilan pasaya boshlandi.

Ishsizlik darajasining eng yuqori ko'rsatkichi 6.8% shaharlar ichida Yangiyo'l shahrida qayd etilgan. Eng past ko'rsatkich viloyat markazi Nurafshon va yirik sanoat markazi bo'lmish Olmaliq shaharlariga to'g'ri keladi.

Ishsizlarning umumiy soni bo'yicha tahlil qiladigan bo'lsak quyidagi natijalarni ko'rish mumkin. Ishsizlarning umumiy soni bo'yicha eng yuqori ko'rsatkich Angren va Chirchiq shaharlariga tog'ri keladi. Har ikkala shaharda jami 4 700 dan ishsiz fuqoralar istihomat qiladi. Eng kam ishsizlar Ohangaron shahriga (1 400) to'g'ri keladi.

Tumanlar kesimida tahlil qilsak uning eng yuqori ko'rsatkichi Oqqo'rg'on tumanida qayd etilgan. Bu shaharda ishsizlik 2023 yilda 7.3% ga teng bo'lganligini ko'rish mumkin. Ishsizlik darajasi viloyat o'rtacha ko'rsatkichidan (6.8%) yuqori bo'lgan tumanlar qatoriga Bo'ka (7.2%), Quyichirchiq (7.1), Bekobod (7.0%), Qibray (7.0%), Parkent (7.0%), Bo'stonliq (6.9%), Piskent (6.9%), Chinoz (6.9%), Yuqorichirchiq (6.9%), Yangiyo'l (6.9%) tumanlari joy olgan. Viloyat o'rtacha ko'rsatkichiga teng bo'lgan faqat bitta ma'muriy birlik O'rtachirchiq tumani mavjud. Qolgan tumanlarda viloyat o'rtacha ko'rsatkichidan past darajaga ega.

Tumanlar ichida ishsizlikning eng past darajasi Ohangaron tumanida (6.4%) qayd etilgan.

Tumanlar kesimida ishsizlarning umumiy soni bo'yicha tahlil qiladigan bo'lsak quyidagi natijalarni ko'rish mumkin. Ishsizlarning umumiy soni bo'yicha eng yuqori ko'rsatkich Yangiyo'l tumaniga tog'ri keladi. Mazkur tumanda jami 6 500 dan ishsizlar ro'yhatga olingan. Eng kam ishsizlar Ohangaron tumaniga (2 800) to'g'ri keladi.

Ishsizlik muammosini tahlil qiladigan bo'lsak viloyatga bo'ysinuvchi shaharlarga qaraganda tumanlarda uning darajasi birmuncha yuqori ekanligini e'tirof etish mumkin. Bunga asosiy sabab shaharlarda infratuzilmaning yaxshi rivojlanganligi, yirik sanoat korxonalarining faoliyat ko'rsatayotganligidadir.

Ishsizlikni kamaytirish maqsadida viloyatda amalga oshirilayotgan ishlarni kuchaytirish va quyidagi chora-tadbirlarni amaliyotga tadbiiq etishni tavsiya etamiz.

1. Shahar va qishloq aholi punktlari infratuzilmasini yaxshilash va modernizatsiyalash;
2. Logistik markazlar barpo qilish;
3. Kichik va o'rta sanoat korxonalarini ishga tushirish;
4. Faoliyati to'xtab qolgan sanoat korxonalarini qayta ishga tushirish maqsadida ichki va xorijiy investitsiyalarni jalb qilish;
5. Kichik biznes va xususiy tadbirkorlikni yanada qo'llab quvvatlash [9];
6. Oilaviy tadbirkorlikka alohida e'tibor berish va imtiyozli kreditlar ajratish [8];
7. Kasanachilik va hunarmandchilik sohasini mahalliy imkoniyatlarni hisobga olib rivojlantirish [8];

8. Xizmat ko'rsatish tarmoqlari shu jumladan turizmni rivojlantirish [9];
9. Eksportbob mahsulotlar ishlab chiqarishni maqsadli va samalari qo'llab quvvatlash mexanizmini ishlab chiqish va amaliyotda qo'llash;
10. Tuproqlar sho'rlanishini kamaytirish va yer resurslarining meliorativ holatini yaxshilash;
11. Suvni tejavchi texnologiyalar: tomchilatib, yomg'irlatib va sug'orishning boshqa innovatsion turlaridan foydalanishni amalga oshirish;
12. Suvsizlikka va kasallikka chidamli qishloq xo'jalik ekinlari navlarini ekishni rag'batlantirish;
13. Mahalliy malakali kadrlarni tayyorlash maqsadida respublika va xorijiy oliy ta'lim muassasalari bilan hamkorlik o'rnatish [9];
14. Kam ta'minlagan oilalarga imtiyozli foizsiz kreditlar ajratib tadbirkorlik bilan shug'ullanishni yo'lga qo'yish;
15. Hududlarda biznes inkubatorlar tashkil etish.

Xulosa o'rnida shuni ta'kidlash lozimki Toshkent viloyatida ishsizlik muammosini hal qilish ham viloyat ham mahalliy hokimiyat organlari oldida turgan asosiy vazifalardan hisoblanadi. Aholi bandligini oshirish va ishsizlar sonini kamaytirish uchun viloyatda iqtisodiy islohotlarni samarali amalga oshirishni jadallashtirish lozim bo'ladi. Bunda albatta ilg'or xorijiy tajribalarni o'rganish va iqtisodiyotga tadbiq etish maqsadga muvofiq bo'ladi.

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IMPACT OF COVID-19 ON PATIENTS WITH LIVER CIRRHOSIS OF VIRAL ETIOLOGY

***Abstract:** The coronavirus disease (COVID-19) pandemic has created a global public health emergency. Patients with cirrhosis were considered to be more susceptible to viral infection due to a dysregulated immune response. Patients with cirrhosis experience varying degrees of COVID-19-associated liver injury, which may be due to direct cytotoxicity of the virus, activation of the systemic immune system, drug-related liver injury, or reactivation of pre-existing liver disease. Clinical symptoms in patients with liver cirrhosis and COVID-19 were similar to those in the general population with COVID-19, with a lower proportion of patients presenting with gastrointestinal symptoms. Although respiratory failure is the leading cause of death in cirrhotic patients with COVID-19, a significant proportion do not have initial respiratory symptoms. Most data show that patients with cirrhosis have relatively higher rates of morbidity and mortality associated with COVID-19. Advanced liver cirrhosis has also been proposed as an independent factor influencing poor prognosis and the need to consider palliative care for COVID-19.*

***Key words:** COVID-19; SARS-CoV-2; Cirrhosis of the liver; liver damage; Forecast; Therapy*

Introduction. COVID-19 is generally a self-limiting disease, but it can progress to acute respiratory distress syndrome (ARDS), septic shock, and death, especially in older adults or those with underlying medical conditions including cirrhosis, hypertension, diabetes, and cancer [1]. The estimated case fatality rate for COVID-19 ranges from 2% to 6% [2].

The clinical manifestations of COVID-19 patients may be non-specific, but most of them present with fever, cough accompanied by shortness of breath, fatigue, or sputum production [3]. Notably, approximately 14% to 53% of patients suffer from varying degrees of liver injury, although most of these injuries are mild and transient, with a fair prognosis in patients without pre-existing liver disease. In contrast, COVID-19 in patients with pre-existing liver disease has been reported to result in higher rates of hospitalization and mortality [4,5]. Among these pre-existing liver diseases, cirrhosis is a chronic liver disorder that involves the collapse of liver structure and distortion of vascular architecture. Cirrhosis is associated with innate immune dysfunction and alteration of the gut-liver axis; patients with cirrhosis are particularly at increased risk of infections and associated complications. It remains unclear whether immunocompromised

patients infected with COVID-19 are at higher risk of adverse outcomes. It is unclear whether patients with human immunodeficiency virus infection are at higher risk of mortality due to COVID-19 [6]. In addition to the studies involving the aforementioned immunocompromised patients, several studies have investigated the clinical and biochemical characteristics associated with the prognosis of COVID-19 in patients with liver cirrhosis, leading to some preliminary conclusions. This article summarized the current epidemiology, clinical characteristics, pathophysiology of liver injury, outcomes, and treatments of patients with liver cirrhosis and COVID-19.

According to WHO, as of the end of December 2020, there have been more than 79 million confirmed cases of COVID-19 in over 200 countries and 1.7 million deaths [5]. Previous studies have shown that 2–11% of patients with COVID-19 had pre-existing liver disease, and approximately 0.6% of patients with COVID-19 had underlying liver disease in a recent large-scale population-based study in the UK [6]. In contrast, the literature on the prevalence of liver cirrhosis in patients with COVID-19 is limited. Two large-scale studies from the US found that 0.3% (19/5700) and 1.8% (50/2780) of patients with COVID-19 had cirrhosis [7]. Similarly, two studies from Portugal and China found that 0.8% (6/756) and 2.4% (3/123) of COVID-19 patients had pre-existing liver cirrhosis, respectively [8]. Overall, a small proportion of COVID-19 patients have underlying liver cirrhosis. However, it has been suggested that individuals with cirrhosis are more susceptible to SARSCoV-2 infection due to an altered immune response. One study from the United States and another from China reported the incidence of SARS-CoV-2 infection in hospitalized patients with cirrhosis to be 6.6% (37/556) and 16.8% (17/101), respectively [9]. Collectively, although they represent a small proportion of COVID-19 patients, patients with cirrhosis are more susceptible to viral infection than the general population.

The purpose of this review is the effect of covid-19 on patients with cirrhosis of the liver of viral etiology.

Materials and methods. The data showed that the clinical manifestations of patients with cirrhosis and COVID-19 were similar to those in the general population with COVID-19, with fever and cough remaining the most common symptoms, followed by dyspnea and sputum production [10]. Interestingly, although patients with and without cirrhosis developed respiratory and cardiovascular symptoms, patients with cirrhosis were less likely to develop gastrointestinal symptoms (e.g., diarrhea, nausea, vomiting). Possible explanations include a higher proportion of baseline gastrointestinal symptoms in patients with cirrhosis and their use of medications (e.g., lactulose), which may also lead to an underestimation of the proportion of patients with COVID-19-related gastrointestinal symptoms.

Laboratory test data are lacking; however, available data have shown that patients with cirrhosis and COVID-19 are significantly more likely to develop thrombocytopenia than the group of patients with cirrhosis but not COVID-19

[11]. Interestingly, the early (usually occurring within the first week of hospitalization) and rapid deterioration of liver biochemical parameters (e.g., aminotransferases), but not bile duct enzymes (e.g., alkaline phosphatase, γ -glutamyl transferase), in these patients with cirrhosis may indicate that COVID-19-associated liver injury is more often drug-induced or hypoxic in this patient group. However, further histological and experimental studies are needed to confirm this finding. Thus, although it is suggested that patients with cirrhosis and COVID-19 have elevated levels of biochemicals in both the liver and bile ducts (e.g. aminotransferase, bilirubin, alkaline phosphatase, γ -glutamyl transferase), regardless of the presence of respiratory symptoms, the European Association for the Study of Liver Diseases (EASL) and the American Association for the Study of Liver Diseases (AASLD) recommend that all patients with cirrhosis with new or worsening Alzheimer's disease or development of ACLF undergo testing for SARS-CoV-2 during the COVID-19 pandemic [10,12].

Results and discussion. The proposed mechanisms underlying liver injury in COVID-19 patients include direct pathogenic viral cytotoxicity, systemic immune activation and cytokine storms, drug-induced liver injury, reactivation of pre-existing liver disease, and hypoxic hepatitis.

Compared with normal liver, cirrhotic liver is more vulnerable to direct viral injury due to widespread ACE2 expression; increased cytokine levels and immune response; similar degree of drug-induced liver injury; greater activation of pre-existing liver disease; and more severe hypoxic hepatitis. The arrow represents the magnitude of each effect on the liver.

It has been suggested that SARS-CoV-2 uses the same ACE2 receptor as SARS-CoV to enter host cells, resulting in inflammatory responses and cytopathic effects. ACE2 receptors are widely distributed in the human body and are highly expressed in type II alveolar cells in the lung, esophageal epithelial cells, absorptive enterocytes in the ileum and colon, myocardial cells, proximal tubular cells in the kidney, and urothelial cells in the bladder [13]. In normal human liver, ACE2 receptor expression is particularly high in bile duct epithelial cells (i.e., cholangiocytes) and vascular endothelium; only a small proportion of hepatocytes are ACE2 positive. Destruction of cholangiocytes due to the cytopathic effect of SARS-CoV-2 leads to bile duct injury and further liver damage. In contrast, ACE2 expression was detected in the majority of hepatocytes in cirrhotic nodes, as well as in cholangiocytes and vascular endothelial cells. Patients with liver cirrhosis also have increased circulating ACE activity and angiotensin II levels, which may facilitate viral entry into host cells, making them more vulnerable to direct virus-associated cytotoxicity, leading to more severe liver dysfunction and serious clinical consequences [13,15].

Patients with liver cirrhosis were found to have a higher likelihood of severe COVID-19 than the general healthy population, with proportions ranging from 18.6% to 35.3% [14]. Pre-existing liver cirrhosis was found to be a risk factor for severe COVID-19. In addition, patients with liver cirrhosis were also more likely

to develop complications of COVID-19, including ARDS (28.6% to 52%), respiratory failure requiring mechanical ventilation (4% to 38%), shock (6% to 30%), renal failure requiring renal replacement therapy (1.5% to 19%), need for extracorporeal membrane oxygenation (9.5%), and need for intensive care unit (ICU) admission (3% to 43%) [15]. Notably, many more patients with COVID-19 developed an adverse outcome than those receiving the appropriate level of care (i.e., 52% of patients had ARDS, but only 4% of patients developed CF and were admitted to intensive care units). Thus, the true number of patients with cirrhosis requiring intensive care in these studies may have been underestimated[16].

Compared with the general population with COVID-19, patients with cirrhosis and COVID-19 had a higher mortality rate, ranging from 9% to 42.3%. Decompensated cirrhosis has been identified as an independent risk factor for mortality; patients with cirrhosis are also at higher risk of COVID-19-related hospitalization and mortality. Compared with other studies, a nationwide population-based study from Korea found no association of cirrhosis with mortality in patients with COVID-19. The authors also demonstrated a significantly lower risk of mortality and other complications in patients with cirrhosis and COVID-19. However, the inclusion of all patients with cirrhosis (including hospitalized and non-hospitalized patients) and the lack of data on the etiology and severity of cirrhosis in this study may limit the extrapolation of the results [8,11]. In contrast, the cirrhosis and COVID-19 group had more COVID-19-related complications (eg, respiratory failure, need for MV, shock), suggesting possible different causes of mortality in the two groups. Taken together, compared with the general COVID-19 population, patients with cirrhosis and COVID-19 have a higher risk of in-hospital mortality, but there is still insufficient evidence to support the idea that COVID-19 increases the risk of ACLF or mortality in patients with cirrhosis [12,13].

Conclusion. In the context of the COVID-19 pandemic, although patients with liver cirrhosis constitute a small proportion of the general population, they are more vulnerable to viral infection, resulting in both hepatic and extrahepatic complications, which are further associated with a higher risk of mortality and more severe outcomes. Due to immune dysfunction, patients with liver cirrhosis show distinct features of COVID-19-related liver injury. More importantly, it is still unknown whether COVID-19 is a trigger for AD or ACLF in patients with liver cirrhosis. Since there is no pharmacological therapy proven to be effective in patients with cirrhosis and Covid-19, maintaining standard care for cirrhosis and preventing viral transmission are the cornerstones of treatment. As COVID-19 vaccines have become available, their safety and efficacy in patients with liver cirrhosis require further study.

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BOSHLANG'ICH SINFLAR O'QUVCHILARINI BAHOLASHDA TA'LIMiy O'YINLARNING O'RNI

*Kalit so'zlar: pedagog, metod, texnologiya, uslub, baho, dars, o'yinlar.
Annotatsiya: ushbu maqolada boshlang'ich sinflarning baholanishida ta'limiy o'yinlarning ahamiyati haqida so'z yuritilgan.*

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THE ROLE OF EDUCATIONAL GAMES IN THE ASSESSMENT OF PRIMARY SCHOOL STUDENTS

*Key words: pedagogue, method, technology, style, grade, lesson, games.
Abstract: this article talks about the importance of educational games in the evaluation of primary*

Hozirgi rivojlanayotgan davrda, pedagogik nazariyadan tashqari zamonaviy pedagogik amaliyot jarayonlarida o'ziga hos innovatsion metodlardan foydalanish zamon talabi darajasiga globallashti. Bu esa o'z navbatida, rivojlanib borayotgan talim tizimiga o'z ta'sirini ko'rsatadi. Hozirda, innovatsion faoliyat va harakatlar davlat siyosati darajasiga ko'tarilib, hukumatimizning 2020-yil 7-aprelda qabul qilingan "Innovatsion faoliyat to'g'risida" O'zbekiston Respublikasining qonuni, "2022-2026 yillarda O'zbekiston Respublikasining innovatsion rivojlanish strategiyasini tasdiqlash to'g'risida"gi Prezident Farmoni qabul qilindi. Shuningdek, O'zbekiston Respublikasining "Ta'lim to'g'risida"gi Qonuni va "Kadrlar tayyorlash milliy dasturi"ga asosan zamonaviy ta'limning ilg'or metodlaridan foydalanish boshlang'ich sinflarda ta'lim oluvchi o'quvchilarning ilmiy ko'nikmalarini oshirishda asosiy me'zon sifatida qabul qilingan. Ta'lim – tarbiya jarayonida asosan o'quvchilarda ta'lim olish motivlarini, ularning turli yo'nalishdagi qobiliyat va qiziqishlarini oshiradigan, biror kasbga moyilliklarini ko'rsatadigan didaktik va ta'limiy o'yinlardan foydalaniladi. Pedagogik texnologiyaga asoslangan ta'lim jarayonida o'qituvchi faoliyati va o'quvchi faoliyati doirasi aniq belgilanadi, ta'limni tashkil etishning aniq texnologiyasi ko'rsatiladi. "Ta'limiy o'yinlarga qo'yiladigan asosiy talablar quyidagilardan iborat:

1. Ta'limiy o'yinlar o'quvchilar yoshiga mos bo'lishi kerak;

2. O'yinlar o'tilayotgan mavzu mazmun-mohiyatiga mutanosib bo'lishi lozim;
3. Ta'limiy o'yinlarni o'tkazish vaqti aniq belgilanishi shart;
4. Ta'limiy o'yinlar ham ta'limiy, ham tarbiyaviy ahamiyatga ega bo'lishi kerak;
5. Ta'limiy o'yinlarning o'tkazilish maqsadi, ahamiyati belgilanishi lozim.

Yuqoridagi talablarga amal qilingandagina dars samaradorligi ortadi va zamonaviy texnologiyalar ta'lim samaradorligiga xizmat qiladi"²⁷. Ulug' donishmandlardan biri «... kelajak tashvishi bilan yashasang, farzandlaringga yaxshi bilim ber, o'qit», degan ekan. Yurtimizda ta'lim-tarbiya tizimida amalga oshirilayotgan islohotlar haqiqiy ma'noda bir-ikki yillik yoki qisqa davrda samaraga erishishga qaratilgan ish emas, balki chin ma'noda bir necha yuz yillarga tatiydigan o'zgarish bo'ldi, desak xato bo'lmaydi. Bu prezidentimizning kelajagimiz, kelajak avlodimiz haqida qayg'urib, yurtimizning barcha farzandlari – mening farzandlarim, ular bizlardan ko'ra kuchli, bilimli va albatta baxtli bo'lishlari kerak, degan g'oyasi zamirida donishmandlarcha siyosat yotganini ko'rsatadi. Hozirgi kunda ta'lim jarayonida interfaol metodlar va axborot texnologiyalarini o'quv jarayonida qo'llashga bo'lgan qiziqish kundan-kunga ortib bormoqda. Bunday bo'lishining sabablaridan biri, shu vaqtgacha an'anaviy ta'limda o'quvchilar faqat tayyor bilimlarni egallashga o'rgatilgan bo'lsa, zamonaviy texnologiyalardan foydalanish esa ularni egallayotgan bilimlarini o'zlari qidirib topish, mustaqil o'rganish va fikrlash, tahlil qilish, hatto yakuniy xulosalarni ham o'zlari keltirib chiqarishga o'rgatadi. O'qituvchi va o'quvchi o'rtasida, bu ta'limiy o'yinlar orqali yanada yaqinlik, bir-birini tushunish va hurmat ham oshib boradi. O'qituvchi bu jarayonda o'quvchining rivojlanishi, shakllanishi, bilim olishi va tarbiyalanishiga sharoit yaratadi va shu bilan bir qatorda liderlik, tezkorlik, boshqaruvchilik, yo'naltiruvchilik funksiyasini bajaradi. Hozirda, maktablarda “Blits o'yin”, “Fikrlar jangi”, “Dumaloq stol”, “Beshinchisi ortiqcha”, “Bahs-munozara”, “Savollarga javob bering”, “To'g'risini top”, “Sinkveyn”, “Ruchka stol o'rtasida” “Bir nom bilan ayt”, “Aqliy hujum”, “Zigzag”, “Oxirgi so'zni siz ayting” kabi zamonaviy texnologiyalar qo'llanmoqda. Avvalambor bunday o'yinlar umumman aytganda ta'limiy metodlar, o'quvchilarning bilimini aniqlash, ularni o'tilgan mavzu yoki yangi mavzularda egallagan yoki egallayotgan bilimlarini mustahkamlash, rivojlantirish eng asosiysi esa ularni to'g'ri baholash uchun asosiy dasturi amal bo'lib xizmat qiladi. Avvalo, o'quvchilarni baholash bu ularning oldingi bilim saviyasini, shunundek yangi tushunchalarini avvalgi bilimiga nisbatan taqqoslash jarayonini va o'quv natijalarini amaldagi o'quv standartlari tomonidan belgilangan normalar bilan o'zaro bog'liqligini tushunamiz, albatta. O'qituvchilar o'quvchilar uchun eng foydali va ta'lim faoliyati uchun zarur bo'lgan shakllantiruvchi baholash turlarini yaratish, ulardan

²⁷ <https://m.kun.uz/uz/news/2019/11/27/boshlangich-sinfda-oqitishning-zamonaviy-texnologiyalaridan-foydalanish-usullari>

amaliyotga tadbiiq qilgan holda oqilona foydalanishlari kerak. Boshlang'ich sinf o'quvchilari juda ham o'yinqaroq, qiziquvchan, shoshqaloq shuningdek sabrsiz bo'lganligi sababli, ularga faqatgina ilmiy yo'llardangina foydalanibgina qolmay, balki ularning yosh tuzilishi, shaxsiy harakatlari, qiziqishlaridan kelib chiqqan holda baholashga harakat qilishimiz kerak deb hisoblanadi. Buning asl sababi esa, boshlang'ich sinf o'quvchilari turli xil o'yinlarni yahshi ko'rib o'ynaydi, qiziqadi va chiqara olmayotgan qobiliyatlarini o'yinlar davomida chiqarishga harakat qiladi. Umumiy o'yinlar nazariyasiga, mavjud barcha o'yin turlarini tasniflashda ularni funksional, mavzuli konstruktiv, didaktik, sport va harbiy o'yinlariga ajratiladi. Bularning orasida ta'lim-tarbiya vazifalarini amalga oshirish imkoniyatini berishi bilan alohida o'ringa ega. Misol tariqasida, "Ruchka stol o'rtasida" ta'limiy o'yinini ko'rib chiqsak: Bunda, butun sinf o'quvchilariga fan mavzusidan kelib chiqqan holda topshiriq beriladi. Har bir o'quvchi bitta javob variantini bir varaq qog'ozga yozib, uni qo'shnisiga beradi, o'z ruchkasini esa, stolning o'rtasiga surib qo'yadi.

Boshlang'ich sinf o'quvchilarini baholashda ta'limiy o'yinlarning o'rni juda muhimdir. Ta'limiy o'yinlar o'quvchilarning qiziqishini oshirish, o'rganish jarayonini qiziqarli va samarali qilish uchun qulay vositalardir. Ular quyidagi jihatlari bilan ahamiyatga ega:

1. Qiziqishni oshirish: Ta'limiy o'yinlar bolalar uchun o'rganishni qiziqarli qilishadi. O'yin jarayonida bolalar o'zlarini erkin tutishadi, bu esa o'rganishni yanada jozibador qiladi.

2. Fikr yuritish va hal qiluvchanlik: O'yinlar orqali bolalar turli muammolarni hal qilish, qarorlar qabul qilish va fikrlarini ifoda etish ko'nikmalarini rivojlantiradilar.

3. Hamkorlik va jamoaviylik: Ko'plab ta'limiy o'yinlar guruhda o'ynaladi, bu esa o'quvchilar o'rtasida hamkorlik va jamoaviylikni rivojlantiradi.

4. Baholash imkoniyatlari: O'yinlar orqali o'quvchilarning bilim darajasini baholash, ularning qobiliyatlarini aniqlash va individual yondoshuvni amalga oshirish mumkin. Bu, o'z navbatida, o'quvchilarning kuchli va zaif tomonlarini aniqlashga yordam beradi.

5. Ijodkorlik va innovatsion fikrlash: Ta'limiy o'yinlar bolalarga yangi g'oyalarni o'ylab topish va ijodiy yondashuvlarni rivojlantirish imkonini beradi.

6. Samaradorlik: O'yinlar o'rganishni yanada samarador qiladi, chunki bolalar ko'proq o'zlarini jalb qilib, o'rgangan ma'lumotlarni amalda tatbiq etishadi.

Ushbu jihatlari orqali ta'limiy o'yinlar boshlang'ich sinf o'quvchilarini baholash jarayonida beqiyos ahamiyat kasb etadi. Ta'limiy o'yinlar yordamida o'quvchilar nafaqat nazariy bilimlarni, balki amaliy ko'nikmalarni ham o'zlashtiradilar, bu esa ularning umumiy taraqqiyotiga ijobiy ta'sir ko'rsatadi.

Xulosa qilib aytadigon bo'lsak, ta'limiy o'yinlar nafaqat boshlang'ich sinf o'quvchilarning bilimlarini rivojlantirishga shuningdek, pedagoglarga o'quvchilarni to'g'ri, haqqoniy va adashmay baholash uchun yordam

beradi. O'qituvchi-pedagog avval o'quvchlarni individual (yakka tartibdagi), so'ngra guruhli o'yinlarga tayyorlashi va uni o'tkazishi, o'yin muvaffaqiyatli chiqqandan so'ng esa, ularni ommaviy o'yinlarga tayyorlashi lozim. Chunki o'quvchlar didaktik o'yinli mashg'ulotlarda faol ishtirok etishlari uchun zaruriy bilim, ko'nikma va malakalarga ega bo'lishlari, bundan tashqari, guruh jamoasi o'rtasida hamkorlik, o'zaro yordam vujudga kelishi lozim. Shunday qilib, ta'limiy o'yin mashg'ulotlar orqali o'quvchlar yangi kasblar bilan tanishadilar, egallagan bilimlarini iqtisodiyotning qaysi sohalarida qo'llash mumkinligini ko'rsatadilar, ushbu fanga bo'lgan qiziqishlari o'zlari bilmagan holda ortadi, qo'shimcha adabiyotlar bilan mustaqil ravishda foydalanishga, o'z o'rtog'ining fikrini sabot va chidam bilan tinglashga, bilimlarini nazorat qil olishga o'z-o'zini baholashga o'rganadilar. Natijada, pedagoglarga ham o'quvchilarini to'g'ri rag'batlantirish va baholash uchun yetarlicha imkoniyatlar ham yaratiladi.

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EXPERIENCE OF FOREIGN COUNTRIES ON CORPORATE PERSONNEL MANAGEMENT

***Abstract.** The article provides suggestions and recommendations on the experience of foreign countries in the field of corporate personnel management.*

***Key words:** personnel, employee, management, personnel management, corporate governance, economic management, corporate human resource management, humane approach to personnel.*

In developed countries, such as the United States, Germany, and Japan, as the productive forces evolved, there was a qualitative shift in the corporate management of personnel. Approaches to corporate personnel management in foreign countries can be classified as follows (Figure 1).

1. Working with staff. This was typical of the management of companies and firms in Western countries in the 1920s and 1930s. During this period, corporate personnel management was limited to the registration of employees being hired, control over their compliance with labor discipline, and the registration of dismissals of employees.

2. Corporate personnel management. In this management that began to take shape in the first half of the last century, the cost of labor was seen as the cost of production. That is, the labor market price of labor should not only cover the costs of hiring employees, but it should also be profitable for the company.

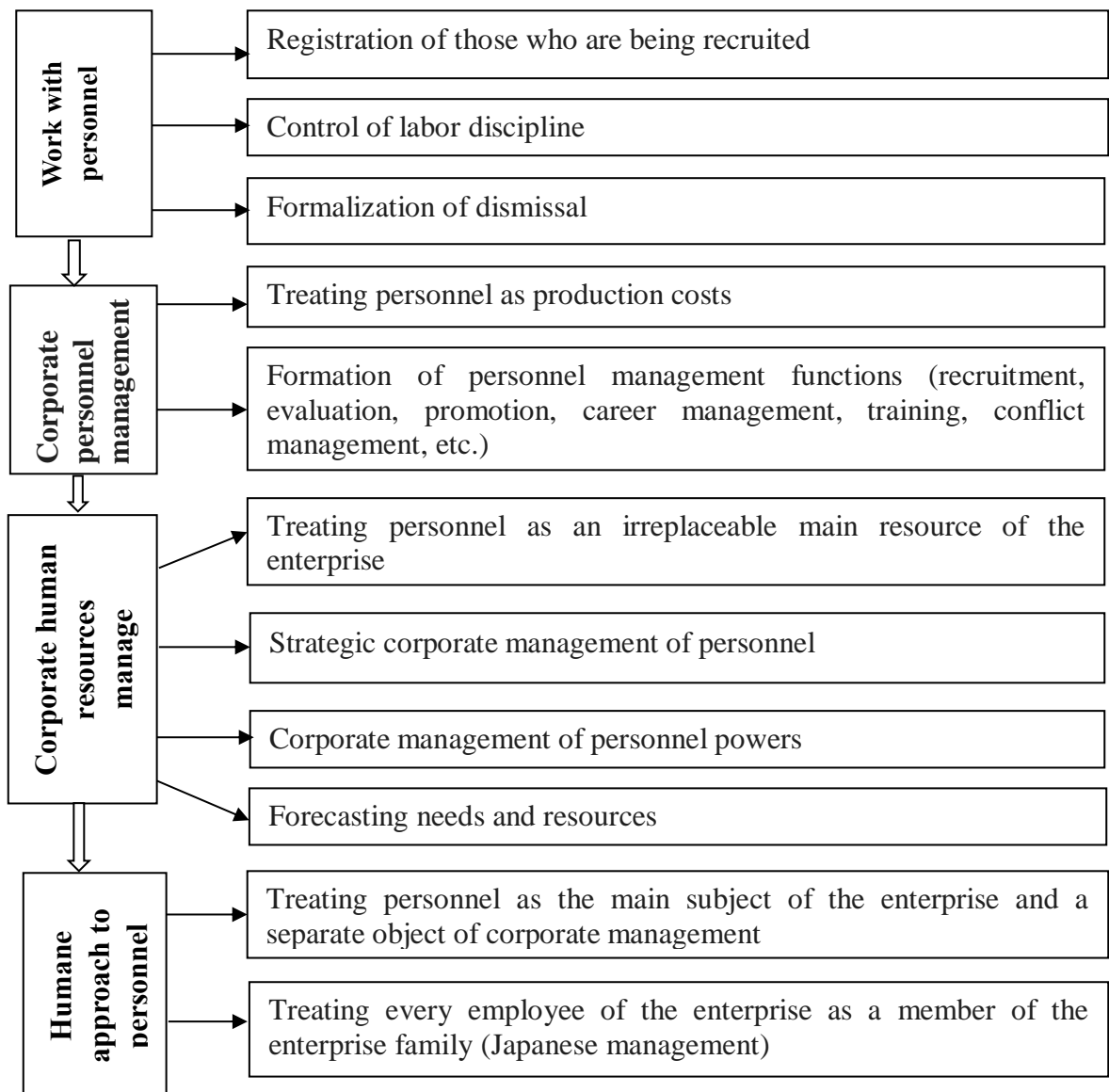


Figure 1. Stages of the development of corporate personnel management in foreign countries.

3. Corporate human resource management is a great way to do that. This approach to management began to be defined by treating the workforce as an irreplaceable primary resource of the enterprise. This required the introduction of strategic corporate personnel management in the enterprise. The scope of staff responsibilities has been significantly expanded so that employees can fully realize that making a conscious, meaningful contribution to achieving the goals of the enterprise serves their personal interests. That means that external control in companies and firms has been replaced by self-control by the staff. Special attention was paid to the fact that employees understand that they are personally responsible for the quality of the products and services provided.

Strategic corporate human resource management also requires forecasting the needs and resources of an enterprise.

4. A humane approach to staffing. It has largely a Japanese management practice that became popular in the last quarter of the 20th century. In this model, personnel are treated as the main subject of the enterprise and as a separate object of corporate governance.

In Japanese management, the company is considered a family, and the staff are considered members of the family. Based on this principle, loyalty to the company, that is, to work for the same company for life, is considered the most important quality of an employee.

There are both Michigan and Harvard models of corporate human resource management in the United States.

The Michigan model is based on the idea that corporate human resource management is aligned with the company's strategic development goals. Therefore, the personal contributions of managers at the highest level of corporate governance to all areas of the company's activities are regularly evaluated and their management activities are highly encouraged based on the rating indicators.

The Harvard model also emphasizes that a company's human resource issues require comprehensive strategic solutions. According to one of the founders of this theory, Robert M. Boxall R.F., corporate personnel management should be done with a long-term perspective. This concept is based on:

- personnel should be treated as a potential asset, not as a variable expense;
- corporate human resource management should cover all management decisions and operational activities related to the relationship between the company and its personnel;
- corporate human resources management is the duty not only of personnel managers, but also of all managers of the company;
- it is necessary to achieve coordination of personal interests with the owners of the company;
- in corporate human resources management, it is necessary to ensure the active participation of personnel in decision-making, improving methods of labor organization and management, and other processes.

There's also a German (dual-band) model. In this system of corporate governance, the powers of the Supervisory Board and the executive body are clearly and rigidly defined. The same person cannot be a member of both bodies. Between 70.0 and 80.0% of the total number of shares in German companies and firms are owned by strategic investors, including banks. That is, they have a centralized equity capital. This characteristic ensures that the common interest prevails over private interests aimed at maximizing profit.

And in Japan, the career of personnel consists of probation, basic training, and rotation. During the probationary period of up to three years, the knowledge of the employee acquired in the educational institution is tested by tests. After that, the specialist gets acquainted with the activities of the corporation in detail and his loyalty to the enterprise is checked.

In the average enterprise, the human resources manager is expected to be part of the corporate governance system. In large companies, the corporate management of personnel is handled by the vice president of human resources of the company or firm. In addition to the personnel manager, the system will include a manager dealing with personnel training and retraining, and managers for incentives and benefits, labor protection and labor relations.

The qualification of professional managers is certified by the Institute for Certification of Corporate Managers of Human Resources and is regularly tested through tests. It is a branch of the Society for Corporate Human Resource Management.

Overseas, in general, the level of corporate governance of personnel is emphasized. The results of a McKinsey investor survey indicate that corporate governance plays as much (or more) of a role in their assessments of the performance of Eastern European firms as the financial condition of those firms. In particular, 73.0% of investors investing in companies in the region said that they would be willing to buy shares in these companies at a premium if they had a corporate system that effectively managed personnel.

It is advisable to study the experience of foreign companies and firms in corporate personnel management in the enterprises of our country, to apply them taking into account their own characteristics, paying special attention to the development of human resources, effective use of incentives, methods of managing the careers of employees.

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THE USE OF RENEWABLE ENERGY SOURCES

Abstract: *The global shift towards renewable energy is gaining momentum as nations seek to reduce greenhouse gas emissions, address climate change, and secure sustainable energy sources for the future. Renewable energy sources—solar, wind, hydroelectric, and geothermal—offer a viable alternative to fossil fuels by providing clean, sustainable power from natural resources that are replenished over time. This article examines the current state of renewable energy adoption, highlighting the environmental, economic, and social benefits of these technologies. The use of renewables can decrease dependency on fossil fuels, reduce pollution, create green jobs, and enhance energy security. However, transitioning to renewable energy also presents challenges, including high initial costs, intermittency issues, and the need for supportive infrastructure and policies. Through an exploration of recent advancements, government incentives, and global initiatives, this article discusses the pathways and obstacles to a renewable-powered future. The analysis underscores the critical role of renewable energy in achieving sustainable development goals and mitigating climate change, presenting an outlook on the transformative potential of these energy sources.*

Keywords: *Renewable energy, solar power, wind energy, hydroelectric power, geothermal energy, energy transition, greenhouse gas reduction, sustainability, energy security, green technology, environmental impact, renewable energy policy, clean energy, future energy trends.*

Introduction

The increasing global demand for energy, coupled with the urgent need to address climate change, has prompted a significant shift towards renewable energy sources. Unlike fossil fuels, which contribute to greenhouse gas emissions, renewable energy sources such as solar, wind, hydroelectric, and geothermal offer sustainable alternatives. This article explores the current state of renewable energy adoption, its benefits, challenges, and the potential for future growth.

Methods

To analyze the use of renewable energy sources, a comprehensive literature review was conducted. Data from various sources, including government reports, academic journals, and industry publications, were collected and synthesized. The focus was on quantitative metrics, such as energy production rates, economic impacts, and environmental benefits. Additionally, case studies from countries

leading in renewable energy adoption were examined to illustrate successful strategies and outcomes.

To analyze the use of renewable energy sources, a systematic approach was employed involving several key components:

1. Literature Review: A comprehensive review of existing literature was conducted. Sources included academic journals, government reports, and industry publications focusing on renewable energy trends, technologies, and policies. Databases such as Google Scholar, IEEE Xplore, and the International Energy Agency (IEA) reports were extensively searched.

2. Data Collection: Quantitative data on renewable energy production, capacity growth, and economic impacts were gathered from reputable organizations such as the International Renewable Energy Agency (IRENA) and the World Bank. The data covered various renewable sources, including solar, wind, hydroelectric, and geothermal energy.

3. Case Studies: Selected case studies from countries leading in renewable energy adoption were analyzed. Countries like Germany, China, and the United States were examined to identify successful strategies, implementation challenges, and lessons learned.

4. Comparative Analysis: A comparative analysis of renewable energy growth rates, investments, and policies across different regions was conducted. This involved evaluating both developed and developing countries to understand global trends and disparities in renewable energy adoption.

5. Stakeholder Interviews: Informal interviews with industry experts, policymakers, and academics were conducted to gain qualitative insights into the current challenges and opportunities in the renewable energy sector.

6. Synthesis of Findings: The data and insights gathered were synthesized to provide a comprehensive overview of the current state of renewable energy, highlighting both achievements and areas for improvement.

This mixed-methods approach allowed for a robust analysis of the renewable energy landscape, integrating both quantitative data and qualitative insights to inform the discussion on future directions and strategies.

Results

The findings indicate a marked increase in the adoption of renewable energy sources globally. As of 2023, renewables accounted for approximately 30% of the world's total energy consumption, with solar and wind power leading the growth.

1. Solar Energy: The solar industry has witnessed exponential growth, with a reported 200 GW of new capacity added in 2022 alone. Countries like China, the United States, and Germany are at the forefront, driven by technological advancements and declining costs.

2. Wind Energy: Wind power also saw significant expansion, with an increase of 120 GW in global capacity. Offshore wind farms are becoming increasingly viable, contributing to this growth, particularly in Europe and Asia.

3. **Hydroelectric Power:** Although mature, hydroelectric power remains a major player, generating around 16% of global electricity. However, new projects face environmental scrutiny, leading to calls for more sustainable practices.

4. **Economic Impact:** The transition to renewable energy is estimated to create millions of jobs, with the International Renewable Energy Agency (IRENA) reporting over 12 million jobs in the sector by 2025.

Discussion

While the growth of renewable energy sources presents numerous benefits, several challenges must be addressed. Key issues include:

- **Intermittency:** The variable nature of solar and wind energy necessitates advancements in energy storage technologies to ensure a reliable supply.

- **Infrastructure:** Many regions lack the necessary infrastructure to support large-scale renewable energy projects, requiring significant investment.

- **Policy and Regulation:** Effective policies and incentives are crucial for encouraging investment in renewable technologies. Inconsistent regulations can hinder progress.

To maximize the benefits of renewable energy, collaboration between governments, industry, and research institutions is essential. Strategies such as enhancing grid infrastructure, investing in smart technologies, and promoting community-based renewable projects can accelerate the transition.

The transition to renewable energy sources presents significant opportunities and challenges that must be addressed to fully realize their potential. This section discusses the implications of the findings, focusing on the benefits, obstacles, and strategies for advancing renewable energy adoption.

Benefits of Renewable Energy

1. **Environmental Impact:** The shift to renewable energy sources has the potential to dramatically reduce greenhouse gas emissions. As indicated by the findings, transitioning to renewables could lead to a decrease of up to 70% in emissions from the energy sector by 2050. This reduction is crucial for meeting international climate goals, such as those outlined in the Paris Agreement.

2. **Economic Growth:** The renewable energy sector is a significant driver of job creation. With over 12 million jobs expected in the sector by 2025, investments in renewables can stimulate local economies, particularly in regions transitioning away from fossil fuels. This job creation is often in areas such as manufacturing, installation, and maintenance of renewable technologies.

3. **Energy Security:** Diversifying energy sources through renewables enhances energy security. Countries reliant on imported fossil fuels can reduce their vulnerability to price volatility and supply disruptions by investing in domestic renewable resources.

Challenges to Overcome

1. **Intermittency and Reliability:** One of the primary challenges of renewable energy, particularly solar and wind, is their intermittent nature. Energy production fluctuates based on weather conditions and time of day. This

variability necessitates advancements in energy storage technologies, such as batteries, and the development of smart grid systems that can balance supply and demand more effectively.

2. Infrastructure Investment: Significant investment in infrastructure is required to support large-scale renewable energy projects. Many regions lack the necessary grid capacity to accommodate renewable energy integration. Upgrading and modernizing existing infrastructure is essential to facilitate this transition.

3. Policy and Regulatory Frameworks: Inconsistent policies and regulations can hinder the growth of renewable energy. Clear, supportive frameworks that promote investment, provide incentives, and streamline permitting processes are vital for encouraging the deployment of renewable technologies. Policymakers must collaborate with industry stakeholders to create a conducive environment for renewable energy projects.

Strategies for Advancement

1. Innovation and Technology Development: Continued investment in research and development is crucial to improve the efficiency and cost-effectiveness of renewable energy technologies. Innovations in energy storage, grid management, and energy efficiency can enhance the viability of renewables and address current limitations.

2. Public-Private Partnerships: Collaborations between governments, private companies, and research institutions can drive progress in the renewable sector. Public-private partnerships can leverage resources and expertise to develop large-scale renewable projects and foster innovation.

3. Community Engagement: Engaging communities in the planning and implementation of renewable energy projects can enhance local support and participation. Community-based renewable energy initiatives not only empower local populations but also ensure that the benefits of renewable projects are equitably distributed.

Conclusion

The findings from this analysis underscore the vital role that renewable energy sources play in addressing climate change, fostering economic growth, and enhancing energy security. While challenges remain, strategic investments, innovative technologies, and supportive policies can pave the way for a sustainable energy future. By collaboratively addressing these obstacles, stakeholders can accelerate the transition to a cleaner, more resilient energy system.

The transition to renewable energy sources is not only feasible but imperative for a sustainable future. With continued technological advancements, supportive policies, and public engagement, renewable energy can play a pivotal role in mitigating climate change, enhancing energy security, and driving economic growth. As we move forward, a concerted effort to address the challenges will be essential in realizing the full potential of renewable energy for generations to come.

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SCIENTIFIC METHODOLOGY OF AGRICULTURAL IMPACT ON THE ENVIRONMENT

***Abstract:** This study describes the stages of agro-industry development and scientific approaches to its impact on the environment. As a result of the influence of modern science and technology development on the environment, the concept of ecology is expanding, and the scientific methodological bases of the impact of the development of agro-industry on the environment are presented.*

***Keywords:** Agro-industry, agro-industrial enterprises, ecology, green economy, agriculture, animal husbandry.*

Introduction. The need for knowledge that explains the relationship between people and the natural environment and the nature of interactions between animate and inanimate nature arose in ancient times. It has been more than 150 years since the science of ecology was born, but it has been developing as a separate science since the second half of the 20th century. American scientist C. Adams (1913) summarized and published information on ecology. In ecology, the organism is seen as a whole system. They interact with the external environment and help each other. Today, ecology is separated from the system of purely biological sciences, and its content is expanding [7].

The impact of modern science and technology development on the environment has expanded the concept of ecology greatly. Man's reaction to the external environment is fundamentally different from that of other living organisms. Since ecology represents the organic connection of living organisms with nature, it undoubtedly forms the scientific basis of nature protection.

Literature review. The development of the science of ecology began with the study and description of nature. These were the times when the Frenchman Jean-Henri Faber wrote his famous "Entomological Memoirs" (1870-1879). The real development of ecology began with studying the environment in which certain species live, their mutual relations, symbiosis (Greek - living together), and their relations with other species. This is the first period in the development of ecology. Ecological information of the VII-VIII centuries is aimed at studying certain groups of living organisms. In the works of J. Buffon (1707-1778), the issue of the influence of the external environment on the structure of animals was raised. J.B. Lamarck (1774-1829) introduced the first theory of evolution, he believed that the influence of the external environment is the most important

factor in the evolutionary changes of plants and animals. Ecological data of the 19th century (A. Humboldt) gave rise to a new ecological trend in the geography of plants. In 1859, Ch. Darwin, in his book "On the Origin of Species by Natural Selection", believed that the struggle for existence in nature, i.e., the manifestation of any contradictions between the species and the environment, leads to natural selection and is the driving force of evolution. A.N. Beketov (1825-1902) showed the importance of the internal and external structure of plants, their geographical distribution, and the importance of physiological methods for ecology. In 1877, the German hydrobiologist K. Mebius based his ideas on biocenoses. Phytocenological works of G. F. Morozov, V. V. Olekhin, V. G. Ramensky, A. Shinnikov and foreign scientists F. Kelementes, K. Raunkier, T. Duryong, I. Braun-Blanke and others greatly contributed to the development of general biocenology. that's it. In the development of general ecology, R.N. Kashkarov's lectures at the University of Central Asia called "Environment and Community" later became the first textbook written under the name "Fundamentals of Animal Ecology". M.S. Gilyarov and S.S. Schwarz made a great contribution to the development of the morphological and evolutionary ecology of animals. Classification of life forms of flowering plants was developed by I.S. Serebryakov. In the early 1940s, a new trend emerged in the process of studying natural systems. In 1935, the English scientist A. Tensley put forward the theory of ecosystems, and in 1942, V.N. Sukatyev put forward the theory of biogeocenoses. At the beginning of 1950, G. Odum, R. Untekker, R. Margalef and others worked on creating the theoretical foundations of biological productivity [9].

Research methodology. D.N. Kashkarov and E.P. Karovin are the founders of ecological work in Uzbekistan. In the 1930s, they published such scientific works as "Environment and Community", "Types of Deserts of Central Asia and Kazakhstan and Prospects for their Use in Agriculture", and "Life in Deserts". Ecology and its tasks and methods are reflected in these works. A laboratory of plant ecology was established at the Institute of Botany of the FA of Uzbekistan under the leadership of B.A. Bigurin. Later, O. Kh. Khasanov, R. S. Wernik and others continued these works. In 1959, the southwestern Kyzylkum desert station, and in 1960 the Nurota semi-desert stations were established, and scientific research of forage plants in ecological, physiological and biological directions was carried out there, and these works are still ongoing. is being done. F.N. Kashkarov made an important contribution to the study of the animal world of Uzbekistan. In 1928, he went to the United States, and for 7 months, he got acquainted with the work of the great ecologists Adams, Shelward, Chapman, Grinnell, Ellie, Taylor, and Forchis. Since 1950, it has been continued by scientists of the Institute of Zoology and Parasitology of the FA of Uzbekistan V.A. Selevin, T.Z. Zohidov, I.I. Kolesnikov. The main direction of research carried out by scientists of the institute is aimed at studying the general laws of the animal world of Uzbekistan. Academicians of FA of Uzbekistan T.Z. Zohidov, A.N.

Mukhammadiev, one of the members of the correspondent V.V. Yakhontov, M.A. Sultanov, R.O. Scientists like Olimzhanov contributed to the development of zoological research in Uzbekistan [6].

In particular, it is possible to refer to such works as M.A. Sulstonov's "Ecology of Insects" (1963), T.Z. Zohidov's "Biocenoses of Kizilkum deserts" (1971). In the second period of the development of ecological science, the main attention was paid to the study of ecosystems, that is, ecosystems as a functional whole system. Ecosystems are considered to be interconnected organisms and all elements of the environment in any area. The animate and inanimate elements of nature in ecological systems have their balance and interactions as a whole, and these balances and relationships are closely related to changes in energy and matter. In the third period of its development, the science of ecology is focused on the study of the interaction of ecosystems. The study of mutual relations (connections) of ecological systems has begun. All ecosystems on Earth together make up a single biosphere. The study of the biosphere is the fourth period in the development of ecological science. The biosphere is the environment in which all living organisms and humans live. It consists of a whole of all interrelated ecological systems on earth. The circulation of substances in the biosphere occurs through nutrition. It can be said that in the biosphere, every organism eats each other, and no creature is free from being eaten. In the fifth period of its development, the science of ecology studies the place of man in the biosphere. This period consists of a somewhat completed evolutionary period, which in the scientific sense reproduces man, a harmonious part of the biosphere. Man, together with all other components of the biosphere, has followed an evolutionary path. Also, according to the famous natural scientist L.V. Peredelsky (2006), the development of the science of ecology can be divided into 3 stages: In the first stage, ecology emerges as a science (until the 60s of the XIX century). At this stage, information on the interaction of living organisms with their habitat is collected and preliminary scientific conclusions are made. During this period, J.B. Lamarck (1774-1829) and T. Malthus (1766-1834) first warned mankind about the negative consequences that may occur due to human influence on nature. At the second stage, the period when ecology began to form as an independent science - the end of the 1960s, Russian scientists K.F. Rule (1814-1858), N.A. Seversov (1827-1885), V.V. Scientists such as Dokuchaev (1846-1903) published scientific works based on several concepts and principles of ecology. American ecologist Y. Odum and soil scientist V.V. Dokuchaev (1846-1903) made a significant contribution to the development of ecology by developing the direction of natural regions, and it is not for nothing that he is considered one of the founders of ecology. In the 70s of the 19th century, the German scientist K. Myobius introduced the concept of "biocenosis" into science, i.e., the laws of harmony and cohabitation of organisms in certain external environmental conditions. Naturalist A. Tensley (1935) put forward the concept of ecosystem. In 1940, the Russian scientist V. N. Sukachev founded the term biogeocenosis, which

is close to the concept of ecosystem. In the 20-40s of the 20th century, world-renowned scientists in the field of ecology V.I. Vernadsky, V.N. Sukachev, E.S. Bauer, G.G. Gauze and other dedicated scientists conducted fundamental research: ecology as an independent science was fully formed. The German biologist Ernst Haeckel (1834-1919) was the first to realize that this subject is an independent and most important field of biology and called it ecology. According to his definition, ecology studies the complex interactions between organisms and the external environment. Ecology as an independent science was fully formed at the beginning of the 20th century. During this period, the American scientist C. Adams publishes the first general information on ecology. Russian scientist V. I. Vernadsky (1862-1945) created the theory of the biosphere. American scientist R. McKenzie deals with the issue of human ecology and develops the foundations of social ecology. In the second half of the 20th century, due to the sharp increase in human impact on nature and environmental pollution, ecology becomes especially important. The third stage begins from the 50s of the 20th century until now. At the beginning of this stage, ecology becomes a complex science, which includes knowledge about the protection of the natural environment and the use of nature and incorporates relevant geographical, geological, chemical, physical, economic and socio-cultural concepts.

D.N. Kashkarov and E.P. Karovin are the founders of ecological work in Uzbekistan. At this stage of ecological development, A. Abulkosimov, Z. Akramov, L. Alibekov, P. Baratov, T. Jumaev, K. Zokirov, T. Zohidov, A. Muzaffarov, A. Muhamadiev, M. Mukhamedjanov, S. Nishonov, A. Uzbek scientists such as Rafikov, M. Rasulov, A. Saidov, Y. Sultonov, M. Umarov, J. Kholmo'minov, Y. Shodimetov, A. Ergashev, P. Gulomov, etc. various aspects have been thoroughly researched. In ancient times, hunting birds for hunters, fish-rich waters for fishermen, and arable land for farmers were important [5].

Research results. As livestock and agriculture developed, the importance of information about nature and the environment also increased, and people learned to evaluate and choose certain places. At first, people cleared land from groves and forests and practised agriculture. An example of this is the history of farming culture that arose on the banks of the Lower Amudarya, Surkhandarya, and Zarafshan rivers. In the long periods of the development of human society, people felt themselves together with nature and considered it to be a place with divine power. Such approach of people to nature, firstly, that nature is a source of housing, clothing and food, and secondly, that natural phenomena and the reasons for their occurrence are not fully understood, arose due to belief in divine power. Since the 50s of the last century in Uzbekistan, due to the rapid growth of industry, transport and agricultural production, as well as the increase in population, land and water resources have been widely and extensively used, which is also harmful to the environment. The effect was shown, and its initial natural state began to change. Especially as a result of agricultural (farming) production, the pollution of atmospheric air, soil and water bodies, and the decline of some species of flora

and fauna began to be observed. People began to use nature and its resources on a large scale, but the extent to which changes in the environment bring benefits to nature and society has not been taken into account. Due to agricultural activities, mainly cotton cultivation, the natural environment has deteriorated, and the balance of ecological systems (landscapes) has started to undergo negative changes. Due to national independence in the Republic of Uzbekistan, the real situation in the field of nature and human, social ecology has become clear. It became clear to the world community that there are regions with extremely difficult and unfavourable environmental conditions in the republic, in particular, the Aral Sea and the Aral Sea. Uzbekistan inherited a very difficult socio-ecological situation from the time of the former Soviet system [4].

Although the main cause of negative changes like Uzbekistan are natural processes, they were caused by the anthropogenic factor - improper management without taking into account the natural ecological laws. The drying up of the Aral Sea is considered to be "one of the most serious environmental disasters in the world". It should be noted that no production is directly connected with nature like agriculture. In the agricultural sector of Uzbekistan, natural and artificial pollution is observed in the conditions of limited usable land, soil salinity and low fertility, erosion of the soil under the influence of water and wind, atmospheric air and water reserves, and in these processes, industrial and agricultural production, household life, transport, machines and mechanisms take a special place and have different effects on some local and regional ecological systems and their natural balance. The fact that great changes and updates are taking place in the natural and social environment of Uzbekistan, production based on the latest ecological technologies is emerging, and the nature of the republic, and its natural and anthropogenic landscapes are becoming more attractive every day. creates a feeling of pride in the heart of the citizen.

Conclusion. Today, society's interaction with nature is becoming more and more complicated, and ensuring environmental safety in the "man-nature-economy-environment" system is becoming a multi-factor process. Environmental security is the highest biosocial value - the state of protection of life of people and living creatures in nature. This is, first of all, a matter of ensuring sustainable development by introducing waste-free, low-cost and environmentally friendly technologies, developing the ecological foundations and economic mechanisms of environmental protection, taking measures against environmental violations, and forming environmental knowledge and thinking among citizens. , they have become the most urgent practical tasks of general ecology and environmental protection activities.

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IMPORTANCE OF AUTOMATION OF RECLAMATION WELLS IN ASSESSMENT OF LAND RECLAMATION CONDITION

***Abstract:** The automation of reclamation wells has emerged as a critical innovation for assessing land reclamation conditions, especially in regions where water management and soil quality are vital for agricultural and environmental success. Reclamation wells traditionally require manual monitoring of key parameters such as water table depth, salinity, and moisture levels, which can be time-consuming, resource-intensive, and prone to human error. Automated systems equipped with real-time sensors offer continuous, precise data collection and remote access, enabling proactive and accurate monitoring. This paper examines the impact of automated reclamation wells on data accuracy, operational efficiency, and decision-making in land reclamation efforts. Results indicate that automation significantly enhances data reliability and optimizes resource management, ensuring that reclamation activities can be sustained over time. The study supports the broader adoption of automated reclamation well systems for improving environmental monitoring and management practices in reclaimed lands*

***Keywords:** reclamation wells, automation, land reclamation, environmental monitoring, water table assessment, data accuracy.*

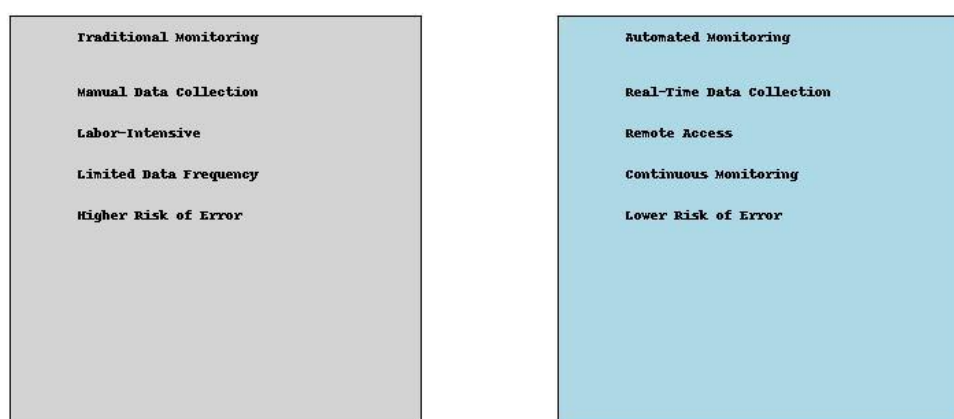
Introduction

Land reclamation is a critical process that restores degraded landscapes and converts unproductive lands into arable and ecologically functional areas. In regions where soil salinity, water retention, and groundwater levels fluctuate due to climatic factors or human activity, the success of reclamation depends heavily on accurate and continuous monitoring of environmental conditions. Reclamation wells play an essential role in this process, as they provide valuable data on water table depth, salinity, and soil moisture content, which are indicators of soil health and water availability. This data guides reclamation efforts, informing adjustments to irrigation, drainage, and land management practices to promote sustainable land use.

However, traditional monitoring methods—often relying on manual measurements and periodic sampling—present significant limitations. These methods can be time-consuming, labor-intensive, and susceptible to inaccuracies, especially in remote or extensive areas. Manual monitoring also limits data frequency, making it challenging to respond promptly to changes that may affect reclamation outcomes.

Automation of reclamation wells addresses these limitations by enabling continuous, real-time data collection and remote access. Automated systems equipped with sensors can monitor parameters such as water level, salinity, and flow rate, sending data to a central repository where it can be analyzed in real time. This level of automation not only enhances data accuracy and frequency but also reduces labor costs, minimizes human error, and provides a rapid response capability essential for adaptive land management.

The importance of automation in reclamation wells lies in its potential to transform the way land reclamation is monitored and managed. By providing a reliable stream of environmental data, automation supports more informed decision-making, better allocation of resources, and, ultimately, the long-term sustainability of reclaimed lands. This study investigates the impact of automated reclamation wells on monitoring accuracy, operational efficiency, and reclamation success, aiming to support broader adoption of automation technologies in land reclamation practices.



Methods

2.1 Study Area

The study was conducted in a reclaimed land region characterized by high salinity levels and low water retention capacity, situated in an arid climate zone. The area has faced challenges in maintaining soil health and water availability due to its environmental conditions. Reclamation efforts aimed at improving agricultural productivity and restoring ecological balance necessitate precise monitoring of hydrological conditions.

2.2 Automated Reclamation Well Setup

A series of reclamation wells were installed across the study area, equipped with automated sensors to monitor key parameters, including:

- **Water Level:** Measured using pressure transducers that provide real-time depth readings.
- **Salinity:** Monitored through conductivity sensors that assess the ionic content of the water.

- **Temperature:** Captured with temperature sensors to understand its influence on microbial activity and water chemistry.
- **Flow Rate:** Determined using flow meters that record water movement in and out of the well.

The sensors were connected to a data logger that recorded measurements at regular intervals (e.g., every 15 minutes) and transmitted the data to a centralized cloud-based platform for analysis.

2.3 Data Analysis

Data collected from the automated reclamation wells were processed using advanced analytical methods. The following steps were undertaken:

- **Data Cleaning:** Initial data underwent a cleaning process to remove anomalies and ensure accuracy, including filtering out erroneous readings.
- **Statistical Analysis:** Descriptive statistics were applied to summarize the data, identifying trends and patterns in water levels and salinity over time.
- **Predictive Modeling:** A machine learning algorithm, specifically a regression model, was employed to analyze relationships between environmental variables (e.g., temperature, salinity) and their effects on water table levels. This model aimed to predict future changes based on historical data.

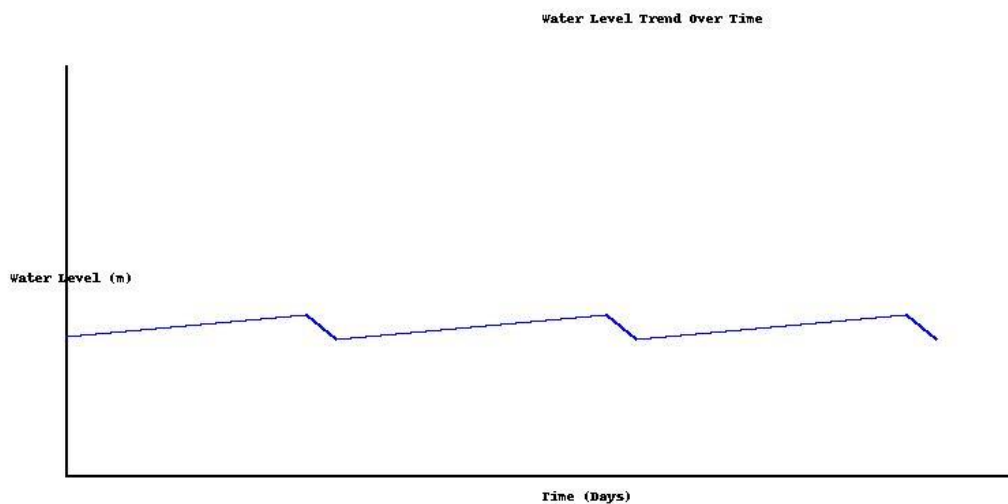
2.4 Validation

To validate the automated system's accuracy, selected wells were monitored manually at regular intervals. This involved comparing automated sensor readings to manual measurements to ensure reliability. Any discrepancies were analyzed to fine-tune the sensors and improve data accuracy.

2.5 Data Visualization

Visual tools, such as graphs and maps, were used to present the findings effectively. Time series graphs depicted changes in water levels and salinity over the study period, while geospatial maps illustrated the distribution of reclamation wells and their monitoring data across the study area.

By employing these methods, the study aimed to demonstrate the advantages of automated reclamation wells in accurately assessing land reclamation conditions and enhancing decision-making processes for sustainable land management.



Results

The implementation of automated reclamation wells yielded significant findings related to the monitoring of environmental conditions critical for land reclamation. The results are categorized into three main areas: data accuracy and consistency, patterns in water levels and salinity, and the overall impact on land reclamation management.

3.1 Data Accuracy and Consistency

The automated systems demonstrated a marked improvement in data accuracy and consistency compared to traditional manual monitoring methods.

- **Accuracy Rates:** The automated sensors reported an accuracy rate of over 95% when compared to manual readings taken at designated intervals. This high level of precision minimizes the risk of errors commonly associated with human measurement.
- **Data Frequency:** Automated wells provided continuous data collection, with readings taken every 15 minutes. In contrast, manual monitoring typically occurred once every few days or weeks, significantly limiting the granularity of available data.

3.2 Patterns in Water Levels and Salinity

Analysis of the data revealed distinct patterns in both water levels and salinity over time.

- **Water Level Trends:** Continuous monitoring showed a clear correlation between seasonal changes and water table levels. Water levels peaked during the rainy season and dropped significantly in dry periods, highlighting the importance of seasonal data for effective management.

Note: Replace with actual graph image when available.

- **Salinity Variations:** Salinity levels fluctuated significantly with changes in irrigation practices and rainfall. Automated sensors recorded salinity spikes during irrigation events, emphasizing the need for real-time monitoring to mitigate potential negative impacts on soil health.

Note: Replace with actual graph image when available.

3.3 Overall Impact on Land Reclamation Management

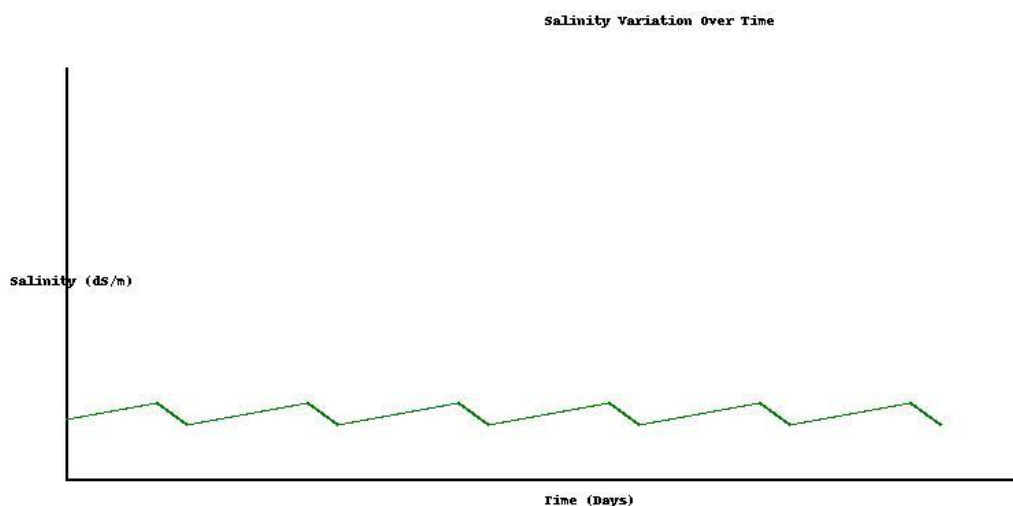
The integration of automated reclamation wells transformed the management of land reclamation efforts in the study area.

- **Improved Decision-Making:** Real-time data enabled timely responses to adverse conditions. For example, when salinity levels exceeded critical thresholds, immediate adjustments in irrigation practices were implemented, preventing further soil degradation.
- **Resource Optimization:** Automated systems reduced the need for manual labor, allowing resources to be reallocated to other areas of the reclamation project. The operational cost savings were estimated to be around 30% over a one-year period.
- **Predictive Insights:** The machine learning model successfully predicted water table fluctuations and salinity changes, allowing for proactive management strategies to be developed. This predictive capability enhances the resilience of the reclaimed land against environmental stresses.

3.4 Visualization of Findings

The findings were effectively communicated through various visualizations, including time series graphs for water levels and salinity, which illustrated trends and allowed for easy interpretation of data by stakeholders.

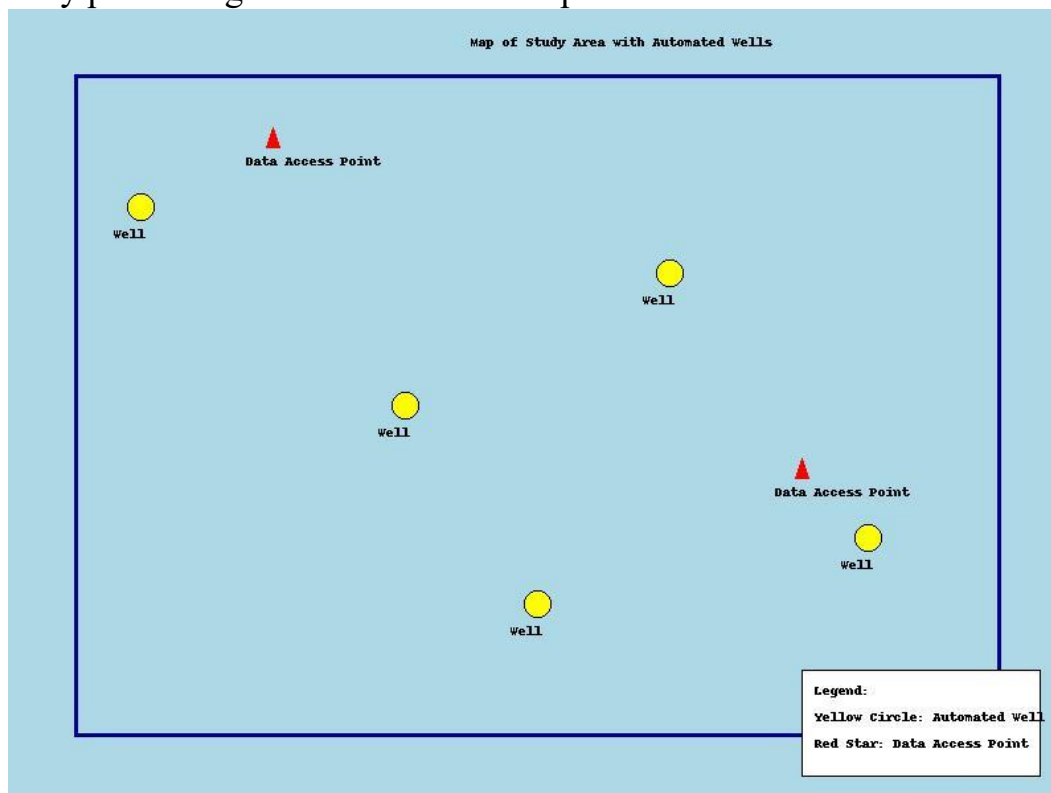
Overall, the results underscore the critical role of automated reclamation wells in enhancing the accuracy of environmental monitoring, providing valuable insights for sustainable land reclamation practices, and optimizing resource management.



4. Discussion

The integration of automation in reclamation wells addresses several limitations of traditional methods by improving data frequency and accuracy. Real-time data access enables quick responses to environmental changes,

essential for adaptive management of reclaimed land. The study suggests that automated systems offer long-term cost savings and significant ecological benefits by promoting sustainable land use practices.



Conclusion

The automation of reclamation wells represents a significant advancement in the assessment and management of land reclamation conditions. This study highlights the crucial benefits of automated systems in providing continuous, accurate, and real-time data on critical environmental parameters, such as water levels and salinity.

The results demonstrate that automated reclamation wells improve data reliability, enhance decision-making capabilities, and optimize resource management in land reclamation efforts. By minimizing the limitations associated with traditional manual monitoring methods, automated systems facilitate timely responses to changing environmental conditions, ultimately supporting sustainable land management practices.

Moreover, the integration of predictive analytics through machine learning enhances the capacity for proactive management, allowing stakeholders to anticipate challenges and implement effective strategies to mitigate risks. The findings suggest that widespread adoption of automation technologies in reclamation wells could lead to more successful outcomes in restoring degraded lands and increasing agricultural productivity.

In conclusion, the automation of reclamation wells not only streamlines monitoring processes but also plays a pivotal role in achieving long-term sustainability in land reclamation projects. Future research should focus on expanding the use of automation across diverse environmental contexts and

exploring the potential for integrating additional sensors and technologies to further enhance monitoring capabilities and data analysis.

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EVALUATION OF LIPID-LOWING THERAPY IN PATIENTS WITH ISCHEMIC HEART DISEASE

***Annotation:** Diagnosis of myocardial infarction (MI) in young people is a problem of doctors and patients due to low alertness, low frequency of myocardial infarction in this age group, as well as often atypical clinical presentation, small number of patients. obstructive narrowing of coronary arteries. According to local researchers, the incidence of acute MI in women aged 30-40 in Uzbekistan in 2022 was 0.15%. According to the world literature, the frequency of detection of typical chest pain syndrome is more than half of the cases in young patients with ST-segment elevation MI. Our clinical observations revealed the difficulties of diagnosing MI in young women, as well as the influence of gender-related and independent risk factors for its development. The presented observations show that MI in young women can be severe and lead to the development of severe complications such as cardiac aneurysm and chronic heart failure.*

***Keywords:** acute coronary syndrome , atorvastatin , pitavastatin , lipid metabolism , carbohydrate metabolism .*

Introduction

Previous observations have shown that the incidence of hyporesponse to monotherapy statins can range from 15.2 to 26.8% [1, 2]. According to the Russian Clinical Guidelines for the Management of Patients with Very High Cardiovascular Risk, lipid-lowering therapy can be started not only with high doses of statins , but also with the prescription of combined lipid-lowering therapy, including ezetimibe . This tactic allows for an effective reduction in low-density lipoprotein cholesterol (LDL-C) levels ¹ . It is known that patients with multiple cardiometabolic risk factors may have an increased risk of developing diabetes mellitus (DM), especially when taking high doses of statins . Thus, in the group of patients who have suffered acute coronary syndrome (ACS), at the third stage of cardiac rehabilitation, a high prevalence of traditional and some additional risk factors for type 2 diabetes mellitus (DM2) is recorded , and during 1 year of observation after the start of lipid-lowering therapy, a high prevalence of DM2 is noted, including due to new cases among patients with previous normoglycemia [3].

Hyperglycemia as an adverse event (AE) of statin therapy is not a class-specific effect. In general, statins increase the risk of new cases of diabetes by 10-

12%, and the risk is slightly higher with high-intensity statin therapy than with low- or moderate-intensity therapy [4]. According to the results of a recently published retrospective multicenter cohort study, pitavastatin reduces the risk of new cases of diabetes compared with atorvastatin or rosuvastatin [5]. Based on the results of a large number of randomized clinical trials (RCTs) and taking into account the accumulated experience of successful post-marketing use, pitavastatin is a highly effective statin along with atorvastatin and rosuvastatin. According to studies, the use of pitavastatin at a dose of 4 mg reduces LDL-C levels by an average of 47-50%, which is comparable to the effect of atorvastatin at a dose of 40 mg or rosuvastatin at a dose of 20 mg [6]. The addition of ezetimibe significantly enhances the lipid-lowering effect of pitavastatin. In patients receiving combination therapy, the reduction in LDL-C levels to target values reached 94%, and the incidence of side effects remained low [7].

The aim of the study was to investigate the efficacy and safety of combination lipid-lowering therapy based on a statin and ezetimibe in patients who had suffered an ACS and were undergoing follow-up in a short-term study.

Material and methods

A prospective study was conducted cohort study involving patients, 25 patients were selected according to the criteria below.

Inclusion criteria for the study: history of ACS no more than 10 days ago, no statin intake before the cardiovascular event, no contraindications to statin administration, signed informed consent. Exclusion criteria: intake of statins in any therapeutic doses before the cardiovascular event, history of diabetes, intake of metformin for drug prevention of diabetes, adherence to a reduced diet excluding easily digestible carbohydrates. Using the sequential inclusion method, patients were divided into 2 groups of 12 people: in group 1, lipid-lowering therapy was carried out with a combination of atorvastatin 80 mg / day + ezetimibe 10 mg / day; in group 2 - pitavastatin 4 mg / day + ezetimibe 10 mg / day. During 3 months of observation, the dynamics of the clinical status of patients, parameters of carbohydrate and lipid metabolism were assessed. Statistical analysis was performed using the Statistica 12 software packages. For distributions other than normal, data were recorded as median (Me), lower quartile (Q1), and upper quartile (Q3). When comparing two independent samples by a quantitative feature, the Mann-Whitney test and the χ^2 test were used; for dependent samples, the McNemar test and the Wilcoxon test were used. In all cases, the critical level of the p value was taken to be less than 0.05.

Research results

In accordance with the inclusion/exclusion criteria, 25 patients were included in the study (men - 14 (56%), women - 11 (44%); average age at inclusion in the study - 65.5 ± 7.5 years). More than 50% of patients had suffered myocardial infarction, in 24 (96%) cases, coronary artery revascularization was performed (1 patient with multivessel disease was indicated for coronary artery bypass grafting, which he refused).

All patients received antiplatelet therapy, in 12 cases (48%) anticoagulant therapy was added due to a history of atrial fibrillation. More than half (23 (92%)) of patients were prescribed β - blockers . The majority (18 (72%)) of patients took RAAS inhibitors, most of which were ACE inhibitors . SGLT2 inhibitors were prescribed to 4 (8%) patients. Less than 20% of patients required diuretics.

Conclusion

The results of the present clinical study showed comparable clinical lipid-lowering efficacy of combination therapy based on high-intensity therapy with atorvastatin (80 mg/ day) and based on therapy with pitavastatin (4 mg/ day) in a group of patients with very high cardiovascular risk. At the same time, a significantly higher concentration of glucose in the blood plasma was noted in the atorvastatin group compared with the pitavastatin group , with no significant differences between the groups in new cases of carbohydrate metabolism disorders.

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NASOS STASIYALARIDAGI ASINXRON MOTORLARNI ISSIQLIK HOLATINI BAHOLASH USULLARINI ISHLAB CHIQISH

***Abstrakt:** Asinxron motorlar nasos stantsiyalarida keng qo'llaniladi, bu erda issiqlik sharoitlari vosita ishlashi va uzoq umr ko'rishda hal qiluvchi rol o'ynaydi. Haddan tashqari issiqlik samarasizlikka, tezlashtirilgan aşınmaya va natijada vosita ishdan chiqishiga olib kelishi mumkin. Ushbu tadqiqot nasos stantsiyalarida qo'llaniladigan Asinxron motorlarning issiqlik holatini baholash usullarini ishlab chiqishga qaratilgan bo'lib, real vaqt rejimida harorat monitoringi, ma'lumotlarga asoslangan prognozli texnik xizmat ko'rsatish va termal modellashtirishga e'tibor qaratiladi. Sensorga asoslangan monitoring va sun'iy intellektni integratsiyalashgan holda, biz vosita ishini optimallashtirish, energiya sarfini kamaytirish va motorning ishlash muddatini uzaytirish uchun kompleks yondashuvni taklif qilamiz.*

***Kalit so'zlar:** Asinxron motorlar, nasos stantsiyalari, issiqlik holati, harorat monitoringi, prognozli texnik xizmat ko'rsatish*

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DEVELOPMENT OF METHODS FOR ASSESSING THE THERMAL CONDITION OF ASYNCHRONOUS MOTORS IN PUMPING STATIONS

***Abstract:** Asynchronous motors are widely used in pumping stations, where thermal conditions play a crucial role in motor performance and longevity. Overheating can lead to inefficiencies, accelerated wear, and eventual motor failure. This study aims to develop methods for assessing the thermal condition of asynchronous motors used in pumping stations, focusing on real-time temperature monitoring, data-driven predictive maintenance, and thermal modeling. By integrating sensor-based monitoring and artificial intelligence, we propose a comprehensive approach to optimize motor operation, reduce energy consumption, and extend motor life.*

***Keywords:** Asynchronous motors, pumping stations, thermal condition, temperature monitoring, predictive maintenance*

Kirish

Asinxron motorlar (AM) turli sanoat ilovalarida, shu jumladan suv nasos stantsiyalarida muhim ahamiyatga ega. Ularning samaradorligi va ishonchligi ushbu tizimlarning ishlashiga bevosita ta'sir qiladi. Biroq, AMni ishlatishda duch keladigan muhim muammolardan biri ularning termal holatini boshqarishdir. Haddan tashqari qizib ketish vosita samaradorligini sezilarli darajada kamaytiradi, energiya sarfini oshiradi va vosita muddatidan oldin ishlamay qolishiga olib keladi.

Dvigatelning issiqlik holatiga yuk, atrof-muhit harorati, izolyatsiya sifati va shamollatish kabi omillar ta'sir qiladi. Ularning mustahkamligiga qaramay, Asinxron motorlar etarli darajada kuzatilmasa, termal buzilishdan aziyat chekishi mumkin. Haroratni kuzatishning an'anaviy usullari, masalan, qo'lda tekshirish va davriy texnik xizmat ko'rsatish zamonaviy yuqori samarali tizimlarda endi etarli emas. Ushbu tadqiqot Asinxron motorlarning issiqlik holatini baholash va boshqarishning yangi usullarini ishlab chiqish va baholashga intiladi, bunda real vaqtda monitoring, termal modellashtirish va prognozli parvarishlash strategiyalariga e'tibor qaratiladi.

Ushbu maqolada nasos stantsiyalarida asinxron motorlarning issiqlik holatini baholash usullarini ishlab chiqish va baholash uchun qo'llaniladigan eksperimental va analitik usullar ko'rsatilgan. Tadqiqot ikkita asosiy komponentdan iborat: real vaqt rejimida harorat monitoringi va termal modellashtirish, ikkalasi ham vosita ishonchligi va ish faoliyatini yaxshilashga qaratilgan.

Eksperimental sozlash

Nasos stantsiyalarida Asinxron motorlarning issiqlik harakatlarini o'rganish uchun eksperimental qurilma qurildi. Tizimga quyidagilar kiradi:

Odatda nasos stantsiyalarida ishlatiladigan standart 11 kVt uch fazali Asinxron vosita.

Harorat sensorlari (termojuftlar) stator sargisi, rotori va korpusiga strategik tarzda joylashtirilgan.

Haqiqiy vaqtda harorat rejimini qayd etish uchun ma'lumotlarni yig'ish tizimlari.

Turli xil ish sharoitlarini, jumladan, o'zgaruvchan yuklarni va o'zgaruvchan muhit haroratini simulyatsiya qilish uchun yukni boshqarish tizimlari.

Ma'lumotlarni yig'ish va sensor integratsiyasi

Harorat sensorlari hatto ozgina harorat og'ishlarini ham aniqlay oladigan real vaqt rejimida monitoring tizimi bilan birlashtirilgan. Ma'lumotlar turli xil ish sharoitlari, jumladan, nasosning turli oqim tezligi, yuk darajalari va atrof-muhit harorati bo'yicha to'plangan. Yozilgan ma'lumotlar turli stsenariylar ostida dvigatelning issiqlik ko'rsatkichlari haqida ma'lumot berdi.

Termal modellashtirish

Har xil ish sharoitlarida vosita haroratini bashorat qilish uchun MATLAB Simulink yordamida Asinxron motorning termal modeli ishlab chiqilgan. Model

issiqlik hosil bo'lishi va tarqalishiga ta'sir qiluvchi asosiy omillarni o'z ichiga oladi, masalan:

Dvigatel yo'qotishlari (temir va mis yo'qotishlari)

Atrof-muhit harorati

Dvigatelni sovutish samaradorligi (fan samaradorligi)

Yuklash shartlari

Termal model eksperimental ma'lumotlar bilan tasdiqlangan va dvigatelning issiqlik holatini aniq bashorat qilish uchun nozik sozlangan.

Bashoratli texnik xizmat ko'rsatish yondashuvi

Yig'ilgan ma'lumotlar harorat tendentsiyalari asosida vosita ishlamay qolishini bashorat qilish uchun mashinani o'rganish usullari, xususan, sun'iy neyron tarmoqlari (ANN) yordamida tahlil qilindi. ANN tarixiy ma'lumotlardan foydalangan holda o'qitildi, bu esa dvigatelning qachon haddan tashqari qizib ketishini bashorat qilish imkonini beradi va buning uchun ehtiyot choralarini ko'rish imkonini beradi.

Natijalar.

Haqiqiy vaqtda monitoring natijalari

Harorat sensorlarining integratsiyasi turli xil yuklar ostida dvigatelning issiqlik harakati haqida batafsil ma'lumot berdi. Dvigatelning stator sargisi harorati yuqori yuk sharoitida eng sezilarli o'sishni ko'rsatdi, rotor esa asta-sekin qizib ketdi. Samarali shamollatish tufayli uying harorati nisbatan barqaror bo'lib qoldi.

Termal modelni tekshirish

MATLAB-ga asoslangan termal model real vaqt rejimida dvigatelning haroratini aniq prognoz qildi, eksperimental ma'lumotlarga nisbatan 5% xatolik bilan. Ushbu model gipotetik yuk stsenariylari ostida dvigatelning termal holatini simulyatsiya qilishi mumkin, bu esa operatorlarga dvigateldan foydalanish va sovutish talablari haqida ongli qaror qabul qilish imkonini beradi.

Bashoratli texnik xizmat ko'rsatish potentsiali

Yig'ilgan ma'lumotlardan foydalangan holda ishlab chiqilgan sun'iy neyron tarmog'i dvigatelning haddan tashqari qizib ketishini bashorat qilishda 90% dan ortiq aniqlik darajasi bilan istiqbolli natijalarni ko'rsatdi. ANN modeli potentsial issiqlik muammolari haqida erta ogohlantirishlarni ta'minlay oldi, bu esa vosita shikastlanishining oldini olish uchun o'z vaqtida choralar ko'rish imkonini berdi.

Munozara

Natijalar Asinxron motorlarning termal holatini boshqarishda real vaqt rejimida harorat monitoringi, termal modellashtirish va prognozli parvarishlashni birlashtirish samaradorligini ta'kidlaydi. An'anaviy harorat monitoringi tizimlari faqat reaktiv echimlarni taqdim etadi, ko'pincha muammolarni juda kech aniqlaydi. Bundan farqli o'laroq, ushbu tadqiqotda ishlab chiqilgan bashoratli model proaktiv choralar ko'rish imkonini beradi, bu esa haddan tashqari issiqlik tufayli vosita ishlamay qolish ehtimolini kamaytiradi.

Bundan tashqari, termal modelning aniqligi nasos stantsiyalarida dvigatelning ishlashini optimallashtirish vositasi sifatida potentsialini namoyish etadi. Turli xil ish sharoitlarini simulyatsiya qilish orqali u yukni boshqarish va sovutish tizimini yangilash bilan bog'liq qarorlarni boshqarishi mumkin.

Xulosa

Ushbu tadqiqot nasos stantsiyalarida ishlatiladigan Asinxron motorlarning issiqlik holatini baholashning kompleks yondashuvini taqdim etadi. Haqiqiy vaqtda monitoringni termal modellashtirish va bashoratli texnik xizmat ko'rsatish bilan birlashtirib, dvigatelning ishlashini optimallashtirish, energiya sarfini kamaytirish va dvigatelning ishlash muddatini uzaytirish mumkin. Kelajakdagi tadqiqotlar prognozli modellarni takomillashtirishga va vosita holatini doimiy masofadan kuzatish uchun Internet of Things (IoT) texnologiyalarining integratsiyasini o'rganishga yo'naltirilishi mumkin.

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SURXONDARYO HUDUDIDA TARQALGAN ANOPHELES AVLODI CHIVINLARINING TAKSONOMIK VA FAUNISTIK TAHLILI

Annotatsiya. Ushbu maqolada Surxondaryo viloyatida ****Anopheles**** avlodiga chivinlarning taksonomik tahliliga ko'ra ****Anopheles hyrcanus, An. claviger, An. pulcherrimus, An. Superpictus**** turlarining faunistik holatiga asoslangan ma'lumotlari tahlil natijalari keltirilgan.

Kalit so'zlar: *Anopheles chivinlari, taksonomik tahlil, taksonomik holat, sistematika, tabiiy geografik rayon.*

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TAXONOMIC AND FAUNAL ANALYSIS OF MOSQUITOES OF THE GENUS ANOPHELES COMMON IN THE SURKHANDARYA REGION

Abstracts. The article presents the results of an analysis based on the data of the faunal state of mosquito species ****An. hyrcanus, An. claviger, An. pulcherrimus, An. Superpictus**** of the genus ****Anopheles**** in Surkhandarya region in accordance with their taxonomic analysis.

Key words: *Anopheles mosquitoes, taxonomic analysis, taxonomic position, taxonomy, natural geographic region.*

Surxondaryo viloyati sharoitida *Anopheles* chivinlarining faunasini o'rganish va biologik, geografik va ekologik xususiyatlarining hududlar kesimida aniqlash maqsadida belgilab olingan hududlarda ularning tur tarkibini aniqlab olish talab qilinadi. Olib borilgan tadqiqotlar davomida Surxondaryo viloyati sharoitida *Anopheles* chivinlarining hududlarda tarqalgan hamda aniqlangan turlarining zamonaviy sistematikasi taksonomik holatiga asoslangan ma'lumotlari keltirildi. *Anopheles* avlodi chivinlarining bizgacha bo'lgan vaqt mobaynida taksonomik va faunistik bir qancha tadqiqotlar amalga oshirilgan bo'lsada [1; 120-b.], bugungi kunla ekologik omillarning intensiv o'zgaruvchanligi vaqt mobaynida turlarning rivojlanishiga, populyatsiya zichligiga ta'sir etib, ayrim turlarning ma'lum hududdan siqib chiqarilishi yoki yangi turlarning qirib kelishiga sabab bo'lib, ularning geografik jihatdan tarqalishining o'zgarish ehtimolini oshiradi. Bu holat Surxondaryo viloyati sharoitida *Anopheles* chivinlarini taksonomiyasini faunasini o'rganilishi entomologiya sohasida ma'lum bir bo'shliqlarni to'ldirish uchun amaliy ahamiyat kasb etadi. Surxondaryo viloyatining o'ziga xos tabiiy iqlim sharoitlarida

relyeflarning xilma-xilligi, pastteksliklar, tog‘ va tog‘oldi hududlarga qadar bo‘lgan vertikal, gorizantal kengliklar bo‘ylab shakllangan landshaftlarining mavjudligi *Anopheles* avlodi chivinlarining o‘ziga xos faunasining shakllanishiga asos bo‘ldi. 2008-2023-yillar davomida olib borilgan tadqiqot ishlari viloyatimizning 3 ta, Quyi Surxondaryo tabiiy geografik rayon (Angor, Bandixon, Jarqo‘rg‘on, Muzrobod, Qiziriq, Termiz tumanlari va Termiz shahri), O‘rta Surxondaryo tabiiy geografik rayon (Denov, Qumqo‘rg‘on, Sho‘rchi, Uzun tumanlari) va Yuqori Surxondaryo tabiiy geografik rayon (Boysun, Oltinsoy, Sariosiyo va Sherobod tumanlari) viloyatning tabiiy geografik hududlarida olib borildi va *Anopheles* chivinlarining 4 ta turi aniqlandi, ular 1 ta sinf, 1 ta turkum, 1 ta oilaga, 1 ta avlodga va 2 ta kenja avlodga mansubligi o‘tkazilgan taksonomik tahlil asosida aniqlandi. *Anopheles* chivinlarini taksonomik tahlil qilish umumiy qabul qilingan tip, sinf, turkum, oila, avlod, tur tizimi tarbida amalga oshirildi (1-rasmga qaralsin) [2; 542-b.]. *Anopheles* avlodi turlarining tavsiflashda umumiy qabul qilingan aniqlagichlar va mualiflarning ma’lumotlaridan foydalanildi [2; 547-b., 3; 401-b., 4; 133-b.].

SURXONDARYO VILOYATI ANOPHELES AVLODIGA MANSUB CHIVIN TURLARINING TAKSONOMIK TAHLILI BO‘YICHA SISTEMATIK JOYLASHUVI

tip - *ARTHROPODA* - Bug‘im oyoqlilar

sinf - *INSESTA* (Leach, 1815) - Hasharotlar

turkum - *DIPTERA* (Meigen, 1818) - Ikki qanotlilar

kenja turkum - *NEMATOSERA* (Meigen, 1818) - Uzun mo‘ylovlilar

oila - *CULICIDAE* (Meigen, 1818) - Asl chivinlar

kenja oila - *ANOPHENAE* (Meigen, 1818) - Qon so‘ruvchi

chivinlar

avlod (urug‘) - *ANOPHELES* (Meigen, 1818) - Bezgak

chivinlar

kenja avlod - *ANOPHELES* (Meigen, 1818) - Bezgak

chivinlar

tur - *Anopheles claviger* (Meigen, 1804) - Buloq bezgak chivin

tur - *Anopheles hyrcanus* (Pallas, 1771) - Qamish bezgak chivin

kenja avlod - *CELLIA* (Theobald, 1902) - Bezgak chivinlar

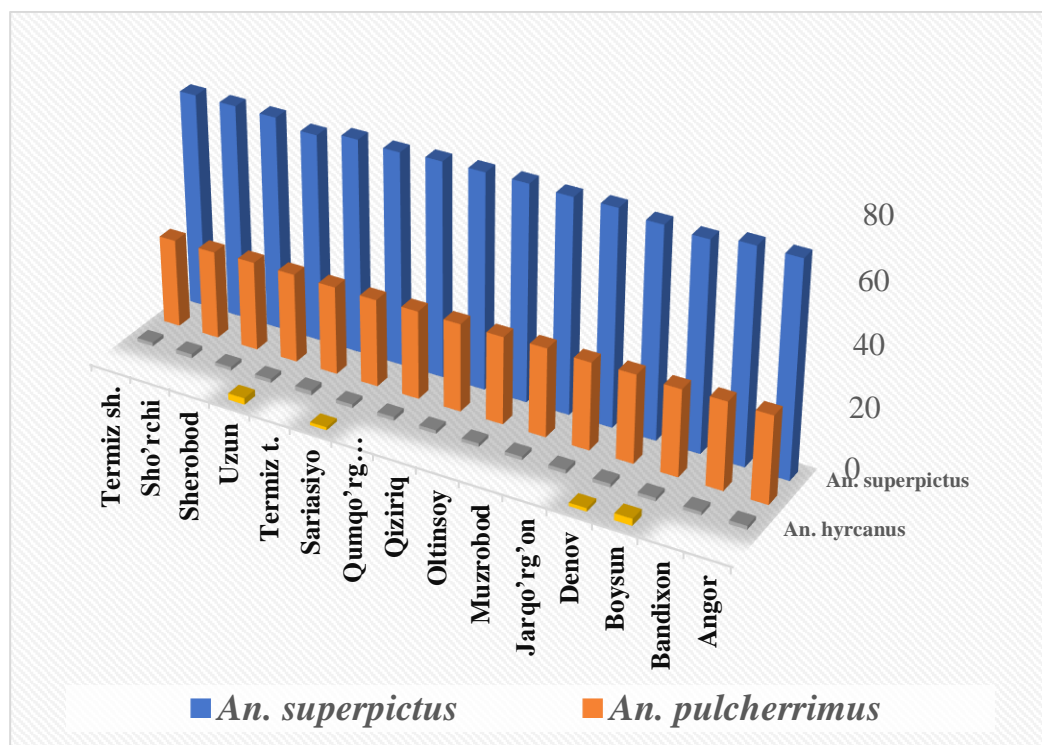
tur - *Anopheles superpictus* (Grassi, 1899) - Bezangan bezgak

chivin

tur - *Anopheles pulcherrimus* (Theobald, 1902) - Oq bezgak chivin

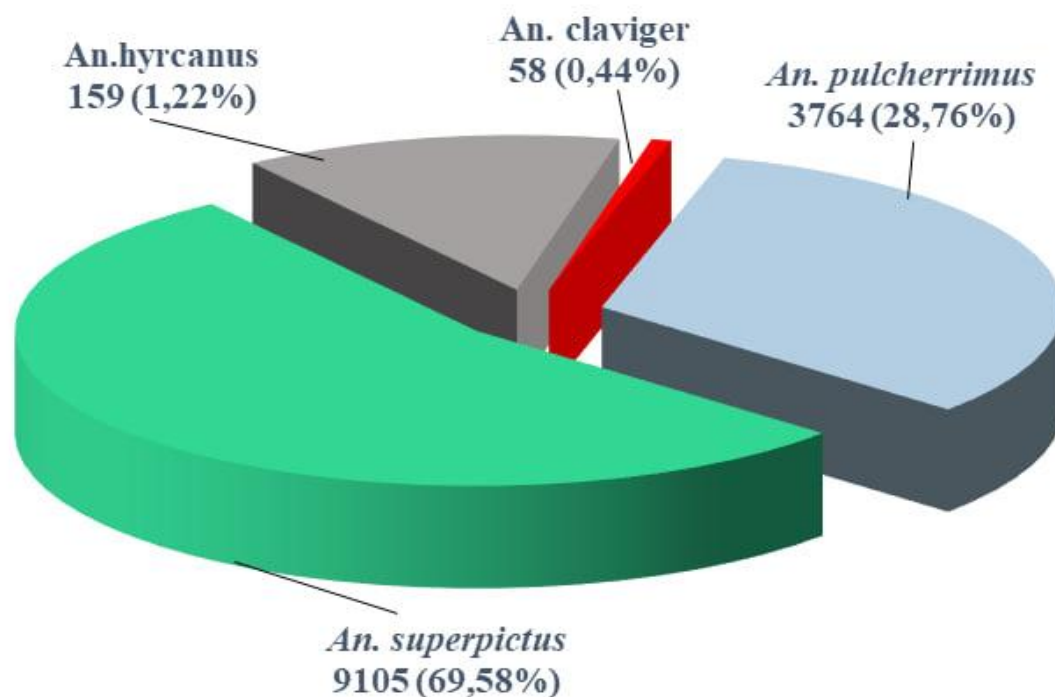
Tadqiqot davomida yig‘ilgan materiallarimizda *Anopheles* avlodining *Anopheles* va *Cellia* ikkita kenja avlodiga ta’lluqli turlari o‘rganildi. Bularga *Anopheles* kenja avlodidagi ikki turi (*An. claviger*, *An. hyrcanus*) va *Cellia* kenja avlodining ikki turi (*An. superpictus*, *An. pulcherrimus*) uchrashi aniqlandi.

Angor tumanida *Anopheles* chivinlarning *An. superpictus* (69,97 %), *An. pulcherrimus* (28,81 %) va *An. hyrcanus* (1,52 %), Bandixon tumanida *An. superpictus* (69,94 %), *An. pulcherrimus* (28,91 %) va *An. hyrcanus* (1,15 %), Boysun tumanida *An. superpictus* (68,02 %), *An. pulcherrimus* (28,56 %), *An. hyrcanus* (1,14 %) va *An. claviger* (2,28 %), Denov tumanida *An. superpictus* (68,73 %), *An. pulcherrimus* (28,98 %), *An. hyrcanus* (1,18 %) va *An. claviger* (1,11 %), Jarqo‘rg‘on tumanida *An. superpictus* (70,16 %), *An. pulcherrimus* (28,63 %) va *An. hyrcanus* (1,21 %), Muzrobod tumanida *An. superpictus* (69,83 %), *An. pulcherrimus* (28,81 %) va *An. hyrcanus* (1,36 %), Oltinsoy tumanida *An. superpictus* (70,29 %), *An. pulcherrimus* (28,57 %) va *An. hyrcanus* (1,03 %) va *An. claviger* (0,11 %), Qiziriq tumanida *An. superpictus* (70,18 %), *An. pulcherrimus* (28,68 %) va *An. hyrcanus* (1,14 %), Qumqo‘rg‘on tumanida *An. superpictus* (70,30 %), *An. pulcherrimus* (28,76 %) va *An. hyrcanus* (0,94 %), Sariosiyo tumanida *An. superpictus* (69,28 %), *An. pulcherrimus* (28,52 %), *An. hyrcanus* (1,19 %) va *An. claviger* (1,01 %), Termiz tumanida *An. superpictus* (69,77 %), *An. pulcherrimus* (28,71 %) va *An. hyrcanus* (1,52 %), Uzun tumanida *An. superpictus* (67,68 %), *An. pulcherrimus* (28,96 %), *An. hyrcanus* (1,22 %) va *An. claviger* (2,13 %), Sherobod tumanida *An. superpictus* (69,82 %), *An. pulcherrimus* (29,04 %) va *An. hyrcanus* (1,14 %), Sho‘rchi tumanida *An. superpictus* (70,03 %), *An. pulcherrimus* (28,63 %) va *An. hyrcanus* (1,34 %), Termiz shahrida *An. superpictus* (70,11 %), *An. pulcherrimus* (28,70 %) va *An. hyrcanus* (1,19 %) turlari aniqlandi (2-rasmga qaralsin).



2-rasm. Surxondaryo viloyatidagi *Anopheles* chivin turlari fauna tarkibining tumanlar bo‘yicha taqsimlanishi (turlar soni foizida)

Umumiy yigʻilgan *Anopheles* avlodiga mansub chivinlar orasida 69,58 % *An. superpictus* - koʻpsonli, 28,76 % *An. pulcherrimus* - oʻrtasonli, 1,22 % *An. hyrcanus* kamsonli va 0,44 % *An. claviger* - kamyob uchrovchi tur ekanligi aniqlandi (3-rasmga qaralsin).



3-rasm. Surxondaryo viloyatidagi *Anopheles* chivin turlari fauna tarkibi boʻyicha taqsimlanishi (turlar soni va foizi)

Tadqiqotlar natijasida hududlari boʻyicha tahlil qilinganda Angor, Bandixon, Boysun, Denov, Jarqoʻrgʻon, Oltinsoy, Qiziriq, Qumqoʻrgʻon, Muzrobod, Sariosiyo, Termiz, Uzun, Sherobod va Shoʻrchi tumanlarida *Anopheles* chivinlari notekis tarqalganligi kuzatildi. Jumladan, *Anopheles superpictus*, *Anopheles pulcherrimus*, *Anopheles hyrcanus* barcha tumanlarda hamda *Anopheles claviger* faqatgina Bandixon, Boysun, Denov, Oltinsoy, Sariosiyo, Uzun va Sherobod tumanlarida togʻli hududlarda uchrashi aniqlandi (1-jadvalga qaralsin).

1-jadval

2008-2023 yillar davomida Surxondaryo viloyati hududida olib borilgan tadqiqotlaridan yigʻilgan *Anopheles* avlodiga mansub chivin turlarining maʼmuriy tumanlar boʻyicha taqsimlanishi

| Tumanlar | Shu jumladan <i>Anopheles</i> chivinlarining turlari boʻyicha |
|----------|---|
|----------|---|

| | Barcha yig'ilgan chivinlar miqdori | | <i>Anopheles superpictus</i> | | <i>Anopheles pulcherrimus</i> | | <i>Anopheles hyrcanus</i> | | <i>Anopheles claviger</i> | |
|------------------------------|------------------------------------|-------------|------------------------------|---------------|-------------------------------|---------------|---------------------------|--------------|---------------------------|--------------|
| | n | % | n | % | n | % | n | % | n | % |
| Angor tumani | 656 | 5,01% | 459 | 69,97% | 189 | 28,81% | 8 | 1,22% | | |
| Bandixon tumani | 875 | 6,69% | 612 | 69,94% | 253 | 28,91% | 10 | 1,14% | | |
| Boysun tumani | 788 | 6,02% | 536 | 68,02% | 225 | 28,55% | 9 | 1,14% | 18 | 2,28% |
| Denov tumani | 1356 | 10,36% | 932 | 68,73% | 393 | 28,98% | 16 | 1,18% | 15 | 1,11% |
| Jarqo'rg'on tumani | 744 | 5,69% | 522 | 70,16% | 213 | 28,63% | 9 | 1,21% | | |
| Muzrobod tumani | 900 | 6,88% | 628 | 69,78% | 259 | 28,78% | 13 | 1,44% | | |
| Oltinsoy tumani | 850 | 6,50% | 598 | 70,35% | 245 | 28,82% | 7 | 0,82% | | |
| Qiziriq tumani | 788 | 6,02% | 553 | 70,18% | 226 | 28,68% | 9 | 1,14% | | |
| Qumqo'rg'on tumani | 963 | 7,36% | 674 | 69,99% | 277 | 28,76% | 12 | 1,25% | | |
| Sariosiyo tumani | 1094 | 8,36% | 758 | 69,29% | 312 | 28,52% | 13 | 1,19% | 11 | 1,01% |
| Termiz tumani | 1052 | 8,04% | 734 | 69,77% | 302 | 28,71% | 16 | 1,52% | | |
| Uzun tumani | 656 | 5,01% | 444 | 67,68% | 190 | 28,96% | 8 | 1,22% | 14 | 2,13% |
| Sherobod tumani | 613 | 4,68% | 428 | 69,82% | 178 | 29,04% | 7 | 1,14% | | |
| Sho'rchi tumani | 744 | 5,69% | 521 | 70,03% | 213 | 28,63% | 10 | 1,34% | | |
| Termiz shahri | 1007 | 7,70% | 706 | 70,11% | 289 | 28,70% | 12 | 1,19% | | |
| Surxondaryo viloyati: | 13086 | 100% | 9105 | 69,58% | 3764 | 28,76% | 159 | 1,22% | 58 | 0,44% |
| Shundan: | | | | | | | | | | |
| Lichinkalar | 7880 | 60,2% | 5232 | 66,40% | 2514 | 31,90% | 101 | 1,28% | 33 | 0,42% |
| Imagolar | 5206 | 39,8% | 3873 | 74,4% | 1250 | 24,0% | 58 | 1,1% | 25 | 0,5% |
| Urg'ochi chivinlar | 3476 | 66,77% | 2588 | 74,45% | 832 | 23,94% | 39 | 1,12% | 17 | 0,49% |
| Erkak chivinlar | 1730 | 33,23% | 1285 | 74,28% | 418 | 24,16% | 19 | 1,10% | 8 | 0,46% |

2008-2023 yillar davomida Surxondaryo viloyatida olib borilgan tadqiqotlar natijasida tadqiqot hududining *Anopheles* avlodi chivinlarining

taksonomik va faunistik tahlillari o'tkazilganligidan kelgusi ilmiy tadqiqotlar uchun ham kerakli omillar yaratilgan deb hisoblaymiz.

Foydalanilgan adabiyotlar ro'yxati

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SURXONDARYO VILOYATIDA ANOPHELES QON SO'RUVCHI CHIVINLARINING FAUNASI VA EKOLOGIASINING O'RGANILISH HOLATI

***Annotatsiya.** Maqolada Surxondaryo viloyatidagi Culicidae oilasi qon so'ruvchi chivinlarining Anopheles (Meigen, 1818) avlodiga mansub bezgak tarqatuvchi turlari bo'yicha olib borilgan tadqiqotlar natijalari e'lon qilingan. Jumladan An. superpictus, An. pulcherrimus, An. hyrcanus va An. claviger turi tarqalgan hududlarida faunasi va ekologiyasi xususiyatlari bo'yicha olingan tahlil ma'lumotlari berilgan.*

***Kalit so'zlar:** Anopheles, An. superpictus, An. pulcherrimus, An. hyrcanus, An. claviger (An. bifurcatus).*

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THE STATE OF THE STUDY OF THE FAUNA AND ECOLOGY OF THE BLOOD-SUCKING ANOPHELES MOSQUITOES IN THE SURKHANDARYA REGION

***Abstract:** The article publishes the results of studies of blood-sucking mosquitoes of the family Culicidae, which are carriers of malaria in the Surkhandarya region, belonging to the genus Anopheles (Meigen, 1818), and also presents the features of the results of faunal and ecological analysis of mosquitoes of the species An. superpictus, An. pulcherrimus, An. hyrcanus and An. claviger.*

***Key words:** Anopheles, An. superpictus, An. pulcherrimus, An. hyrcanus, An. claviger (An. bifurcatus).*

XX asr boshlarida Turkiston o'lkasi hududdagi sholi dalalarida bezgak chivinlari bilan bog'liq vaziyat hamda bezgak chivinlarining asosiy turlari, ularning ko'payish o'choqlari, ular bilan kurashda kerosin, baliq va boshqalarni qo'llanilish to'g'risidagi tajribalar haqida ma'lumotlar keltirilgan.

N.I. Xodukin (1927, 1928) Turkistonda *Anopheles bifurcatus*, *An. pulcherrimus*, *An. superpictus* va *An. hyrcanus* topilganligi haqida ma'lumotlar berishganlar Ma'lumotlarga ko'ra *Anopheles sacharovi* Toshkent yaqinidagi hududlarda asosiy qon so'ruvchi chivinlardan ekanligini ma'lum bo'lib, bu turni asosiy ko'payish joylari shahar yaqinidagi guruch dalalarida bo'lganligi, kuzda bu chivinlar uzoqroqqa uchib borishliklari kuzatilgan. Ularning shaharda qishlab, bahorda ko'payish uchun qaytib kelib o'ziga mos joylarni qidirishi kuzatilgan. Biroq *An. hyrcanus* (Pallas) va *An. hyrcanus var. mesopotamiae* (Christ) lar esa deyarli faqat 36qamish va boshqa o'simliklar orasida qishlashgi haqida qayd etgan. Rossiya Fanlar akademiyasida hozirgacha Turkistonning *Anopheles* faunasini o'rganish to'g'allanmaganligi hamda 1928-yilda Turkistonda topilgan *Anopheles bifurcatus* hamda *An. algeriensis* kabi turlarning barcha jarayonlaridagi xususiyatlarini Shingaryov batafsil yoritib bergan va bir necha namunalarni o'rganish davomida *An. algeriensis* Turkistonda uchramaydi degan xulosa bergan.

A.A. Shtakelberg (1969) *An. bifurcatus* va *An. pulcherrimus* lichinkalari qish uyqusiga ketishi hamda *An. superpictus* ning ba'zan lichinka sifatida qishlashini A.A. Shtakelberg ko'rsatganidek, N.I. Latishev ham takrorlagan. *An. bifurcatus* va *An. pulcherrimus* xatto laboratoriya sharoitida ham odatda bahorgacha g'umbaklamasligini qayd etgan.

Sh.M. Jaxongirov (2004, 2006, 2007) bir qator olimlar bilan birgalikda Surxondaryo viloyatida 2004-2006-yillar davomida bezgak o'choqlari dinamikasida potentsial, yangi faol va qoldiq faol o'choqlarning kopayishi tendentsiyasi kuzatilgan. 2004-yilda 7 ta potentsial o'choq, 2005-yilda 21 ta va 2006-yilda 23 taga etgan. 2004-yilda 8 ta yangi faol o'choq paydo bo'lgan, 2005-yilda esa 15 taga ortgan. 2004-yilda yetarlicha faol o'choqlar 3 ta, 2005-yilda 4 ta, 2006-yilda esa 13 ta bo'lgan. Shuni takidlash kerakki, agar avvalgi yillarda mahalliy bezgak asosan Tojikiston va Afg'oniston bilan chegaradosh hududlardagi tekislik daryo landshaft zonada aniqlangan bo'lsa, 2003-2004-yillarda ularni tog'oldi landshaft zonada qayd -(Bandixon, Boysun, Denov, Muzrobod, Oltinsoy, Sariosiyo, Termiz, Uzun, Sherobod va Sho'rchi) tadqiqotlar olib borilib, *Anopheles* chivinlarining asosiy ko'payish joylari Amudaryo, Surxondaryo, To'palang, Obizarang va Qoratog' daryolarining pasttekisliklari va o'zanlarida joylashganligi, 100-600 m uzoqlikdagi aholi istiqomat qiladigan joylarning yonlaridan oqib o'tuvchi qor-muzlik tipidagi suv omborlaridan hosil bo'lgan suv havzalarida uchrashi aniqlangan. Shuningdek, aprel may oylarida maksimal suv oqimining bo'lishi, iyul oyiga kelib bu daryolar o'zanlarida har xil turdagi suv havzalar, jumladan, ko'lmaklarning hosil bo'lishi natijasida bu yerlarda 4 turga mansub, ya'ni *An. superpictus*, *An. pulcherrimus*, *An. hyrcanus* va *An. claviger* chivinlarining lichinkalari uchrashi aniqlangan hamda *An. superpictus* umumiy tur populyatsilari ichida 94,3 %ni tashkil etib, bezgak chivinlar orasida dominant tur sifatida qayd etishganlar. Surxondaryo viloyatida bezgak tashuvchi *Anopheles* avlodiga mansub chivin turlarining ro'yxati,

sistematikasi, klassifikatsiyasi, taksonomiyasi, morfologiyasi, tarqalishi, ekologiyasi, bir-biridan farqlanishini aniqlash, bezgak kasalligining tarqatishdagi ahamiyati hamda bezgak tashuvchilariga qarshi kurashning fizikaviy, biologik, kimyoviy usullari yoritilgan o'quv qo'llanmani nashr etishgan [1; 268-b., 3; 292-b.].

A.A. Fatullaeva, Sh.M. Jaxongirov, A.B. Zvantsov, I.I. Goryachyeva, Sh.T. Sayfiyev, K.A. Mirzaqulov (2014) 2006-2013-yillarda O'zbekiston hududida bezgak chivinlari keng tarqalishi bois O'zbekistonning 7 fizik-geografik mintaqasida olimlar tomonidan tadqiqot ishlari o'tkazilgan. To'plangan materiallarni tashqi morfologik belgilari bo'yicha identifikatsiyasi uchun identifikatsiya jadvallaridan foydalanib Farg'ona, Chirchiq-Ohangaron, Qashqadaryo va Surxondaryo tabiiy geografik viloyatlarida 5 turdagi (*An. artemievi*, *An. claviger*, *An. hyrcanus*, *An. pulcherrimus* va *An. superpictus*) jami 463 chivin namunalari to'plangan. Ulardan *An. pulcherrimus* 42,4±2,2 % tashkil etib dominant tur sifatida qayd etilgan bo'lsa, *An. superpictus* 27,6±2,0 % - subdominant, shuningdek, *An. hyrcanus* 15,4±1,6 % va *An. artemievi* 11,8±1,4 % - kam sonli turlar, *An. claviger* 2,8±0,7 % eng kam uchrovchi tur ekanligi qayd etishganlar.

Sh.M. Jaxongirov, A.B. Zvantsov, M.I. Gordeev, I.I. Goryachyeva, Sh.T. Sayfiyev, A.A. Fatullayeva, K.A. Mirzaqulov (2013, 2014, 2016) Samarqand shahridagi L.M. Isaev nomidagi O'zbekiston Respublikasi tibbiyot parazitologiyasi ilmiy-tadqiqot institutining bir guruh olimlari O'zbekiston Respublikasining 7 fiziografik mintaqalarida morfologik, tsitogenetik va molekulyar genetik tahlillar natijasida bezgak chivinlarining 6 turi: *An. artemievi*, *An. superpictus*, *An. pulcherrimus*, *An. hyrcanus*, *An. martinius* va *An. claviger* aniqlangan. *An. superpictus* dominantlik tur hisoblanib, O'zbekistonning barcha tog'oldi va tog'li hududlarida keng tarqalganligi hamda eng ko'p son populyatsiyasi avgust va sentyabr oylariga to'g'ri kelganligi bayon etilgan. *An. superpictus* tog'oldi va tog'li hududlarda, *An. artemievi* va *An. pulcherrimus* daryo vodiylari va tog' etaklarida hamda Surxondaryo va Sherobod daryolari oraligidagi tekislik vodiylarida uchrashi kuzatilgan. *Anopheles* chivin turlari Surxondaryo vodiysida nafaqat tog'oldi va tog'li hududlarda, balki pasttekisliklarda ham yashashga moslashganligi, ularning eng ko'p sonda avgust sentyabr oylarida kuzatilganligi hamda Surxondaryo va Amudaryoning quyi oqimining pasttekislik qismlarida kuzatilganligi haqida ma'lumotlar taqdim etishganlar [2; 40-41-b.].

Olib borilgan adabiyotlar tahlilidan shuni xulosa qilish mumkinki, dunyo bo'ylab olib borilgan asosiy tadqiqotlar tajribalariga tayangan holda aytish lozimki qon so'ruvchi *Anopheles* avlodi chivinlarning faunistik turlarining mavjudligi ularning o'rganilayotgan hududda keng tarqalganligi haqidagi ma'lumotlar asosida izlanishlarni olib borishga asos bo'la oladi. Bunda yig'ilgan manbalarga asoslanib, shuni takidlash kerakki, tadqiqotlarning asosiy qismi *Anopheles* chivin turlarining o'rganishda dunyo bo'yicha jumladan MDH va

xorijiy mamlakatlarda e'lon qilingan ilmiy manbalar va amalga oshirilgan ilmiy izlanishlarga tayanib kuzatuvlarni samarali bo'lishligiga erishish imkonlari yaratilganligi ishning saviyli bajarilishi mumkin beradi [4; 159-166-b.].

Shuni ham takidlash lozimki, olib borilgan tahlillarda ma'lum bo'ldiki, xorijiy mamlakatlarda *Anopheles* chivinlarining faunasi bo'yicha sezilarli darajada tadqiqotlar olib borilishiga qaramay, Surxondayo viloyatining turli geografik mintaqalaridagi tabiiy va antropogen landshaftlari sharoyitida *Anopheles* avlodiga mansub chivinlarining landshaftlar bog'liqligi va ularning tarqalish dinamikasi bo'yicha kompleks tadqiqotlar yetarlicha emasligi aniqlandi.

Hozirgi kunda, iqlimning o'zgarishi, aholi sonining oshishi, yer maydonlarini o'zlashtirish jarayonida Surxondayo viloyatida tarqalgan *Anopheles* avlodi chivinlarining faunistik majmui, tur tarkibi, mavsumiy o'zgarishi holati, genetik xilma-xilligi va o'zgaruvchanligini o'rganish masalalari dolzarb sanaladi.

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DEVELOPING SPEAKING THROUGH ANSWER QUESTION TECHNIQUE BY USING CHATGPT APPS

***Annotation:** This article explores how learners can develop their speaking skills through the question-and-answer (Q&A) technique using ChatGPT, an AI-powered conversational tool. The Q&A method promotes interactive engagement, vocabulary reinforcement, and spontaneous speech, which are essential for language acquisition. ChatGPT enhances this method by providing instant feedback, error correction, and customizable dialogues, creating a supportive and flexible environment for language learners. The article discusses the advantages of using ChatGPT, best practices for maximizing learning, and how learners can incorporate the tool into their regular language practice.*

***Keywords:** Speaking skills, question-and-answer technique, ChatGPT, language learning, AI-powered tool, vocabulary reinforcement.*

The ability to communicate effectively through speaking is essential in various aspects of life, including personal interactions, professional settings, and educational environments. For learners who wish to enhance their speaking abilities, particularly in a second language, one useful technique is the question-and-answer (Q&A) method. The use of conversational artificial intelligence, such as ChatGPT, can further enhance this learning process. This article explores how learners can develop their speaking skills by using ChatGPT for interactive question-and-answer practice, offering a meaningful and error-free experience while meeting all essential requirements for effective language learning.

Speaking is one of the most fundamental components of language proficiency, and it plays a vital role in communication. Mastery of speaking skills is essential for several reasons:

- **Self-Expression:** Speaking allows individuals to convey their thoughts, ideas, and emotions. It is the most direct form of communication and an integral part of social interaction.

For language learners, improving speaking skills can be particularly challenging due to limited opportunities for real-time conversations. This is where AI-powered applications like ChatGPT come in, offering a simulated environment for meaningful and structured dialogue practice.

The question-and-answer (Q&A) technique is a widely used pedagogical approach for enhancing language proficiency. This method involves asking and answering questions in a structured format, allowing learners to practice both

speaking and listening skills. Here's how it can be applied effectively in language learning:

- **Interactive Engagement:** The learner answers questions posed by the instructor, or in this case, an AI, and in turn, can ask questions. This creates a dynamic and interactive conversation that closely mimics natural speech.

- **Focus on Comprehension and Expression:** Answering questions encourages learners to think critically, understand the question, formulate an appropriate response, and express it verbally. This enhances comprehension and expressive language skills.

- **Vocabulary and Grammar Reinforcement:** By engaging in Q&A sessions, learners can apply vocabulary and grammar concepts they have studied. The continuous back-and-forth exchange promotes retention of language rules.

- **Encouragement of Spontaneous Speech:** In a Q&A setting, learners are required to respond spontaneously, which improves their ability to think quickly in the target language and use language in real-life scenarios.

The Q&A technique aligns perfectly with the capabilities of ChatGPT, which offers real-time, interactive dialogues that simulate conversational practice. Whether the focus is on English, Russian, or any other language, ChatGPT provides tailored feedback that helps users improve.

ChatGPT serves as an ideal tool for practicing speaking through the Q&A method. By using this AI-powered language model, learners can simulate a conversation where they engage in a constant exchange of questions and answers. The key benefits include:

- **Immediate Feedback:** ChatGPT provides instant responses to users' questions or answers, allowing learners to assess their proficiency in real-time. This feedback can be invaluable in highlighting areas for improvement, such as grammar, sentence structure, or vocabulary usage.

- **Error Correction:** Learners can request corrections for their spoken answers, and ChatGPT will offer suggestions on how to improve. This creates a learning environment that is both informative and supportive, without the pressure of making mistakes in a formal setting.

- **Repetition and Practice:** Users can practice speaking as often as they wish with ChatGPT. The AI is available 24/7, making it possible for learners to engage in frequent, structured conversations that reinforce their language skills.

- **Customizable Learning Experience:** ChatGPT can adjust the complexity of its questions based on the learner's proficiency level. Whether a beginner or an advanced speaker, users can specify the type of questions they would like to answer, ensuring that the content is aligned with their learning goals.

Conclusion. The question-and-answer technique is a highly effective way for learners to develop their speaking skills, particularly when combined with the capabilities of ChatGPT. By engaging in regular, interactive Q&A sessions, learners can improve their comprehension, fluency, and confidence in speaking a new language. With features such as real-time feedback, customizable

conversations, and the ability to practice at any time, ChatGPT offers a flexible and supportive environment that enhances the language learning experience. Through consistent practice and adherence to best practices, learners can make significant strides in their speaking abilities using this powerful tool.

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CHRONIC HEART FAILURE WITH PRESERVED EJECTION FRACTION IN THE BACKGROUND OF PREDIABETICS

***Annotation:** Chronic heart failure is the most common pathology of the cardiovascular system. The urgency of the problem is determined by the high frequency of diseases of the population, the impact on work and life expectancy. According to G. Mancina, approximately 40% of the elderly European population has a blood pressure (BP) level of more than 140/90 mm Hg. 50% or more of people over the age of 65 have hypertension. In addition, over the past 5 years, the incidence of older patients has increased significantly.*

Despite the efforts of scientists, doctors and health authorities, arterial hypertension (AG) remains one of the most important medical and social problems in Uzbekistan, which in many ways increases the mortality rate from cardiovascular diseases. increases. The reason is the prevalence of this pathology (39.5% of the elderly population has high blood pressure, but only 77.9% of them know about their disease) and the occurrence of hypertension, cardiovascular diseases, myocardial infarction and stroke. is a risk factor in the arrival and mainly determines the high level of death in the country.

***Key words:** : chronic heart failure with preserved ejection fraction, epicardial fat, premesenteric fat*

Introduction

Due to the increase in life expectancy, the increasing prevalence of obesity, insulin resistance and the use of cytotoxic drugs, multiple effects of other metabolic factors on the myocardium, and the growing incidence of cardiovascular diseases (CVD), the problems of chronic heart failure (CHF) as the final stage of the cardiorenometabolic continuum are becoming increasingly important [1, 2]. In recent years, special attention has been paid to the study of CHF with preserved ejection fraction (CHFpEF), which is due to both the high prevalence and the difficulties in diagnosing and treating this condition [3]. Compared with patients suffering from CHF with reduced ejection fraction, patients with CHFpEF are more often hospitalized not for decompensated heart failure, but because of concomitant diseases (obesity, hypertension, type 2 diabetes mellitus) [4]. Data from studies devoted to the study of the features of humoral and structural-functional characteristics of patients with CHFpEF , prediabetes and abdominal obesity (AO) are limited.

Material and methods

The study included 32 people (12 of whom were men).

Inclusion criteria : male or female individuals aged 45–60 years; prediabetes and CHF I–III functional class (FC) according to the New York Heart Association (NYHA) classification, established at least 3 months before screening^{1, 2}; left ventricular (LV) ejection fraction (EF) $\geq 50\%$ according to echocardiography (EchoCG) during the screening period or within 12 months before it; structural heart disease — left atrium (LA) enlargement (defined by at least one of the following values: LA width (diameter) ≥ 3.8 cm, or LA length ≥ 5.0 cm, or LA area ≥ 20 cm², or LA volume ≥ 55 ml, or LA volume index ≥ 29 ml/m² echocardiography results during screening or within 12 months prior to study entry; N-terminal pro-brain natriuretic peptide (NT-proBNP) concentration ≥ 125 pg/ml (for patients with atrial fibrillation NT-proBNP > 365 pg/ml); AO (waist circumference > 80 cm for women and > 94 cm for men); office blood pressure (BP) $\leq 140/85$ mmHg, including against the background of optimal antihypertensive therapy; use of optimally selected treatment for CHF for at least 3 months before screening.

Exclusion criteria : metformin intolerance; glomerular filtration rate (GFR) < 45 ml/min/1.73 m²; endocrinopathies other than prediabetes; history of acute coronary syndrome, stroke, or cardiac intervention (coronary artery bypass grafting, percutaneous coronary angioplasty, or valvuloplasty); symptoms of acute decompensated CHF with NT-proBNP levels ≥ 900 pg/ml at the time of examination or in the last 3 months; use of dietary supplements, hypoglycemic drugs, drugs for the treatment of obesity within 6 months before inclusion and/or during the study; pregnancy, lactation; frequent alcohol consumption/alcoholism (defined as consuming more than 10 units of alcohol per week [1 unit = 200 ml of dry wine, 500 ml of beer, or 50 ml of 40% alcoholic beverage]); drug addiction; The initial examination of patients included an analysis of demographic characteristics and anamnesis data. A general clinical examination and standard anthropometry were performed.

Research results

Men and women were comparable in age, NYHA functional class of CHF, systolic and diastolic blood pressure, heart rate, lipid and carbohydrate metabolism parameters, alanine aminotransferase, aspartate aminotransferase, and hsCRP levels in the blood serum (Table 1). The values of all three indices used to assess insulin resistance indicated its presence in both men and women. The classic picture of metabolic dyslipidemia — high TG levels combined with low HDL-C concentrations — was not revealed in our study, which is probably due to the use of statins by every 5th patient. Among men, the proportion of smokers and former smokers (smoking cessation > 12 months ago) was higher. Body weight values were expectedly higher in men than in women ($p = 0.036$) in the absence of differences in body mass index (BMI).

It is known that impaired glomerular filtration leads to an increase in the concentration of NT - proBNP , since the excretion of this peptide is carried out by the kidneys. In our study, despite the fact that the SCF values in women were lower than in men, the NT- proBNP values in women were lower than in men.

The structure of concomitant pathology and the treatment received are presented in Figures 1 and 2.

Discussion

It has been reported that estrogens stimulate the formation of NP, while androgens, on the contrary, inhibit it, although there is currently no description of the exact mechanisms of these interactions [3]. In our study, the level of NT-proBNP in men was higher than in women, which can be explained by the age of the patients included in the study, most of whom were postmenopausal, as well as by greater activation of the neurohumoral systems in men with CHFpEF , prediabetes and AO. It is also necessary to note the tendency (which did not reach statistical significance, which may be associated with the small number of observations) to a higher frequency of CHF III FC (NYHA) in men, which could affect the NT- proBNP values . The men we examined were more likely to have smoked in the past or to smoke currently. The effect of smoking on NT- proBNP levels in CHF has not been studied; currently, there are only data obtained from samples of patients without CHF, demonstrating an independent positive relationship between NT- proBNP levels ≥ 125 pg /ml and smoking.

Conclusion

The first stage of the study gives reason to assume the absence of a standard humoral response in the form of an increase in NT- proBNP in patients with CHFpEF , prediabetes and AO aged 45–60 years. Almost half (47.5%) of the examined patients of both sexes with symptoms and clinical signs of CHF, as well as with structural heart disease, had NT- proBNP levels < 125 pg /ml. In men included in the study, body weight, estimated SCF values, and NT- proBNP levels in blood plasma were higher than in women. At the same time, in men with morbid obesity, the NT- proBNP levels were minimal.

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METHOD OF TEACHING STUDENTS OF DIFFERENT FIELDS FOCUSING ON ENGLISH

***Abstract.** Foreign Language Teachers for Specific Purposes have a lot in common with teachers of general foreign language. For both it is necessary to consider linguistic development and teaching theories, to have insights in contemporary ideas regarding their own position and role as well as the position and role of foreign language learners in education and to face new technologies offered as an aid to improve their methodology. The most important difference lies in the learners and their purposes for learning English. ESP students are usually adults who already have some acquaintance with English and are learning the language in order to communicate a set of professional skills and to perform particular job-related functions. An ESP program is therefore built on an assessment of purposes and needs and the functions for which English is required.*

***Keywords:** ESP, design course, develop materials, evaluation, communication, professional context.*

The current study investigates problems among teachers and students at private school “Wise School” in Tashkent, Uzbekistan. Although English is of particular importance to students, particularly those who are in scientific domains, there are problems for both teachers and students. The former pertains to the critical teaching situations as far as dealing with specialist texts is concerned, but the latter refers to the students' low-level English skills and the dissatisfaction of subject-matter teachers in relation to the students' poor communication skills. Language teachers find some difficulty in teaching ESP materials due to the lexical complexity of very scientific and technical texts included in the units being taught. Also, the teachers' lack of the texts background knowledge adds a further barrier to the teaching process. Hence, the teachers will be in critical situations with their students, who are always more knowledgeable about the text content due to their previous education. Consequently, the ESP courses don't achieve the target objectives, and this creates dissatisfaction for both students and teachers.

ESP is a style of teaching, as they all are, that has positive and negative aspects. Coming from a background unrelated to the discipline in which they are asked to teach, ESP teachers are usually unable to rely on personal experiences when evaluating materials and considering course goals. They are also unable to rely on the views of learners who tend not to know what English abilities are required by the profession they hope to enter. The result is that many ESP teachers become slaves to the published textbooks available, even when the textbook they are using aren't perfectly suited for the needs of the student.

There are many resources available on the net and websites that offer information but how much background reading does the ESP teacher need? In order to meet the specific needs of the learners and adopt the methodology and activities of the target discipline, the ESP Practitioner must first work closely with field specialists. An ESP teacher should remember that they are not specialists in the field, but in teaching English. Every time that person enters the classroom they should understand that our subject is English for the profession, and not the profession in English. They should help the students, who generally know their subject much better, develop the skills which are essential for them in understanding, using, and presenting authentic information in their profession. A professional ESP teacher must be able to easily switch from one professional field to another without being obliged to spend months on getting started.

How many types of English for specific purposes do we have and what does each of them study in particular? What are the expectations of ESP learners who attend such courses?

Regarding to the expectations, learners have at least three kinds of expectations:

1. Cultural-educational
2. Personal and individual
3. Academic/occupational

The first two have a close relationship with the learner's own background and his view of himself as a learner, his expectation of success, his optimism or pessimism about the ESP course in terms of what he expects to learn. The last ones relate to the branch of ESP, which represents the type of ESP. These sets of expectations are the ones most commonly expressed in advance, when a needs-analysis is carried out.

The result of the class observations and semi-structured interviews with the ESP teachers at private school "Wise School" in Tashkent, Uzbekistan indicated to some obstacles during teaching English to level two students. These difficulties are due to the scientific context and content of the texts which are almost adjacent to specialist lexical items, nominal compounds, and non-verbal information and scientific formula

Added to this, the teachers' lack of the schemata about the topics included in these scientific texts hinders making use of contextual and textual instances to reduce the barrier of understanding such difficult texts. More importantly, the wide gap between the students' background knowledge and that of the teachers as far as texts topics are concerned due to the nature of the previous education of each, bearing in mind the cultural aspect of Uzbek students. Culturally speaking in Uzbekistan, the teacher is an information source and has to answer any question addressed by students to attain their satisfaction in the teaching process. This, in fact, maximizes the challenging rate of administrating ESP courses among private school "Wise School" students.

The ESP issue essentially concerns three aspects: the ESP teacher, the subject-matter instructor, and the ESP learner who is sometimes expected to be more knowledgeable than the ESP teacher with regard to some chunks of specialist information. This, in fact, may contribute to ESP problems both for the teacher and the learner. However, the skillful ESP teacher should be able to make use of the student's potential content background knowledge and get some scolding hints from the specialist teachers in order to reduce the lexical and content complexity of some texts. Therefore, it is necessary to attain harmonization between these three elements in order to achieve successful learning situations in ESP classes.

In relation to the communication between the teachers and their students in ESP classes, the responses referred to the lack of effective communicative situations due to the teacher-based teaching strategies that cast the full burden on the teacher in the teaching process without any help from the side of students as far as the technical and scientific background knowledge is concerned.

With regard to the students' performance in ESP courses over the last four semesters, the teachers referred to a very low performance, and this aligned with the continuous complains of the subject-matter teachers about the students' low level in English language and their inability to use English as a medium of instruction. This verifies the ineffectiveness of the current ESP teaching methods among private school "Wise School" students and may generate a fruitful academic research.

In our view, ESP courses should be undertaken by highly qualified ESP teachers so that they can achieve the target objectives. That is to say, we strongly support the notion of conducting training sessions for the current teachers, particularly those who will be engaged in teaching level two ESP materials. Yes, it is true that they are all academically qualified, as the selection caliber of the teaching staff members at private school "Wise School" in Tashkent, Uzbekistan is strict. However, the English language teachers may lack certain professional technicalities of teaching English in such new pedagogical environment. Furthermore, it is more effective to depend on the textual clues to deal with unfamiliar lexical items better than looking them up in dictionaries and make use of the lexical familiarization which is intentionally provided by the author for a specific reader. More importantly, in an ESP class, the teacher should focus on the expression rather than the content when dealing with technical texts; they should emphasize on the linguistic features of these texts, as it is main concern of ESP settings. That is to say, students are supposed to study the morphological and grammatical structures of some text sentences and use technical lexical items in academic situations verbally and nonverbally. For example, students should be able to recognize the lexical and syntactical parts of some sentences and how to reword them in several structures.

The first thing that needs to be said is Foreign Language Teachers for Specific Purposes have a lot in common with teachers of general foreign language.

For both it is necessary to consider linguistic development and teaching theories, to have insights in contemporary ideas regarding their own position and role as well as the position and role of foreign language learners in education and to face new technologies offered as an aid to improve their methodology. The most important difference lies in the learners and their purposes for learning English

Obviously, ESP students are usually adults who already have some acquaintance with English and are learning the language in order to communicate a set of professional skills and to perform particular job-related functions. An ESP program is therefore built on an assessment of purposes and needs and the functions for which English is required. ESP concentrates more on language in context than on teaching grammar and language structures. It covers subjects varying from accounting or computer science to tourism and business management. The ESP focal point is that English is not taught as a subject separated from the students' real world; instead, it is integrated into a subject matter area important to the learners. As a matter of fact, ESP combines subject matter and English language teaching. Such a combination is highly motivating because students are able to apply what they learn in their English classes to their main field of study.

The analysis of the result of this study showed that a professional ESP teacher must be able to switch from one professional field to another without being obliged to spend months on getting started. The material should be provided by the professors or experts in the subject. It should be authentic, up-to-date, and relevant for the students' specializations. The ESP teacher ends up performing five different roles including teacher, collaborator, course designer and materials provider, researcher, and evaluator. The first role as 'teacher' is synonymous with that of the general English teacher. It is in the performing of the other four roles that differences begin to emerge.

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FUNDAMENTALS OF THE FORMATION OF THE COMPETENCE OF SOCIAL DEVELOPMENT OF EDUCATORS OF THE PRESCHOOL EDUCATIONAL ORGANIZATION

***Abstract:** This article describes methods and techniques for the formation of social and developmental competence of pupils of a preschool educational organization, which describes the process of social adaptation in preschoolers, problems arising during adaptation, and ways to overcome them. To date, work with original methodological, pedagogical, and psychological training in improving the content of preschool education has become a periodic stage.*

***Keywords:** social development, educational standard, didactic material, interactive method, preschool child, information and pedagogical technology, educational process, moral value*

On the basis of the requirements of our current development, educational standards are improved, programs are modernized and delivered to educational organizations. The presidential decision on measures to improve the management of the preschool education system was adopted. According to the document, the innovation center of Information and pedagogical Technologies was established in the form of a state organization. The introduction of advanced pedagogy and information technology into the educational process, ensuring the introduction of the Information System of preschool education management, as well as the preparation and production of educational and methodological, didactic materials for preschool educational organizations were determined from the main tasks of the Center. Main part. Today, a competency approach to achieving the quality and effectiveness of preschool education provides for a rational and systematic analysis with the aim of enriching groups with literature suitable for each age group, meaningful and interesting organization of children's daily activities, productive use of their free time, identification of abilities and, accordingly, a creative approach to the process, bringing Problems of the formation of the methodological significance of the development of the personality of the child and the implementation of interactive methods in preschool educational organizations in Uzbekistan Z.Rahimova, SH.Munavvarov, N.Egamberdiyeva, S.K.Annamuratova, S.Bulatov, F.B.Valikhajayeva¹, H.Nurmatov, A.Suleymanov and other researchers studied Today, working with a specific methodological, pedagogical, psychological preparation in improving the content of preschool education has become a prerequisite for the period. Because the improvement of the content of preschool education is a broad concept, the effective

implementation of which requires that the state of the building of the preschool educational organization, the participation of educators, educational assistants, parents and children in the educational process should be innovative. It is also important to enrich pedagogical-psychological, methodological, artistic literature in the process of a competency approach based on the state educational program” state requirements for the development of children of primary and preschool age “and” first step”, with appropriate and specific literature for each age group. The involvement of parents and the public in the organization and coordination of their activities and other similar factors, reflecting on the games of problem situations that motivate children to think while playing, increases the content of preschool education in General important competencies of a child of preschool age (6-7 years old) Communicative competence is the skill of being able to use communication tools in different situations. Game competence-the child's creative use of experience, knowledge and skills in the process of play and its organization. Is the basis for the educational process. Social competence is the skill of self-control in communication with adults and peers in life situations, observing the rules and norms of ethics.

Cognitive competence is the conscious perception of the surrounding world and the use of the acquired knowledge, skills, qualifications and values to solve educational and practical tasks. Competencies of the child's areas of development Competencies of the child are determined in the following areas of the development of the child: • physical development and the formation of a healthy lifestyle; * socio-emotional development; * speech, communication, reading and writing skills; * development of the cognitive process; * creative development In achieving the quality and effectiveness of preschool education, it provides for a rational and systematic analysis of the daily activities of children with the aim of meaningful and interesting organization, productive use of free time, identification of abilities and, accordingly, a creative approach to the process, bringing activities and resources conducted for children to a state that meets the needs of children and society. One of the innovative methods for this, the use of the” Keys-stadi ” technology even in a preschool organization, encourages children to receive an active education. By using this method, the educator teaches the child to correctly answer the question posed. Reading more books or giving books to children makes them grow their memory and thinking, in addition to increasing their vocabulary[4]. President of the Republic of Uzbekistan Sh.M.It should be noted that the 4th of the 5 important initiatives on raising youth morale and organizing their free time in a meaningful way, the “broad promotion of reading “of March 20, 2019, promoted by Mirziyoyev, should be started from the MTT. The task of educators remains to provide educational opportunities that are interesting for children and give their creativity a wide range of freedom. The social development of a preschool child cannot be imagined without general factors of influence. In the general sense, socialization is the process by which a student assimilates the socio-moral norms and rules of behavior that exist in

society. Socialization is a continuous process that continues throughout life. In preschool childhood, this is primarily the assimilation of the norms of social life. The leading place in the social development of the child is occupied by the assimilation of the moral values of his people and, later, knowledge and acquisition of universal moral values. The experience of moral behavior of preschool children is formed in the process of communication with adults and is strengthened in various joint activities and relationships with peers. Moral and social development of personality occurs in the process of children entering into moral relationships. Already in preschool age, this relationship is built on certain rules, guidelines and requirements of adults. However, this upbringing process is not always effective enough. Having considered the task of social education above, it was shown that a child should develop a certain amount of social knowledge, skills and skills. The process of their formation is associated, for example, with the formation of caring, attentive, loving, compassionate relationships to the father, mother. If, for some reason, social knowledge was not formed in a child, then relations were not formed, that is, some kind of personality traits were also not formed in the socialization necessary for him. Therefore, in the process of social pedagogical activity, such socially significant qualities in a child must be formed – it is the task of social upbringing that it is. [5] That is, social upbringing is understood as the purposeful process of the formation of socially significant child personality traits necessary for successful socialization. In the process of socialization, the child is involved in society, social relations, social machinations, social behavior.- it exposes various knowledge of norms and rules of behavior, various skills and competencies that help it get used to society. This process takes place at a very rapid pace, especially in childhood. It is known that by the age of five a child receives an incredibly large amount of knowledge, which is reflected in his later life. Conclusion. The distinguishing feature of child socialization lies in the difficulty of its happiness and control over the norms of behavior that society promotes. He only assimilates these, therefore, in the process of socialization of the child's personality, the influence of parents, relatives, specialists working with them (psychologist, doctor, educator, etc.) is great, and it is on them that children, earlier in life, receive the necessary social knowledge; and better; they acquire, strive to apply them in life. This is due to the fact that in the process of obtaining education at a school or other educational institution, the child, first of all, acquires academic knowledge. At the same time, however, certain systematized social knowledge, skills and qualifications are formed in it. This knowledge, skills and qualifications will be very necessary in the process of socialization — when the child needs special help—. [6] The process of conveying social knowledge, the formation of social skills and competencies that contribute to the socialization of the child is called social education. In a word, the content of this activity and to what extent it is organized is of great importance in the development of some socialization characteristics of the personality of preschool children. Because in the course of properly organized activities, the mental,

physical and moral development of the child is improved in everyday relationships with those around him. Therefore, the role of parents and organization caregivers in knowing the social activity of children, the formation of useful habits in a child, the development of positive character traits is incomparable.

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BASIC REQUIREMENTS FOR USING PROJECT-BASED METHODOLOGY

***Abstract:** Currently, in schools in our country, classes with specialized training are being actively introduced in order to modernize education. Modern society is in demand for an active person who can independently make decisions in a given situation and participate in intercultural communication. It is specialized training that promotes creativity, critical thinking and self-esteem, increases the information knowledge of students.*

***Keywords:** project work, methodological concept, solution, project-based methodology, communication, students.*

A project is a solution, a study of a certain problem, its practical or theoretical implementation. The project activity of students is subject to a certain algorithm and is a complex, creative, research work consisting of several stages. This is how the project methodology differs from work on a topic, in which it is often enough to simply learn new material on the topic; from a role-playing game, discussion, etc., in which roles are distributed in group work to implement the following methodological concept: better assimilation of material, stimulation of interest, motivation of cognitive activity of students. All of the specified methodological goals can be present when using the project methodology, but, in addition to everything else, it is necessarily characterized by research of the problem, creative search activity, embodied in some specific product.

The effectiveness of the project-based methodology is largely ensured by the intellectual and emotional content of the topics included in the training. It should also be noted that they gradually become more complex. But the distinctive feature of the topics is their specificity. From the very beginning of training, it is assumed that students will participate in meaningful and complex communication, without simplification and primitivism, which are usually characteristic of textbooks for beginners in learning a foreign language.

Another distinctive feature of the project-based methodology is a special form of organizing the communicative and cognitive activity of students in the form of a project. This is where the name of the methodology actually came from.

A project, as was said earlier, is an independent work carried out by the student, in which verbal communication is woven into the intellectual and emotional context of another activity.

The novelty of the approach is that students are given the opportunity to construct the content of communication themselves, starting from the first lesson.

Each project is related to a specific topic and is developed over a certain period of time. The topic, having a clear structure, is divided into subtopics, each of which ends with a task for project work.

A particularly important feature is that students have the opportunity to talk about their thoughts and plans. Thanks to the work on the project, a solid language base is created.

E.S. Polat lists the following requirements for the use of project methodology:

1. the presence of a personally significant problem (task) in the research, creative sense, requiring integrated knowledge, research search for its solution;
2. practical, theoretical significance of the expected results;
3. independent (individual, paired, group) activities of students in class or after-school hours;
4. structuring the substantive part of the project (indicating step-by-step results and distributing roles);
5. the use of research methods that provide for a certain sequence of actions (algorithm for conducting project activities):
6. putting forward a hypothesis;
 - discussion of research methods (statistical, experimental, observations, etc.);
 - discussion of ways of forming final results (presentations, defense, creative reports, reviews, etc.);
 - collection, systematization and analysis of the obtained data;
 - summing up, registration of results, their presentation;
 - conclusions, putting forward new research problems.

Project-based methodology is a new pedagogical technology of teaching and represents a possible alternative to the traditional class-lesson system. The need to use project-based methodology in modern education is due to obvious trends in the educational system towards a more complete development of the student's personality, his preparation for real activities.

In the process of a targeted analysis of theoretical scientific and methodological literature on the problem, it was concluded that project-based methodology, being an innovative technology, correlates with the main tasks of modern school education:

- make teaching more problem-oriented;
- make wider use of the reflective approach in teaching (analysis, synthesis of ideas);
- stimulate students' ability to formulate their own judgments;
- increase the degree of autonomy of students;

- reconsider the traditional role of teacher and student in the lesson.

However, solving these problems is difficult with the traditional approach to education, aimed to a greater extent at the assimilation and reproduction of material, and the development of the necessary skills.

The project methodology is based on a personal-activity approach and to a greater extent contributes to the formation of a secondary linguistic personality, the development and improvement of a primary linguistic personality, and therefore the improvement of foreign language communicative and intercultural competence of pupils in general.

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MILITARY HONOR AND ITS CRITERIA

***Annotation:** the article discusses the education of a well-rounded generation, the honor of officers, ethical values and the standards of military honor.*

***Key words:** honor, military honor, general military regulations, officer honor, dignity, nobility, integrity, military duty, conscientiousness, criteria of military honor.*

Currently, attention to ethical issues is increasing day by day. One of the essential conditions for human existence is the formation and development of a set of specific moral and ethical qualities that constitute a person's moral character. In the process of building a New Uzbekistan, one of our urgent tasks has become the upbringing of a harmonious generation characterized by good conduct, integrity, loyalty to family and homeland, broad worldview, strategic thinking, and high professional skills, all under the main idea of "From national revival to national ascendancy". The great thinker Alisher Navoi emphasized in his wisdom that the qualities that honor a person are those that are based on virtue, "For the people, wealth and status are not as valuable as a life lived with decency"[1,78], this implies that for a person, it is not rank or wealth that brings honor, but rather a life of morality and dignity. Indeed, respect and dignity are manifested not in titles or fame but in humility and integrity.

The striving to preserve one's pure name and authority is expressed through the concept of dignity. This quality has always been highly valued among our people. Our ancestors understood deeply that moral values such as honor, conscience, loyalty, and duty should be cherished, as losing them leads to a person's degradation, resulting in life losing its meaning. Uzbek proverbs and sayings place special emphasis on the values of honor and dignity: "Protect your honor from youth", "Reputation can warm, but shame can burn", "A person does not die from hunger, but from loss of honor", "Do not safeguard wealth, but safeguard your honor", "Honor is stronger than death" and so on.

The concept of honor is manifested in the process of an individual's interaction with society. Dignity encompasses a person's inner moral values, courage, honesty, purity of heart, and sound conscience; it embodies loyalty, resilience, indifference to danger, integrity, and readiness to sacrifice one's life for the motherland. The notion of value is rooted in the principle of equality among

all people in moral relationships, whereas dignity reflects how individuals' moral qualities align with their specific actions. As the great thinker Yusuf Khos Hajib noted, “a leader of an army must first and foremost possess honor and integrity. A man will act out of honor to avenge himself; it is honor that scatters the enemy's ranks”[2,55]. Indeed, the attitude towards honor is one of the important virtues of a commander, elevating their status within the army. It is well known that in the Battle of Parwan near Ghazni, Jalal ad-Din Manguberdi achieved a remarkable victory over the mongols. Before the battle, he addressed his commanders, saying, “In this battle, our honor and the dignity of manhood are at stake! If we retreat with our heads bowed, no one will forgive us!”[3,212]. The intensity and bravery of the sultan's forces created chaos among the mongols, disrupting their ranks. The defeat of the mongols in this battle forced Genghis khan to take command of military operations himself.

The combat readiness and capabilities of armed forces are manifested through a combination of material and moral factors that are closely interconnected. Regardless of the significance of material aspects, the primary focus is on the human factor, particularly their professional and moral-ethical qualities. It is important to note that the sense of dignity motivates military personnel to diligently fulfill their duties. In combat operations, this feeling primarily manifests as bravery, courage, determination, self-discipline, and a readiness for self-sacrifice. The success of a battle often hinges on commanders overcoming insurmountable obstacles through their personal examples, achieving victory against the odds. For instance, Amir Temur, despite being wounded in his left leg during the battle for Tashkent, did not abandon the battlefield. Even in a complex situation, he demonstrated unwavering resolve: “Even though the pain was intense, I did not make a sound or show any sign of distress. Because of this, my warriors did not know I was injured. A true leader's bravery is reflected not only in facing death and fighting valiantly against enemies but also in remaining silent about his wounds”[4,68-69]. Indeed, when physical strength is combined with high moral-ethical qualities, it transforms into unmatched power. A military service member, whether on the battlefield or in daily duties, must always remain honest and just, ensuring that their dignity is never tarnished.

True honor is manifested in selfless and sincere service to the interests and well-being of the people and the state. In the story “Shiroq”, the shepherd Shiroq rejects the offer of the Persian commander, stating, “I would rather cut off my hand than extend it to help the enemies of my own people”[5,17-20]. He obeys the command of his conscience and is willing to sacrifice his life to save his homeland from slavery, ultimately ensnaring the wicked enemy in a cunning trap.

The sense of honor reflects the high moral character of an officer. An officer must carry out their duties, orders, and assignments from higher command with great responsibility. This is not an easy task! However, one must remember that fulfilling these assignments is a matter of honor. This expectation is tied to the officer's special status (as the face of the state), which does not allow for refusal,

avoidance, or hiding behind others. An officer recognizes that they hold a noble profession and views honor as a sacred value. Even unresolved issues do not grant an officer the right to compromise their conscience or engage in disreputable actions that would tarnish their dignity. Not everyone can meet such stringent demands.

The honor of an officer, as one of the most important moral values, is demonstrated through their sincere fulfillment of military duty, nobility of actions, and commitment to justice. According to article 13, clause 1 of the Internal Service Regulations of the armed forces of the Republic of Uzbekistan, “*A military service member is obliged to serve their people selflessly, to protect the independence and territorial integrity of the Republic of Uzbekistan with courage and skill, sacrificing their last drop of blood and even their life, and to fulfill their military duty*”[6,20]. It is clear that true dignity is the highest moral treasure of the army. An army driven by the sense of dignity becomes an invincible force and serves as a guarantee of state stability.

The concept of an officer's dignity is multifaceted and can be understood in both narrow and broad terms. In a narrow sense, it relates to the official uniform and distinguishing insignia, while in a broader sense, it encompasses not only personal reputation but also the dignity of the unit, the army, and the moral obligation to uphold the honor of the state. Every officer wearing a military uniform must not forget this responsibility, as military attire carries immense accountability. Upholding the dignity of an officer means taking pride in their profession and affiliation with the armed forces, valuing them with integrity and martial honor. This includes honoring their own dignity and that of their military community. Military dignity embodies all positive qualities inherent in a person in uniform. It represents bravery and courage, combativeness and nobility, discipline, an understanding of duty to one's homeland, selflessness, confidence in one's strength, and resilience in the face of difficulties.

The criteria of military honor:

1. The Dignity of an officer – an officer must have self-respect, be aware of their rights, and demonstrate behavior aligned with those rights. Honor is a sacred feeling that an officer preserves in its purest form, calling them to pursue noble actions and the highest ideals.

2. Nobility of an officer – this refers to a high degree of politeness, humanity, and magnanimity, as well as the ability to sacrifice personal interests for the benefit of others.

3. Integrity and honesty – an officer must exemplify these virtues. This includes keeping promises, aligning words with actions, maintaining reputation, adhering to moral standards, speaking the truth, and accurately assessing the dignity of oneself and others.

4. Loyalty to military brotherhood - this encompasses mutual trust, assistance, and a high degree of responsibility based on conscientiousness and fairness.

5. Loyalty to military duty – an officer's dedication and commitment are demonstrated through resolute fulfillment of their duties.

The motherland has entrusted officers with a highly responsible and challenging duty. They must earn this trust by improving the combat readiness of their military unit and the entire armed forces, becoming experts in their military profession, acting as the combat leaders of their subordinates, commanding the hearts of soldiers, and striving to be sensitive psychologists and effective propagators of ideas. Officers must preserve and defend their honor, their title, and the honor of the army and the state. By doing so, they will prove to be worthy successors of their great ancestors through conscientious fulfillment of their duties.

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HOZIRGI O‘ZBEK DOSTONCHILIGIDA LIRIK KECHINMA TASVIRI

Annotatsiya: maqolada hozirgi o‘zbek dostonchiligida lirik kechinma tasviri haqida gap borgan.

Kalit so‘zlar: o‘zbek dostonchiligi, lirik chekinma, tasvir.

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THE DEVELOPMENT OF LYRICAL EXPERIENCE IN MODERN UZBEK EPICS

Annotation: the article discusses the depiction of lyrical experiences in contemporary Uzbek epic poetry.

Key words: Uzbek epic poetry, lyrical retreat, image.

Dostonchilik xalqimiz ma’naviyatida asosiy o‘rinlardan birini egallaydi. “Uni kuylovchi baxshilar nodir ma’naviy boyliklarni mukammallashtirishda muhim vazifani amalga oshirishadi. Ular yuksak insoniy fazilatlarini o‘zida mujassamlashtirgan obrazlarni badiiy qayta ishlash orqali asarning g‘oyaviy mazmunini yanada chuqurroq ildiz otishiga zamin hozirlashadi”[1]. Baxshilar o‘zlarining yuksak xotirasi, xonandalik qobiliyati, jonli xalq tilining xassos bilimdoni sifatida asrlar osha kelayotgan epik an’analarni, boy va rang-barang eposni avloddan avlodga yetkazishda ko‘prik vazifasini o‘tab kelishmoqda. “O‘zbek baxshilari g‘oyaviy yo‘nalishda, epik repertuarining yagonaligi, ijro usuli va kuy – qo‘shiqda bir xil an’anaga ega bo‘lsalarda bari bir ular o‘ziga xos uslub, ijro yo‘nalishlari, repertuar xarakteri bilan o‘zaro farqlarga ega. Bu hodisa dostonchilik maktablarini keltirib chiqaradi.

Dostonchilik maktablarining turlicha shakllanishiga xalqning etnogenetik tarixi ham jiddiy ta’sir etadi[3]. Chunki har qanday etnik guruh o‘zining qadimiy an’alarini barqaror saqlaydi. Buni Xorazmdagi dostonchilik maktablarida yaqqol ko‘rish mumkin. San’atshunos olim B.Matyoqubov o‘z risolasida Bola baxshi bergan ma’lumotga asoslanib Xorazm dostonchiligini uch do‘konga (do‘kon-manzil, makon, hudud ma’nosida) bo‘ladi.

Yuqori do‘kon. Bu do‘kon o‘z ichiga shartli ravishda Turkmanistonning Lebob viloyati (Chorjo‘y), Darg‘on ota, Pitnak tumanlarini qamrab oladi. Bu do‘kon baxshilarining kuy yo‘llari mo‘tadil bo‘lib, dutorlarining hajmi ham Farg‘ona-Toshkent dutorlariga o‘xshashligi bilan ajralib turadi. Mazkur

do'kondan Xo'jayoz baxshi, Amin baxshi, Murod baxshi, Eshniyoz baxshi va boshqalar yetishib chiqqan. Uning markazini shartli ravishda Hazorasp deb belgilash mumkin.

O'rta do'kon o'z ichiga Xiva, Xonqa, Yangiariq, Urganch, Qo'shko'pir, Shovot tumanlarini birlashtiradi. Uning markazini shartli ravishda Xiva shahri sifatida belgilash mumkin. Ushbu do'kon baxshilarining kuylari jo'shqin va o'ynoqidir. Ularning dutori ham yuqori va quyi do'konlarnikidan kichikroqdir. Ularga xos yana bir xususiyat dutorga bulomon va doirada jo'r bo'lishadi. Bu do'konning vakillari Eshvoy baxshi, Matniyoz go'rja (G'aribniyoz), Nurmamat cho'loq va boshqalardir

Xullas, O'rta do'kon Xorazmda asosiy dostonchilik markazi bo'lib, uning namoyandalari sifatida Avaz bola, Nurilla chig'atoy, Ernafas baxshi, Matyoqub qori, uning o'g'illari Hasan va Sayid baxshilar, Bekjon baxshi, Abdrim baxshi, Usmon baxshi (Bola baxshining bobosi), Buva baxshi, Jumanazar baxshi va nihoyat Bola baxshilarni tilga olish mumkin.

Oshoq (quyi) do'kon – Gurlan, Toshovuz, Ko'hna Urganch, Xo'jayli kabi Amudaryoning quyi oqimidagi hududlarni o'z ichiga oladi. Uning markazini shartli ravishda Mang'it shahri deb belgilash mumkin. Bu hudud baxshilari ko'pincha yakka dutor jo'rligida doston kuylashadi. Do'konning yorqin namoyondalaridan biri Rizo baxshi bo'lib, u Feruzning xos baxshisidir. Shuningdek, Ernazar baxshi, Suyav baxshi, Otajon baxshi va boshqalar ham o'sha do'kon uslubida doston kuylashgan.

Xorazm dostonchiligi an'alarining ildizlari juda qadimiy va murakkabdir. Chunki bu o'lkada migratsiya jarayonlari faol bo'lib, uzoq davom etgan forsiy va turkiy xalqlar aralashuvi natijasida dostonchilik an'analari ham evolyutsiyaga uchragan. Bu jarayon XX asrgacha davom etib kelgan. Bu masala maxsus tadqiqotlarda tahlil etilgan[5]. Xorazm dostonlari, baxshichilik maktablari xususida folklorshunos S.R.Ro'zimboev ham ko'pgina mulohazalarni bildirgan. Uning qayd qilishicha, vohada ikkita dostonchilik an'anasi mavjud:

1. Janubiy Xorazm dostonchiligi an'analari.

2. Shimoliy Xorazm dostonchiligi an'anasi.

Ushbu tasnif muallifining aytishicha, Hazorasp markazi bo'lgan "yuqori do'kon" an'analari XX asr boshlarida Janubiy Xorazm dostonchiligi an'analari bilan singishib ketgan.

Dastlab Janubiy Xorazm dostonchiligi an'analari haqida so'z yuritadigan bo'lsak, ushbu dostonchilikning ildizlari juda qadimiyligi bilan ajralib turadi. XI asrga kelib o'g'uz turklarining eron tilli aholi bilan chatishuvining kuchayishi tilning turkiylashish jarayonini tezlashtirdi, o'zini sart nomi bilan atovchi substrat aholi turkiy tilli superstrat bilan birlashib, yangi bir etnik guruhni shakllantirdi. Bu guruh vakillari hozirgi o'g'uz lahjasida gapiruvchi o'zbek aholisining eng qadimgi avlodlari bo'lib, ular Xorazmning janubiy tomoniga joylashganlar. O'sha sababga ko'ra, bu hududdagi dostonchilikda qadimgi xorazmiylarga xos an'analarning saqlanib qolganligi tabiiydir.

Shimoliy dostonchilik vakillari vohaga ko‘chib kelgandan so‘ng to XX asr boshlarigacha ichki tovushda kuylaganlar. Buni 1822 yilda Xivaga kelgan N.Muravyov kuzatishlari ham tasdiqlaydi. Shu sababli ular dastlab qo‘bizdan foydalanishgan, so‘ng dutor jo‘rligiga o‘tishgan. Shimoliy dostonchilikda baxshilarning badehago‘ylik san‘ati ancha faol ko‘zga tashlanadi. O‘z navbatida ular repertuaridagi dostonlar hajman ancha keng. Buni Tursun baxshi ijrosidagi “Huriliqo va Hamro” dostonining og‘zaki variantini qo‘lyozma nusxa bilan taqqoslaganda yaqqol ko‘rish mumkin. Baxshi doston matniga xalq so‘zlashuv tiliga oid ko‘plab frazeologik iboralarni, maqol va matallarni, uchiriq so‘zlarni kiritgan. Ayniqsa, uning ichki medial formulalari e‘tiborga loyiq. Shimoliy dostonchilikning yana bir vakili Sakrak baxshi nutqida ushbu xususiyat yanada yorqinroq ko‘rinadi. Uning saj‘ elementlariga e‘tibor qaratish, auditoriya bilan muloqotda bo‘lib, da‘vat, buyruq, xitob, so‘roq tarzida aloqa qilishi doston voqealarining tinglovchiga to‘laqonli yetkazishda muhim omillar bo‘lib xizmat qiladi. Shimoliy dostonchilikdagi ichki medial formulalardan foydalanish umumturkiy an‘ana bo‘lib, ular ozarbayjon, turkman baxshilari nutqida ham mavjud. Aslida bu usulning tarixini qadimgi eposdan izlash lozim.

“Kitobi dadam Qo‘rqut” eposida ushbu an‘ana to‘laligicha namoyon bo‘ladi. Shimoliy hududning To‘rtko‘l, Shabboz hududlarida yashagan ayrim baxshilarda yana bir an‘ana borki, ularda baxshilik va jirovlik ijrosi birgalikda namoyon bo‘ladi. To‘rtko‘llik Qo‘shako‘r va Qurbonboy jirov, Shabbozda yashagan Muso baxshilar ayni paytda qo‘biz chalib jirovlik ham qilishgan. Umuman, xulosa qilib aytganda, ikki an‘ananing qorishiq holda uchrashi o‘zaro ta‘sir va repertuar almashish natijasi hisoblanadi.

Adabiyotshunoslikda lirik asarlar janrini belgilash turli davrlarda turli mezonlarga bo‘ysundirilgan. Antik davrlarda she‘r mazmuniga qarab lirik janrlar belgilangan bo‘lsa, she‘riyatda kanonik janrlar hukm surgan davrlarda, janrni belgilashda shakliy xususiyatlar hal qiluvchi ahamiyat kasb etgan (7, 275). XX asrga kelib yana mazmun birinchi planga chiqadi, dunyo she‘riyatida turg‘un shakllarni inkor qilish, qat‘iy ramkalar doirasidan erkinlik tomon intilish, ijodiy laboratoriyada yangi lirik janrlarni yaratish yoki an‘anaviy janrlarga qo‘rqmasdan o‘zgartirishlar kiritish kabi umumiy tendensiya kuzatiladi. O‘zbek shoirlari ham xorijiy adabiyotdan sonet, xokku, tanka, oktava, epigramma, epitafiya, rondo kabi lirik janrlarni o‘zlashtirdilar va bu janrlarning mazmunini to‘ldirib, ularning qurilishiga o‘zgartirishlar kiritdilar.

Bugungi kunga kelib shoirlar laboratoriyasidan chiqqan lirik asarlarning janrini aniqlash murakkab muammoga aylandi. Janr – muayyan mazmunni shakllantirish va ifodalashga xizmat qiluvchi shakliy hodisa hisoblanadi. Janr o‘zgaraydigan yoki manguga shakllangan hodisa emas. U o‘z o‘zgarib, nafaqat mazmunni to‘ldirib, balki o‘z strukturasi ham o‘zgartirib boradi. Bir janrdan ikkinchi janrning o‘z o‘z chiqishi tabiiy holatdir. Bunga misol qilib qit‘a - g‘azal - mustazod taraqqiyotini olishimiz mumkin.

Biz ushbu maqolada o'zbek shoirlarining ijodxonasida yaratilgan, tajribadan o'tib, ommalashgan ignabarg, ikkilik, uchchanoq (Anvar Obidjon), sachratqi (Go'zal Begim), fiqra, tasbeh (Farida Afro'z), qayirma (Azim Suyun) kabi yangi she'riy shakllar haqida fikr yuritmoqchimiz, chunki bugungu kunga kelib adabiyotshunosligimizda bir misralik, ikki misralik, uch misralik, besh misralik she'rlarga ham alohida janr sifatida qarash mavjud. Tadqiqotchi Q.Yo'lchiyev o'zining —O'zbek she'riyatida birlik va uchlik she'r poetikasii mavzusidagi tadqiqotida ignabarg, uchchanoq, fiqra kabi she'r shakllarini janr sifatida tahlil qilib bergan.

IGNABARG janri bir misrali she'rdir. Bu janr qadimiy bo'lib, ingliz adabiyotshunosi Ben Jonson XVI asrda bir misrali she'r mavjud ekanligini ta'kidlagan edi. Tadqiqotchi Qahhor Yo'lchiyev bir qatordan iborat she'rlarni lirik janr sifatida e'tirof etadi, lekin ayrim adabiyotshunoslar esa bir misrali she'rni —nasriy she'r|| deb ataydilar. Rus olimi, V. P. Burich bir qatorli she'rlarni nasr ham emas, nazm ham emas, balki ikkalasining o'rtasidagi modifikatsion hodisadir, deb yozadi va bunday she'rlarni —udeteron|| (yunon: unisi ham, bunisi ham emas) deb nomlaydi. Turk olimi Mehmet Kaplan esa —birler||ni (bir misrali she'rlarni) mumtoz adabiyotimizning mufradlariga o'xshatadi, ifoda tarzi bilan —hikmatlar||ga ham yaqin turadi, deb hisoblaydi.

Ignabarg she'rlarda ohang, pafos va falsafa bo'ladi. Farida Afro'z, Faxriyor, Ulug'bek Hamdam, Shermurod Subhon, Go'zal Begim kabi ijodkorlar bir misrali she'rlar yozganlar, ammo maxsus nom bilan atamaganlar. Anvar Obidjon esa bunday she'rlarini —ignabarg|| deb nomladi.

Anvar Obidjonning ignabarg she'rlari o'quvchining qalbiga, tafakkuriga ignadek sanchiladi, qalbimiz, ongimiz sergaklashadi, juda qisqa she'rga yuklangan juda katta falsafani tafakkur qilishga majbur qiladi. Masalan, "Omin!. G'arbga yiqil, terakjon!" yoki "Qarmoq solsam, kulfat ilindi". Shoirning barcha ignabarg she'rlari 9 bo'g'inli barmoq vazniga tushadi, lekin turoqlari har xil: 4+5, 4+2+3 va 4+3+2. Turoqlardagi bo'g'inlarning turlichaligi o'ziga xos musiqiylikni ta'minlagan. Ignabarglarda she'riy nutqning hissiy-ekspressivlik, musiqiylik, badiiy obraz, vazn, badiiy tasvir vositalari kabi barcha xususiyatlari mavjud. Masalan, —Bu qiz go'yo muzda o'sgan gul"; —Oshpichoq bu... juda imonli..."; ||Bas qil!" dedi. Baliq gapirdi!||, —Sham ham shohdir Quyosh chiqquncha|| she'rlarida antiteza yetakchi uslubiy vosita hisoblanadi. Shoir so'z, so'z birikmasi, iboralar yordamida turli fikr va timsollarni qarama-qarshi qo'yadi. Ikki qutb o'rtasidagi ziddiyat lirik qahramon holatini ochishga xizmat qiladi. Bir misrali she'rlarda gradatsiyadan ham unumli foydalaniladi. Qahhor Yo'lchiyev e'tirof etganidek, Anvar Obidjon so'z ma'nolarini biridan ikkinchisiga kuchaytirib boradi yoki aksincha kuchsizlantiradi. Masalan, "O'lma! Senda o'chim bor axir!|| she'rida ma'no kuchayishi —o'lma – o'chim bor|| tarzda berilsa, "Qullik o'zi go'rkov, o'zi go'r!" she'rida ma'no tizimining kuchsizlanib borishi —go'rkov – go'r|| tushunchalari orqali yuzaga chiqqan.

IKKILIKLAR (Mahmud Toir) yoki SOCHILGAN BAYTLAR (Erkin Vohidov) – o‘zaro qofiyalanadigan ikki misra she‘r. Agar fard aruz vaznida yozilsa, ikkiliklar barmoqda yoziladi. Bunday qisqa she‘rlarda hikmatomuz fikrlar, olam va odamning yaratilishi haqida tasavvurlar, falsafiy mushohadalar qalamga olinadi. Qofiyalanishi: a-a. Masalan:

*Erinchoq kam yashar nimaga desak,
Yashashi uchun ham hafsala kerak. (E.Vohidov)*

*Shohona kiyinib shoh bo‘lolsan,
Tunda jilva qilib moh bo‘lolsan. (Mahmud Toir)*

SACHRATQI (Go‘zal Begim) – o‘zaro qofiyalanmaydigan ikki misra she‘r. Bu she‘riy shakl ixcham —oq she‘rll dir, ya‘ni barmoq vazniga xos bo‘g‘inlar tengligi, turoqlar bor, lekin qofiyadosh so‘zlar qo‘llanmaydi. Modern she‘riyat ko‘rinishlariga o‘xshab tinish belgi ishlatilmaydi, chunki tinish belgi xayolning sarhadsiz maydoniga to‘siq bo‘ladi. Sachratqida ruhiyatning oniy holati qalamga olinadi. Qofiyalanishi: Masalan, Go‘zal Begimning bir sachratqisini e‘tiboringizga havola qilamiz:

*O‘tayotib daraxt tagidan
Osmon haqda o‘yladim birpas*

Bu she‘rning asosida —Nega daraxt osmonga talpinib o‘sadi? degan falsafiy savol yotibdi.

Bugungi kunda o‘zbek adabiyotshunosligi oldida turgan muhim vazifalardan biri Istiqloq davri o‘zbek she‘riyatidagi shakliy izlanishlar va ijodkor individualligi masalasiga alohida e‘tibor qaratish va yagona to‘xtamga kelishdir. Shoirlarning o‘zlari yangi janr deb e‘tirof etgan she‘riy shakllarni o‘quvchilarga ijodkor ustaxonasidan chiqqan yangi lirik janr deb taqdim qilish kerakmi yoki, ayrim tadqiqotchilarga ergashib, individual janrlarni ijtimoiy, psixologik jarayonlarda badiiy modifikatsiyaga uchragan she‘rlar sifatida o‘rgatishimiz kerakmi? Bizningcha, ignabarg, ikkilik, sachratqi, uchchanoq, qayirma, fiqra, tasbehlarda janrga xos belgilar - muayyan mazmunni shakllantirish va ifodalashga xizmat qiluvchi shakllarning mavjudligi ularni yangi lirik janrlar deb o‘rganishimizga asos bo‘la oladi.

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ANALYSIS OF THE DEFINITION OF AN ARTISTIC IMAGE AT THE DEPICTION IN ENGLISH LITERATURE

***Abstract:** English literature is rich in various artistic means that allow authors to create expressive works. This research examines the concept of artistic means of depiction, their various types, the role in creating images and atmosphere of works, and also provides examples of the use of literary devices in English literature.*

***Key words:** metaphor; epithet; context; original meaning; author's meaning.*

The article is devoted to the analysis of expressive means of creation of an artistic image at the description of words with semantics 'living'. Grammatical forms and lexical means of language ciphering graphic semantics are analyzed. On the basis of a language material the list of expressive means of language (track), by means of which in investigated texts author's semantics is expressed, has been established.

Figurative and expressive means of language are important elements that are used to enhance expressiveness in speech. In my article, I will consider the main ones, such as epithet, metaphor, personification, comparison and others. These means not only enrich the text, but also make it more emotional. For example, an epithet adds color, and a metaphor creates a figurative perception. I will also give examples of each means and talk about its role in literature and everyday speech. Understanding these means helps to understand the meaning of artistic words and improves communication skills more deeply.

Expressive means of language allow the author to highlight the main thing in the message and thus facilitate its perception. Consequently, figurative and expressive means of language are certain techniques that make speech visual, figurative and design it in a special way, attracting attention to it.

Means of artistic expression are words and expressions that are used in an unusual, uncharacteristic meaning. They are used by authors to create artistic images. An artistic image is a phenomenon of the surrounding world that is described by the author in a literary work.

In modern literature, words are often used in special, authorial meanings. "Such a meaning can develop over a long period of time and can be fully understood only in the context of the entire work or even the entire work of the

author. In other cases, the meaning of the word is truly "contextual", that is, it occurs once, in a small text and is not repeated again." As a result, such use of the word is more expressive, "since everything unusual is expressive" [1].

An indicator of the unusualness of the semantics of a word can be its unexpected use with other words in the text, since for most lexical units their valence, i.e. the possibility of compatibility, is limited.

Let us consider this phenomenon based on text units with the meaning of "everyday life" based on the prose of Tatyana Tolstaya and Lyudmila Ulitskaya.

One of the means of expanding the semantics of a word is a trope - an invariant way of updating the semantics of a dictionary unit on the basis of which it is created. Tropes are built on the comparison of phenomena that have some similarity. Similarity can be obvious or hidden, consisting in associations that arise when describing an object. All tropes, depending on the methods of comparison, can be divided into two groups: if the subject and object of comparison are named in the text (comparison); if the object is named instead of the subject (different types of tropes depending on the relationship between the subject and the object) [1].

In the texts we are considering, the author's semantics is expressed through expressive means of language (tropes), which include, in particular, metaphor and epithet. Among all the pictorial means that implement the artistic content of a literary work, the features of the author's worldview and individual poetics, metaphor occupies the most prominent place. This is determined by its objective properties: on the one hand, the unexpectedness and novelty of the use of the word gives rise to the expressiveness of the text, gives the speech a special expressiveness; on the other hand, by holding the reader's attention, it deepens perception, enhances his emotional mood [2]. Being a universal linguistic category, linguistic metaphor is a productive element of the development and enrichment of language. "Metaphor is a unit of secondary indirect nomination, i.e. a nominative sign based on the transfer of meaning and representing that type of figurative meaning which is based on the similarity of the figurative basis, caused by the presence of a common feature between the direct and figurative meaning" [3].

In modern linguistic research, much attention is paid to the use of epithets in texts. In theoretical literature, the term epithet is interpreted ambiguously.

Accordingly, the equal sign is placed both between the epithet and the adjective-definition, and between the epithet and the application expressed by a noun with dependent words, and in some cases the adverb functions as an epithet [7].

The heterogeneity in understanding the content of the term "epithet" cannot serve as an obstacle to the study of this phenomenon. The diversity is mainly associated with differences in the approach to the syntactic and morphological characteristics of the epithet: sometimes it is closed within the framework of the adjective-definition, sometimes it becomes non-correlative with any grammatical

classes of words. However, with any understanding, the focus is always on adjectives [7].

The characteristic feature emphasized by the epithet is sometimes deliberately enhanced and gives the word a certain emotional coloring or evaluative meaning, and in some cases even the terminological meaning is rethought and the logical definition acquires the status of an epithet [8, p. 16].

The texts also contain other expressive means of language. Of interest is the description of a table set for a ceremonial dinner - a starched table (metonymy); a silent lampshade, already accepted into the family (personification); a young and timid lampshade (personification); a huge double-height workshop (phraseologism), etc.

Thus, the analysis of the "language" of fiction is aimed at finding out how the expressive means of the language itself are used by writers in the "verbal design of an artistic image".

In the texts we have examined, the author's semantics is expressed through expressive means (tropes), which include, in particular, metaphor and epithet, among which metaphor occupies the most prominent place, since it is it that performs in the text not the function of nomination, but the function of figurative characterization.

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MANAGEMENT OF DEHKAN FARMS AND THEIR ECONOMIC EFFICIENCY

***Abstract:** this article discusses issues and important aspects of the development of the agricultural sector of the Kashkadarya region, mechanisms for increasing the economic efficiency of farms, the inextricable dependence of the level of agricultural development on the potential of qualified specialists. the scientific and technological achievements achieved in the field of agriculture and the problems awaiting solution are presented, as well as proposals for their elimination and recommendations.*

***Keywords:** agriculture, farming, rate of return, horticulture, mechanism, economic efficiency.*

Introduction. Today, the country's importance and role of agriculture is increasing year by year, and most of the population of our country is working in this field. According to the statistics department of Kashkadarya region, 73.5 percent of agricultural products produced in 2023 will be contributed by farmers and homestead households, 24.6 percent by farms, and 1.9 percent by organizations performing agricultural activities.

In the Address of the President of the Republic of Uzbekistan Shavkat Mirziyoev to the Oliy Majlis of January 24, 2020 [1], the following points were put forward: "...we continue our studies and research on increasing the interest of farmers and farmers in agriculture. Advanced technologies and a cluster system are being introduced to the industry. We are mobilizing all our capabilities to widely develop entrepreneurship and create new conditions for this industry. 5.9 trillion to families starting their own business within the framework of the "Every family is an entrepreneur" program. Soum loans were allocated. In the future, the Ministry of Agriculture must completely abandon the old way of working, such as giving instructions to industry enterprises, allocating resources and setting plans. This year, we will allocate 3 trillion soums of funds for the development of fruit and vegetable growing, viticulture, seed breeding, animal husbandry, agro-logistics, introduction of water-saving "SMART AGRICULTURE" technologies, scientific research work, training of qualified personnel for the field..."[2]. It can be seen that a lot of attention is being paid to the agricultural sector, farmers and farmers. Realizing the essence of these issues, a scientific and practical approach is the need of the hour.

In accordance with the requirements of the current normative document [3], the following were defined as the priority areas of the Strategy implementation:

- ensuring food safety and improving consumption rations, producing and implementing a food safety state policy that provides for growing the required amount of food products;
- wide implementation of market principles in the purchase and sale of agricultural products, development of quality control infrastructure, promotion of exports, creation of a favorable agribusiness environment and value-added chain, which provides for the production of competitive, high-value-added agricultural and food products in the target international markets;
- introduction of mechanisms to reduce state participation and increase investment attractiveness in the field, which involves increasing the flow of private investment capital to modernize, diversify and support sustainable growth of the agricultural and food industry;
- improving the use of natural resources and the system of environmental protection, which provides for the rational use of land and water resources, forest fund;
- development of modern management systems, which includes restructuring and development of the state management structure in agriculture;
- increasing the efficiency of state expenditures and gradual redistribution by developing sectoral programs aimed at increasing labor productivity in farms, improving product quality, and creating high added value;
- development of the system of science, education, information and consulting services, which provides for the use of effective forms of knowledge and information dissemination integrated with the production of research, education and consulting services in agriculture;
- implementation of programs for the development of rural areas that provide support for the balanced and sustainable development of rural areas;
- creation of a transparent system of network statistics, which involves the introduction of reliable methods of collecting, analyzing and distributing statistical data through the widespread introduction of modern information technologies [4]
- Implementation of the above-mentioned directions, creation of a system of training of qualified personnel in agriculture, achievement of high productivity, serves to satisfy the needs of the population for quality and cheap products.

According to analytical data, it should be noted that the share of farm categories in the production of the main types of agricultural products in Kashkadarya region in 2022 is as follows:

73.4 percent of the volume of vegetables grown in agriculture in 2022 was contributed by farmers' farms, 25.7 percent by farms, and 0.9 percent by

organizations performing agricultural activities. In this case, the main indicator came from the account of peasant farms.

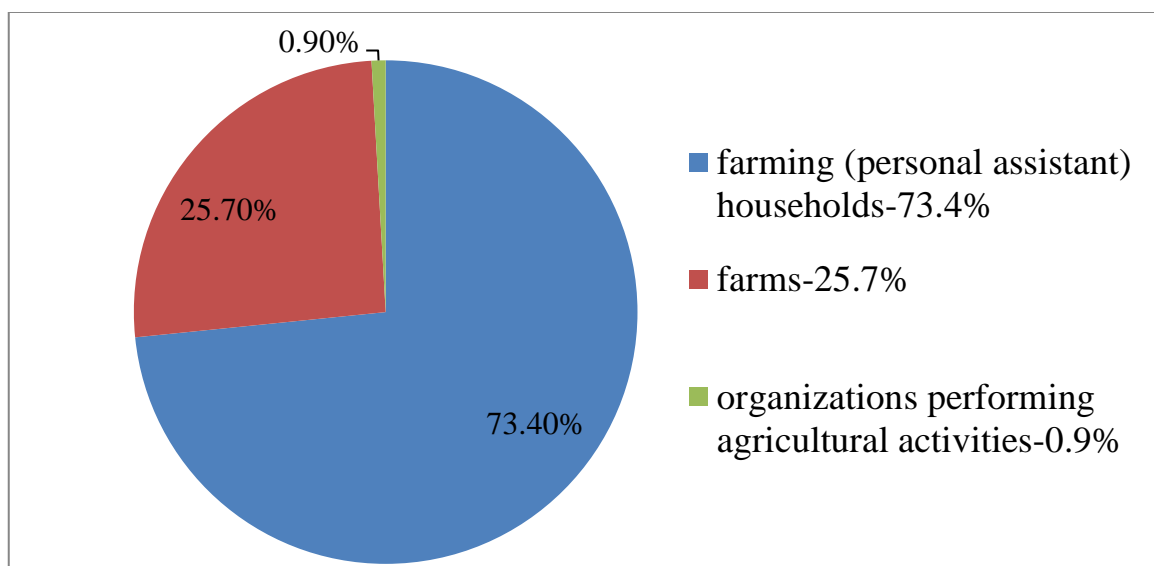


Figure 1. The share of economic categories in the production of the main types of agricultural products (%).

As a result of their hard work, the farmers of our country provide not only the family, but also the population of the whole country with agricultural products. Humanity has been created so that food and clothing are its daily needs. Fruits, vegetables and sugarcane crops grown in the agricultural areas meet the daily food needs of the people, while the abundant harvest of wheat, cocoons and cotton provides the need for bread and bakery products and clothing.

Today, all conditions and opportunities have been created for agricultural workers to work freely and independently. They are constantly supported by the state, providing them with financial assistance, preferential tax rates and loans. Therefore, it is appropriate for them to make their contribution to increasing the volume of the country's gross domestic product by using such opportunities correctly and rationally.

Conclusions and suggestions. The conclusion is that agricultural farms should make good use of land and water resources, use their organizational, management and economic capabilities, and use scientific and practical knowledge. That's the only way we will contribute to our country joining the ranks of developed countries.

We believe that it is necessary to take into account the following points in the organization and exemplary management of agricultural holdings, in order to increase their economic efficiency:

- Clearly defining goals and objectives. In this case, it is necessary to determine the level of adequacy of funds, labor force, material and technical base, land, water, and modern technologies for the establishment of a farm.

- Rights and obligations of farms. In this regard, a number of laws and decisions have been developed by our president and our country. The rights, privileges, duties and obligations of agricultural workers are fully described. Most importantly, the use of agricultural areas within the framework of clear regulatory documents leads to a high level of economic growth.

- Effective use of mineral and organic fertilizers, chemical protection of plants. It is known from the successful result of scientific research in this direction and from practical experience that the main part of the obtained harvest is achieved as a result of rational use of fertilizers. Before planting the seeds in the ground and harvesting the finished crop, the farmer must pay great attention and responsibility to destroy the harmful organisms contained in the seeds of the plants, to get rid of weeds, and to avoid various insects and pests. This process is considered to be the most necessary step during the year's hard work, and ensures the achievement of significant productivity.

- Formation of means of production and their rational use. An important condition for the sustainable formation and successful operation of agriculture is the availability of means of production and the ability to put them into practice.

- Efficient use of water in agriculture. It is important to take into account the consumption of water used in irrigated agricultural areas, to make effective use of the limits set by water supply sources and reservoirs, and to avoid wastage.

- Erosion control measures. When determining the composition of cultivated areas in agricultural areas, it is necessary to develop and implement a plan of measures against wind and water erosion, soil pollution and becoming unusable. A fertile layer of soil washed away in a short period of time can be restored for many years. Therefore, great attention should be paid to maintaining the fertility level of the land.

- Reasonable use of accelerated technology in product cultivation. As we know, one of the main goals is to use the achievements of modern technology, to get more profit with less cost, and to have a low-cost and high-quality product. The application of any technology must be scientifically based for the climatic conditions of the farming areas.

- Sale of the grown product and proper distribution of the income. This is very important for any manufacturing industry. In order for the farmer to deliver his produce to the places, it is a constant necessity that he should be able to establish regular contact with the settlement, market price, wholesale and retail trade complexes, catering establishments, processing industries and, if possible, work on contracts. Also, knowing how to properly direct the received income will serve as a pump for work in the coming year.

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EFFECT OF TEMPERATURE ON MULBERRY SILKWORM

Annotation. Mulberry silkworm is considered to belong to the class of insects. It is known that insects are considered to be pyglotherm i.e. cold-blooded. For this reason, body temperature directly depends on the temperature of the external environment. Higher or lower temperatures than normal affect the biological and technological properties of silkworms.

Keywords. Silk, sequins, insects, temperature, enzyme, leaf, worm.

The speed of physical and chemical processes in the cells of any organism depends on temperature. For normal chemical processes in the body, for absorption of substances in the cells, there should be a sufficient temperature. Cells of different animals have different temperatures. We know animals whose body temperature is constant and does not depend on the temperature of the external environment. Such animals are called warm-blooded animals. The temperature in the body of cold-blooded animals varies depending on the temperature of the external environment. Therefore, the development and life of cold-blooded animals takes place in very unfavorable conditions. A certain level of heat is necessary for good exchange of substances in the body. Temperature is especially important for insects, including silkworms. Because insects are cold-blooded, paikilotherm, that is, organisms that do not have a constant body temperature. In warm-blooded animals, the body temperature is constant and does not depend on the temperature of the external environment. That is why cold-blooded animals need favorable conditions for their vital activity. The main source of heat is the process of oxidation of organic substances, mainly sugars, in body tissues. The stronger the oxidation process, the more heat is generated. Sunlight, which is an external heat source, is secondary. The degree of use of sunlight

depends on the structure, physiological characteristics and color of the animal skin covering.

For the development of the silkworm, it is necessary to spend a lot of energy, that is, the heart, intestine and other organs must perform certain work. Therefore, if the rate of the process takes place at different temperatures, its rate of movement will also change accordingly, that is, the total amount of energy spent to complete one process will remain almost unchanged. Temperatures necessary for the body to work with the least amount of energy can be considered as moderate temperatures. At V_i temperatures, the heat balance in the body is established based on average heat generation processes and does not overheat the body: the temperature in the body of insects is close to the external temperature surrounding them. According to the results of the experiment, since the silkworm is cold-blooded, the physiological processes of silk qsh1ipipg also change with the change in air temperature. It can be said that five-year-old worms have a fast heart rate, metabolism and other properties have the same regularity. The total number of heart beats for a whole year is from 3,892,320 to 4,412,520. In the fifth year of the worm, when the temperature is 25-27.5 ° C, the total number of heartbeats is low. At this temperature, the development of the worm requires less work of the heart and less expenditure of energy.

The amount of heat produced in the body of insects /per gram of weight/ is less than that of warm-blooded animals. In addition, insects cannot control heat loss compared to warm-blooded animals, as warm-blooded animals are protected by a layer of subcutaneous fat, wool, and feathers. Therefore, the body temperature of insects depends on the temperature of the external environment surrounding them.

The limit of low temperature for the development of mulberry silkworms is +7.5° C, and leaves are not eaten. Around 10° C eats the leaf slowly. The ideal temperature for silkworm is 24-27° C.

The life of the silkworm is adapted to moderate temperatures, and the temperature and the speed of the life processes change in relation to each other. For example, as the air temperature increases, heart rate and movement speed up; appetite increases, bowel function improves, breathing increases.

If the temperature is below the norm, the speed of various processes in the insect organism slows down almost uniformly, but their control does not stop. Therefore, a temporary decrease in temperature does not reduce the vitality of the organism.

Temperature that is too high increases the speed of physiological processes and disrupts the action of enzymes.

Enzymes of cold-blooded animals are not resistant to heat compared to enzymes of warm-blooded animals, Q3 Q5o heat temperature is tolerated for 3-4 days by I-III age worms, 2 days by IV age, and 1 day by V age. 40o heat I-III young worms 1 day, IV-year 15-28 hours; V-age - can last 12 hours. Worms that

have hatched from eggs and have not eaten leaves can be kept for 15-20 days in Q3 Q5° C. But their viability decreases sharply after leafing.

As a result of the acceleration of physiological processes under the influence of temperature, the development of the silkworm changes. At a temperature of 17-19o, the first age of a silkworm (with molting) lasts 10-11 days. The worm feeding period lasts about 2 months.

The length of the silkworm's lifespan and molting period depends on many factors. In particular, the number of days of silkworm youth and sleep depending on the temperature is given in Table 1.

Table 1.

How many days silkworms last their young depending on the temperature they are fed

| Youth and sleep of worms | Depending on the temperature, the age of the worm continues, days | | | | |
|--------------------------|---|--------------------|--------------------|--------------------|--------------------|
| | 20-21 ⁰ | 22-23 ⁰ | 25-26 ⁰ | 26-27 ⁰ | 28-29 ⁰ |
| First age | 3,5 | 3 | 2,5 | 2,5 | 2,5 |
| First sleep | 1 | 1 | 1 | 1 | 1 |
| Second age | 3 | 3 | 2,0 | 2 | 2 |
| Second sleep | 1 | 1 | 1 | 1 | 1 |
| Third age | 4 | 4 | 3 | 2,0 | 2 |
| The third sleep | 1,5 | 1 | 1 | 1 | 1 |
| Fourth age | 5 | 4 | 3,5 | 3,0 | 3 |
| The fourth sleep | 2 | 2 | 1,5 | 1,5 | 1,5 |
| Fifth age | 9 | 8 | 7,5 | 7 | 6 |
| Total | 30 | 27 | 23 | 21 | 20 |

The duration of the worm feeding period is 15⁰-60 days; 17⁰da - 52 days; 20-37 days; -27 days at 22⁰; -23 days at 25⁰-26⁰C; 29⁰-30⁰ - lasts 18-19 days.

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MECHANICS TODAY: ACHIEVEMENTS AND LIMITATIONS

***Annotation:** This article reviews the latest advances and limitations in mechanics. Key developments include additive manufacturing (3D printing), which enables resource-efficient, customized production, and digital twins, which allow real-time system optimization. AI is also transforming mechanics by automating processes and improving design precision. Despite these strides, the field faces significant challenges: high production costs limit advanced materials' accessibility, and energy efficiency in electric vehicles still presents barriers to scaling up. Additionally, integrating AI and robotics requires substantial investment, limiting widespread adoption. These findings highlight both the progress in and ongoing challenges to the future of mechanical engineering across industries.*

***Key words:** mechanical engineering, 3D Printing in manufacturing, additive manufacturing, digital twins, artificial intelligence (AI) in mechanics, materials science advancements, energy efficiency in electric vehicles (EVs), sustainable engineering, predictive maintenance, robotic automation, challenges in mechanics, manufacturing process optimization, emerging trends in mechanics, smart manufacturing, environmental challenges in engineering*

Mechanics has witnessed rapid advancements in recent years, spurred by developments in technology, materials science, and computational methods. These improvements impact diverse sectors, including energy, manufacturing, robotics, and biomedical engineering. This article discusses current achievements and limitations within the field of mechanics, highlighting their implications for future innovation.

Achievements in Mechanics

3D printing technology has revolutionized mechanical engineering by enabling customized manufacturing and reducing material waste. This technology, valued at \$13.84 billion in 2021, is expected to grow significantly by 2028. It offers applications in producing lightweight yet strong components, particularly useful in aerospace and medical industries. Importantly, 3D printing supports sustainability through reduced energy consumption and the ability to utilize recycled materials (UT Austin, 2023; SciTechDaily, 2024).

Digital twins allow for real-time simulation of mechanical systems. By creating virtual replicas of machines, engineers can monitor, predict, and optimize the performance of mechanical systems such as jet engines and manufacturing

equipment. This approach enhances predictive maintenance, significantly reducing downtime and maintenance costs (UT Austin, 2023).

AI's integration into mechanics has enabled more precise design, manufacturing automation, and predictive analysis. AI systems now control robotic manufacturing systems and are increasingly used in quality control and process optimization. By offloading repetitive tasks, AI allows engineers to focus on innovation and design, crucial in fields like aerospace and automotive engineering (Deloitte, 2019; SciTechDaily, 2024).

Recent research in materials science has produced stronger, more flexible materials, such as glassy gels and ferroelectric capacitors with significantly higher energy densities. These advances could lead to improvements in energy storage and protective materials, essential for sustainable and resilient infrastructure (SciTechDaily, 2024).

Although electric vehicle technology has advanced, limitations remain in battery efficiency and charging speed. Recent research has made strides by developing new electrode designs to improve driving range and reduce charging time, but scaling these solutions to mass production is challenging. The need for infrastructure changes further limits widespread EV adoption (UT Austin, 2023).

While materials like carbon composites and advanced alloys have impressive mechanical properties, their high production costs restrict their use to specialized applications. Additionally, the complex manufacturing processes for these materials limit accessibility, particularly in industries that rely on cost-effective solutions (Physics World, 2023).

Although AI and robotics offer significant benefits, their integration in mechanics requires substantial upfront investments in hardware, software, and workforce training. Many small and medium-sized companies find these costs prohibitive, limiting widespread adoption. Moreover, there is ongoing debate over ethical considerations related to workforce displacement and machine autonomy (Deloitte, 2019; UT Austin, 2023).

Despite advancements, some areas in mechanics still grapple with environmental issues. For example, many traditional manufacturing processes rely heavily on fossil fuels, and developing alternative clean energy processes, such as solar-powered smelting, is only in experimental stages (SciTechDaily, 2024).

The field of mechanics continues to evolve, driven by groundbreaking achievements in manufacturing technologies, material science, and AI applications. However, challenges remain, including the high costs of advanced materials, scalability of new energy solutions, and the integration of sophisticated AI systems. Overcoming these limitations will be essential for expanding the reach and effectiveness of mechanical innovations in the coming decades.

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THEORETICAL ASPECTS OF FINANCIAL REPORTING FORMS AND AUDIT IN JOINT-STOCK COMPANIES

Abstract: this article examines various definitions and concepts of improving financial statements and conducting audits in joint-stock companies. As well as principles of approaching IFRS.

Keywords: accounting, income, contract, revenue, inventory, variable remuneration, fixed amount, efficiency of use, improving accounting.

Many reforms are being implemented in our country regarding the development of auditing activities. In these reforms, one of the important issues is to improve the quality of audit, in particular, audit of financial statements. Many opinions have been expressed by regulatory legal documents and economists regarding the organization and conduct of the financial statement audit.

To understand the purpose of the financial statement audit, we consider the main approaches based on the analysis of the concepts given in Table 1.

**Table 1. Analysis of Approaches to Definitions of Financial Statements
Audits**

| The author | Description |
|--|---|
| Conducting an audit in accordance with the main objectives of an independent auditor and international auditing standards (IAS 200). | (a) obtain reasonable assurance that the financial statements, taken as a whole, are free from material misstatement, whether due to fraud or error, to enable the auditor to form an appropriate opinion on the financial statements, in all material respects; |
| Law "On Auditing Activities". | b) Preparation and submission of a conclusion on financial statements, taking into account the requirements of international auditing standards and in accordance with the auditor's conclusions. |
| E. A. Arens, Dj. K. Lobbeck | The audit of the financial report of the economic entity and related financial information is conducted by the auditing organization in order to determine the reliability of the audited financial report and related financial information and compliance with the legislation on accounting. |

| | |
|---|--|
| Tak Isa, Morariu Ana, Guneay Aykhanlar | An audit is a process of collecting and evaluating evidence related to a specific economic system, quantitatively, in order to determine and express the degree of compliance of this information with the established criteria by a competent independent employee. |
| A. Vaziri, K. Azadi | The purpose of the financial statement audit is to form a clear and reliable opinion on financial information |
| Karimov A.A., Muqumov Z.A., Khodjaeva M.H. Avlokulov A.Z. | The purpose of the financial statement audit is to give a professional opinion on the integrity of the financial statement based on the results of the audit and to confirm its reliability. |
| Khajimuratov N.Sh. | The objective of a financial statement audit is to enable the auditor to express an opinion that the financial statements have been prepared, in all material respects, in accordance with an established conceptual framework for financial statement presentation. |

The main purpose of all the mentioned points is to confirm the reliability of the financial report. In order to achieve this goal, it is necessary to carefully plan the audit of financial statements by auditing organizations, to collect sufficient and appropriate evidence.

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FORMATION OF ACCOUNTING POLICY IN ECONOMIC ENTITIES

***Abstract:** this article audit evidence is information analyzed by the auditor about the business entity, which can be obtained both from the entity itself and from third parties, on the basis of which an appropriate opinion is formed about the completeness and reliability of financial statements and the financial condition of the audited entity.*

***Keywords:** accounting, income, contract, revenue, inventory, variable remuneration, fixed amount, efficiency of use, improving accounting.*

Formation of accounting policy in economic entities is considered a complex process, which includes the following stages.

When drawing up an accounting policy, first of all, it is necessary to clarify the composition of accounting objects. In the practice of our country, the requirements for accounting objects are disclosed in the accounting policy in a sequence according to the balance sheet structure. In particular, long-term assets include fixed assets, intangible assets, long-term investments, capital investments, and long-term receivables. Next, the accounting policy rules for inventories, receivables and cash are defined as part of current assets. This is followed by coverage of equity, liability, income and expense requirements.

When forming the accounting policy, it is necessary to consider the factors affecting it. In particular, the accounting policy is significantly influenced by the organizational and legal structure of the economic entity, the scope and purpose of the activity, the financial strategy adopted by the entity, the state of the internal control system, and external factors.

Documentation of the accounting policy is formalized by the order of the head. However, the document rotation table, working account plan, etc. are attached to the accounting policy. In addition, the method of assessment of certain types of assets and liabilities can be given as an appendix to the policy.

The following conclusions were reached regarding the study of the importance of accounting policy in the formation of financial statements in joint-stock companies:

1. The accounting policy is the main document in the organization of accounting work in a joint-stock company. This document plays an important role not only in accounting, but also in managing society.

2. The main goal of the accounting policy is the correct organization of accounting work and the formation of reliable financial reporting. If the accounting work is organized correctly, the internal control system and the efficiency of the business entity will be increased.

3. As a result of the introduction of international standards of financial reporting in Uzbekistan, serious requirements are also being imposed on the formulation of the accounting policy. In particular, the use of advanced methods in the assessment of assets and liabilities in accordance with the requirements of international standards serves to increase the transparency of financial reporting.

Gathering evidence is one of the main processes of an audit and involves summarizing the results of analysis and gathering information to form an opinion about the reliability and continuity of the financial statements of the audited entity.

Audit evidence is information analyzed by the auditor about the business entity, which can be obtained both from the entity itself and from third parties, on the basis of which an appropriate opinion is formed about the completeness and reliability of financial statements and the financial condition of the audited entity.

Based on the fact that the coefficient of financial independence should be higher than 0.5, it can be concluded that all three enterprises have insufficient financial independence. The fact that the coefficients of solvency and financial independence are not at the required level is explained by the large number of short-term debts in grain processing enterprises.

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INTRODUCTORY EVALUATION OF ECHINACEA (ECHINACEA PURPUREA (L.) MOENCH) PLANT IN TERMEZ CONDITION

***Annatation:** As we know, plants with medicinal and healing properties can be found in almost all regions. The wide use of their medicinal properties and especially the introduction and evaluation of medicinal plants of foreign flora to local regions have gained great importance in recent years. This article presents data on growth and development assessment of Echinacea Purpurea (L.) Moench, an ornamental plant with medicinal properties, under introduction conditions.*

***Key words:** introduction, folk medicine, growth and development, perennial plants, seasonal, local, foreign flora, pharmaceutical industry, medicinal plant.*

Introduction: It is evident that evaluating the introduction status of a plant being introduced is considered one of the factors indicating its potential. The assessment of introduction results is primarily determined using methods proposed by G.N. Andreev (1975) and R.A. Karpisonova (1978) for annual plants, and by B.A. Golovkin (1973) for perennial herbaceous plants. Subsequently, G.N. Andreev conducted an evaluation of herbaceous plant introduction results based on their life forms. Also, N.A. Bazilevskaya (1964) assessed the results of the acclimatization and introduction of grass plants on the basis of a 6-point scale.

Purpose of work: Echinacea - evaluation of Echinacea purpure L. Moench plant in terms of growth, development, formation of vegetative and generative organs, adaptation to different conditions in the growing area in Termez climate.

Research object: Echinacea is a valuable perennial medicinal plant belonging to the Echinacea family, Asteraceae or Compositae family. The Echinacea family includes 5 species, and these plant species are considered to be erect, perennial rhizomes. Their height reaches 1-1.5 m. The flowers are large purple in color.

Echinacea - Echinacea purpurea is a perennial plant of the Asteraceae family, reaching a height of 80 to 180 cm. It is partially distinguished from other species by the fact that it has a straight, erect stem and relatively few branches. The leaves are large, the lower leaves are broad lanceolate, located in a long leaf band; the tip of the upper leaves is relatively narrow, with a sharp tip. The flowers are large, the flower heads are 1.5-3 cm long and 5-10 mm wide. Red Echinacea is propagated by seeds and vegetatively.

Research methods: In this regard, under the conditions of our Republic, a plant introduction evaluation scale was developed based on the eco-introduction

method of evaluating the results of the introduction of plants recommended by I.V. Belolipov (1971-1983) in the Botanical Garden of the Academy of Sciences of the Republic of Uzbekistan. Based on it, plants were evaluated from 0 to 5 points in the conditions of introduction, and plants with 5 points were selected as successful plants in the introduction process.

Yu.M. Murdakhaev (1992) studied the introduction of medicinal plants in the conditions of our Republic, the characteristics of growth and development, the process of adaptation in relation to their floristic areas, life form and ecogeographic distribution.

Later, in this regard, B. Yo. Tukhtayev (2009) developed a scale for evaluating the results of the introduction of medicinal plants in saline soils in the scientific research work on the topic of "Introduction of medicinal plants in saline soils of Uzbekistan" and based on it emphasis was placed on plant introduction resistance, moisture, high temperature, low temperature conditions and natural reproduction.

The success of the introduction of plants is evaluated by the sum of its signs, the most important of which is the completeness of the large (ontogenetic) and small (seasonal) life cycles of the plant, which includes plant habitus (Latin habitus - preservation of image, appearance) is characteristic. When evaluating the success of the introduction, generative development, vegetative reproduction, preservation of the habitat, damage by diseases and pests, viability of plants in unfavorable periods of the year are taken into account. In this regard, we also used a 5-point evaluation in the introductory evaluation of *Echinacea purpurea* L. and analysis of the results (Table 1.1). Type evaluation was done on a 100-point scale. In this case, the introductory assessment of plants based on the sum of points is expressed as follows:

20-39 - not promising, 40-59 - less promising, 60-79 - promising, 80-100 - very promising

Results: The ability of *Echinacea purpurea* L. Moench to form a mass of above-ground and below-ground parts in the conditions of introduction is considered one of the main indicators of its economic value. In winter, at a temperature of -20 °C, the roots and shoots of the plant are almost not affected by cold. Roots are strong and have the ability to firmly attach the base of the stem to the ground. As a result of the observations, it was clear that *Echinacea purpurea* L. Moench, which is being studied under conditions of introduction, almost not affected by diseases and pests. Taking into account the instruction on the scale of introductory assessment of plants on saline soils proposed and developed by B. Tukhtayev, an introductory assessment specific to the conditions of Surkhandarya region was developed.

Echinacea purpurea L. Moench plant according to its reaction to high temperature - moderately resistant, watering requirement - moderate, reaction to low temperature - resistant, vegetative propagation - strong, natural planting - moderate, resistant to diseases and pests. Introductory assessment is carried out

on the basis of the comparison of indicators such as growth, development, productivity and durability of the introduced plant in the given environmental conditions and is completed with an introductory assessment in specific conditions. The total score is 100 points.

The prospects for the acclimatization of echinacea (*Echinacea purpurea* L. Moench) in the conditions of Termez can be determined based on the data presented in the table below. This table, based primarily on 6 indicators, allows for the provision of information about the adaptation of the introduced plant to the studied area, provides a number of conveniences for evaluation, and is considered one of the important indicators for distinguishing it from other species.

table-1.1
Introduction to *Echinacea purpurea* L. Moench
rating scale (points)

| Main indicators | Rank and scores | | | | | | Introductory evaluation (score) |
|--------------------------------|-----------------|----|----------------------|----|-----------------|---|---------------------------------|
| Reaction to high temperature | resistant | 15 | moderately resistant | 10 | low resistance | 5 | 10 |
| Watering requirements | low | 15 | average | 10 | high | 5 | 10 |
| Low temperature | resistant | 15 | moderately resistant | 10 | low resistance | 5 | 15 |
| Vegetative reproduction | intensive | 25 | strong | 15 | does not grow | 5 | 15 |
| Natural planting | low | 15 | average | 10 | it won't happen | 5 | 10 |
| Resistance to Disease and pest | not damaged | 15 | slightly damaged | 10 | strong damage | 5 | 15 |
| Total: | | | | | | | 75 |

Conclusion. Overall, *Echinacea purpurea* L. Moench scored 75 points under introduction conditions and was considered a promising species. *Echinacea purpurea* L. Moench can be grown in the conditions of Surkhandarya oasis Termiz. This introduced plant species can be propagated in the field in terms of its ability to reproduce from seeds, its response to high and low temperatures, seed productivity, resistance to diseases and pests, and it is important to achieve economic efficiency at the expense of raw materials obtained from it. is counted from indicators. Cultivation of such medicinal plants in a common area will definitely provide raw materials necessary for our pharmaceutical industry and will be able to be exported.

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URUG‘ MEVALI DARAXTLARDA OLMA MEVAXO‘RI RIVOJLANISHI VA UNGA QARSHI KURASH CHORALARI

***Annotatsiya:** Ushbu maqolada mevali bog‘larda olma hosildorlikni oshirishga, ularni etishtirish harajatlarini kamaytirish, zararkunanda va kasalliklar keltiradigan zarar miqdorini qisqartirishni ilmiy asosi yoritildi. Bundan tashqari olmaning asosiy zararkunandalari rivojlanishining bioekologik xususiyatlari o‘rganilib, ular ustidan monitoring o‘tkazish yo‘llari va usullari yordamida sipermetrin 25% em.k. 0,3 l/ga qo‘llanilganda mevalarining zararlanishi 17% bo‘lib, biologik samaradorlik 81,8 % ni, uchinchi variantda esa Endjeo 24,7% sus.k. 0,2 l/ga kimyoviy moddasi qo‘llanilganda mevalarning zararlanishi 9 % bo‘lib, 86,5 % biologik samaraga ega bo‘lindi.*

***Kalit so‘zlar:** Olma mevaxo‘ri, shirasi, Carpocapsa pomonella tuxum, qurt, zarar, avlod, turkum, zararkunanda, Avaunt, Entovant, kimyoviy kurash, biologik samaradorlik, iqtisodiy samaradorlik.*

Jahon miqyosida aholining oziq-ovqat xavfsizligini ta‘minlashda agrar sohaning o‘rni va ahamiyati kundan-kunga oshib bormoqda. Hukumatimiz tomonidan «Mevali bog‘ ekin maydonlarini kengaytirish va eskilarini ta‘mirlash, hamda ularning mahsuldorligini oshirish» dolzarb vazifa qilib qo‘yilgan hozirgi kunda yuqoridagi muammolar ustida chuqur ilmiy-tadqiqot ishlari olib borishni va bu zararkunandalarga qarshi ekologik xavfsiz va samarali kurash choralari majmuini ishlab chiqishni taqazo etadi. Muxtaram Prezidentimiz Sh.M.Mirziyoev tomonidan Respublikamiz xududlarida intensiv bog‘larni tashkil etish, maydonlarni kengaytirish va ularni rivojlantirish bo‘yicha berayotgan takliflari asosida, hozirgi kunda keng ko‘lamda ishlar olib borilmoqda. O‘zbekiston. Mamlakatimizda mevali bog‘larda 200 dan ziyod zararkunanda va 50 dan ortiq kasallik qo‘zg‘atuvchi zamburug‘lar uchrashi qayd qilingan bo‘lib, olma mevaxo‘riga qarshi kurash olib borilmasa hosilning 50 % va hatto 70 % nobud bo‘lishini o‘z tadqiqotlarida aniqlashgan. Mevali bog‘larda 6 ta navdagi mevalar tarkibidagi shakar, S vitamin, polifenolo va boshqa ko‘rsatkichlari, yozgi navlarda shakar va S vitamini ko‘proqligi, kislotalilik darajasi esa pastligi bilan ajralib

turishini o'z tadqiqotlarda aniqlagan . Adabiyotlarda Olma mevaxo'ri (Carpocapsa pomonella) xaqida to'liq ta'rif berilib, zararkunandaga qarshi kurash choralari ishlab chiqilgan. Olma mevaxo'ri (Carpocapsa pomonella) keng tarqalgan zararkunanda bo'lib, urug'li meva daraxtlarini, ayniqsa, olmani asosiy zararkunandalaridan biri hisoblanadi. Olma hosilining yarmidan ortiqrog'ida mevalar ko'pincha chirib ketishi va ularni saqlab bo'lmasligi, bahorda olma g'unchalash davrida, xarorat +9 dan oshganda g'umbaklar rivojlana boshlashi, ularning rivojlanishi vodiy sharoitida sakkiz-o'n kun, tog' va tog' etaklaridagi bog'larda esa 15 kun va undan ko'proq davom etishi. Vodiy xududlarida mevaxo'r kapalaklari olma gullab bo'lgan davrda paydo bo'la boshlashi, Renet Simirenko nav olma gullab bo'lgan davrda kapalaklar yoppasiga uchib chiqishi, g'umbaklar va kapalaklarning uchish davri bir oycha davom etishini o'zlarining tadqiqotlarida aniqlashgan

Hukumatimiz tomonidan «Mevali bog' ekin maydonlarini kengaytirish va eskilarini ta'mirlash, hamda ularning mahsuldorligini oshirish» dolzarb vazifa qilib qo'yilgan hozirgi kunda yuqoridagi muammolar ustida chuqur ilmiytadqiqot ishlari olib borishni va bu zararkunandalarga qarshi ekologik xavfsiz va samarali kurash choralari majmuini ishlab chiqishni taqazo etadi.

1. Agrar soxada axborot texnologiyalaridan foydalanish qishloq xo'jaligi ekinlari xususan mevali bog'lar hosildorligini oshirishga, ularni etishtirish harajatlarini kamaytirish, zararkunanda va kasalliklar keltiradigan zarar miqdorini qisqartirishga imkon yaratishi mumkinligi asoslab berildi.

2. Olmaning asosiy zararkunandalari rivojlanishining bioekologik xususiyatlari o'rganilib, ular ustidan monitoring o'tkazish yo'llari va usullari belgilandi.

3. Olma mevaxo'riga qarshi kimyoviy kurash usulini qo'llash bilan yuqori samaraga ega bo'ldik. Bunda: 6. 2 variant - andozada Avaunt 15 % em.k., 0,35 l/ga qo'llanilganda biologik samaradorlik 65,0 %, 7. 3 variant – tajribada issiqqonlilar uchun kam zaxarli va tez parchalanib ketadigan insektitsidlardan Entovant 15% em.k 0,35 l/ga qo'llanilganda biologik samaradorlik 82,5% ni tashkil qildi.

Olmadan mo'l hosil etishtirishni olib borilayotgan umumiy tadbirlarga bog'liq bo'ladi. Shuning uchun bugungi kunga kelib olmani o'sish va rivojlanishiga sof ekologik omillarning ta'siri kattadir. Buni hisobga olgan holda etishtirib kelinayotgan navlarni yashash davrini uzaytirishda hamda olma mevaxo'riga qarshi yangi istiqbolli kimyoviy moddalardan foydalanish maqsadga muvofiq deb bilamiz.

Olma mevaxo'ri bilan zararlangan o'simlik qoldiklarini o'z vaktida yig'ishtirib olinmagan maydonlarda tarqalgan zararkunandadan olmani himoya qilishda o'simliklar tuplanish davrida kimyoviy moddalarni barg satxiga sepish yuli bilan tuprokdagi infektsiya zaxirasini kamayishiga olib keladi. Gullash davrida gektariga kolgan me'yordagi kimyoviy moddalarni sepishni amalga oshirilganda xo'jalikda etishtirilayotgan olma ko'chatlarida sog'ayish

alomatlari hosil bo'ladi va qisqa vaqt ichida sog'lom o'simliklar soni ortishiga olib keladi.

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THE CLASSIFICATION OF ENGLISH AGRICULTURAL TERMINOLOGY

Abstract: *The classification of English agricultural terminology is proposed in the article. The author identifies the main groups of terms referring to general scientific, basic and proper terminology that have emerged within the framework of this science. Basic terms that have been borrowed from other terminological systems and have retained their original meaning, derivatives and complex terms (word combinations), terms borrowed from adjacent to agrotechnology terminologies, but partially changed their semantics have been identified from the point of view of the formation and development of terminology.*

Key words: *English terms, terminology, classification, the process of functioning of terms, specific agriculture term, equivalence, agricultural sector, term.*

Using a specific and general academic English vocabulary in the field of agricultural sciences and when teaching all the related classes, gives a clear overview on the importance of the need of having specific vocabulary and word data basis, wordlists, and a much closer approach of the students to the academic corpus of all the research papers and articles within the field of agricultural sciences.

Analyzing the importance of all specific word data basis within the field, one may notice that it is highly recommended to know and learn all the meanings, because most of the words have specific meanings and connotations, being included in the academic area, together with their technical meaning.[4]

The volume of the article does not allow us to analyze all aspects of the agrotechnological terminology system, so the aim of the study is to develop a classification of terminological formations of the biotechnology sublanguage in English. Before proceeding directly to the development of the classification of English-language agricultural terms, we examined various groups of terms included in the system.

In the context of globalization of modern society, international communication between representatives of science, technology and economy of different countries is intensifying, therefore knowledge of foreign languages is necessary for deeper mutual understanding and access to the latest professional information. Accordingly, a mandatory component of training students of higher

educational institutions in the field of "agrotechnology" is proficiency in a professionally oriented foreign language, a significant part of which is represented by terminological units.

Agrotechnological science is served exclusively by English-language terminology, although the development of scientific research in the field of agronomy is not a priority of the Anglo-American community. With the progress of agrotechnology, the terminological apparatus of this area is gradually being formed. The study, description of terms arising in new areas of knowledge, which undoubtedly include agronomy, is one of the current areas of modern linguistic research.

Agricultural terminology is at the stage of formation due to the high level of innovation and dynamism of biotechnology, which makes it relevant to develop a classification of its terms, due to the need for analysis, identification of thematic groups, and streamlining of special vocabulary. Systematization of terms in the form of classification will contribute to a deep understanding of the content of lexical units in the field of agrotechnology.

The agricultural terminology system is a complex phenomenon, since the science of agrobiology itself at the beginning of the 21st century was transformed into a complex integrative science, which unites several dozen sections and directions and is characterized by the use of terms borrowed from the terminologies of related disciplines - biology, medicine, genetics, ecology, bioethics, philosophy, sociology, psychology, jurisprudence. Since the terminology of agrobiology has wide and ramified semantic connections with related terminologies, it seems possible to identify larger groups of terms, such as general (general scientific), basic - areas of biology, medicine, genetics, chemistry and ecology and their own (narrowly specialized) terms.

The classification of terminological vocabulary by thematic groups is determined, on the one hand, by extralinguistic reasons, based on associative links between the concepts that are designated; on the other hand, there is also a linguistic reason for studying terminology within thematic groups: structural and semantic links of terms that make up a particular thematic group. The systematization of terms allows us to reveal the essential links and relationships between terms, to establish the place of each term in the conceptual system [8].

As a result of the conducted research, we can conclude that the English-language terminology of agrotechnology is an open system, represented by general terms of scientific knowledge, functioning in the sphere of the scientific direction of agrotechnology. It has basic terms denoting methods, functions and objects of professional activity; its own terms nominating specific concepts, characteristic only of this industry.

The conducted classification of terminology in the field of agronomy demonstrates its heterogeneous composition, which is a collection of terms taken from such related sciences as biology, genetics, ecology, bioethics, sociology; and presented by the biotechnology industry's own scientific apparatus.

The study of biotechnological terminology in English was conducted as follows: L. Rytikova conducted a study of the biotechnology terminology system and general trends in its development in English [7]. Morphological features of single-component terms in the biotechnology sphere in Russian and English were the subject of research by S. Vasilyeva [1]. Multicomponent terms in the biotechnology sublanguage (based on the Russian and English languages) are the subject of the dissertation research of T. Kudinova [4]. Also, in our previous works we carried out a structural and derivational analysis of English biotechnological terminology [5].

The analyzed scientific literature on the problem under study gives grounds to state that the analysis of English biotechnological terminology is of growing interest to scientists, since this is a young terminology system that is at the stage of formation due to the high level of innovation and dynamism of biotechnology. Therefore, the study of the development trends of the English-language terminology of the biotechnology sublanguage and the influence of Greek and Latin terminological elements on its formation is interesting, in our opinion, both from theoretical and practical points of view.

The subject of our study is the terminology of the biotechnology sublanguage, one of the characteristic features of which, in our opinion, is the presence of a large number of terms formed using prefixes of Greek and Latin origin.

An element of the agricultural terminology system is a agricultural term. We define a agrotechnological term as a word or a lexical unit verbalizing knowledge about the use of living organisms and biological processes in production and serving biotechnology - a branch of science that combines features of both biology and technology. A biotechnological term, like any term, is characterized by certain requirements for it: motivation, unambiguity, semantic and structural connections. The basis for classifying a word as a biotechnological term is the identification of its content and conceptual features that allow classifying the word as a scientific field or branch of "biotechnology", which we consider as a branch of science studying the possibilities of using living organisms, their systems or products of their vital activity to solve technological problems, as well as the possibility of creating living organisms with the necessary properties using genetic engineering.

In conclusion, as in all areas, there are many sources of internal enrichment in the agricultural sector. But the internal sources of enrichment of agrarian terms in English are different.

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OZIQ ZANJIRI VA OZIQ TO'RI TUZISH

***Annotatsiya.** Ushbu maqolada 10-sinf "Biologiya" darsida "Oziq zanjiri" va "Oziq to'ri" ni tuzishga oid ma'lumotlar berilgan berilgan.*

***Kalit so'zlar.** Oziq zanjiri, oziq to'ri, metodika, pedagogika, biologiya, pedagogik texnologiya.*

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BUILDING FOOD CHAIN AND FOOD WEB

***Abstract.** This article provides information on the construction of the "Food Chain" and "Food Web" in the 10th grade "Biology" lesson.*

***Keywords.** Food chain, food web, methodology, pedagogy, biology, pedagogical technology.*

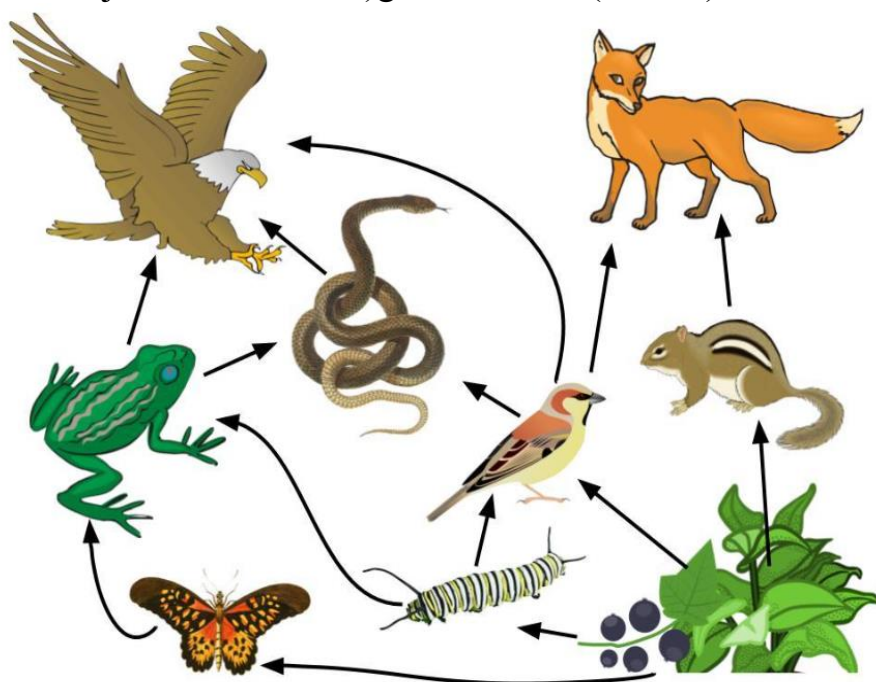
10-sinf biologiya fanining oziq zanjiriga oid mavzularini o'qitishda klaster metodini qo'llash orqali biz o'quvchilarda matndagi murakkabliklarni tez va oson o'zlashtirish ko'nikmasini shakllantira olamiz. Quyida "Ekosistema" bobining oziq zanjiriga oid mavzularida klaster metodini qo'llagan holda o'quvchilarda tanqidiy fikrlash ko'nikmalarini shakllantirishga harakat qilganmiz, matndagi ayrim murakkabliklarni o'rganishda bu usul juda katta yordam beradi degan umiddamiz.

Oziq-ovqat zanjiri har bir jonzo't o'z oziq-ovqatini qanday olishini ko'rsatadi. Ba'zi hayvonlar o'simliklarni, ba'zi hayvonlar esa boshqa hayvonlarni iste'mol qiladilar. Masalan, oddiy oziq-ovqat zanjiri daraxtlar va butalarni, jirafalarni (daraxt va butalarni iste'mol qiladigan) va sherlarni (jirafalarni eydigan) bog'laydi. Ushbu zanjirning har bir bo'g'ini keyingi bo'g'in uchun oziq-ovqat hisoblanadi. Barcha oziq-ovqat zanjirlari quyosh energiyasidan boshlanadi. Bu energiya o'simliklar tomonidan ushlanadi. Shunday qilib, oziq-ovqat zanjirining tirik qismi doimo o'simlik hayotidan boshlanib, hayvon bilan tugaydi.

«Oziq zanjiri» atamasi ingliz olimi - zoolog va ekolog Ch. Elton tomonidan 1934-yilda taklif etilgan. Oziq zanjiri bir necha bo'g'indan iborat. Zanjirning birinchi bo'g'ini, asosan, yashil o'simliklardan iborat, undan keyingi bog'inlarni

o‘simlikxo‘r hayvonlar (umurtqasizlar, umurtqali hayvonlar, parazit o‘simliklar), so‘ng yirtqichlar va parazitlar tashkil etadi.

Tabiatda koppina turlar bir turdagi oziq bilan oziqlanmaydi, balki turli xil oziq manbalaridan foydalanadi. Shunday ekan, oziq xiliga qarab har qaysi tur bitta oziq zanjirining turli trofik darajalarini egallashi mumkin. Masalan, sichqonlarni tutib yeyishi bilan qirg‘iy uchinchi trofik darajani, ilonlarni tutib yeyishi bilan esa to‘rtinchi trofik darajani egallaydi. Bundan tashqari, bir vaqtning o‘zida ular turli oziq zanjirlarining bo‘g‘inlari bo‘lishlari ham mumkin. Bir turning o‘zi turli xil oziq zanjirlarining bog‘ini sifatida ularni o‘zaro bog‘lab turadi. Masalan, qirg‘iy turli oziq zanjirlariga mansub bo‘lgan kaltakesak, quyon yoki ilonni yeyishi mumkin. Natijada trofik zanjirlar bir-biri bilan chalkashib, ekosistemada trofik (oziq) to‘ri - bir necha oziq zanjirlaridan iborat bo‘lgan murakkab to‘rni hosil qiladi. Organizmning oziq zanjiridagi o‘rni yoki oziq zanjirining bitta bo‘g‘iniga tegishli bo‘lgan organizmlar yig‘indisi trofik daraja deyiladi. Trofik darajalar soni oziq zanjiri bo‘g‘inlari soniga teng bo‘ladi. Avtotrof organizmlar produtsentlar - geterotrof organizmlar uchun organik modda yetkazib beradiganlar sifatida birinchi trofik darajani tashkil etadi. Ikkinchi trofik daraja (birinchi tartib konsumentlar)ga fitofaglar - o‘simlikxo‘r organizmlar kiradi. Fitotroflar hisobiga yashaydigan go‘shxo‘rlar uchinchi trofik daraja (ikkinchi tartib konsumentlar)ga; boshqa go‘shxo‘rlarni iste‘mol qiladigan hayvonlar to‘rtinchi trofik daraja (uchinchi darajali konsumentlar)ga mansubdir (1-rasm).



1-rasm. Oziq zanjiri klasteri.

Xulosa qilib aytadigan bo‘lsak, o‘quvchilarda tanqidiy fikrlash ko‘nikmalarini rivojlantirishda muammoli metodlar asosida darslarni olib ijobiy natija beradi. O‘rganilayotgan voqea (hodisa, qoida) yoki faktga o‘quvchilarning qiziqishini uyg‘otish, ularda savol berish va berilgan savollarni ma‘lum faraz (gipoteza)lar shaklida topishga harakat qilinganda, albatta, natijaga erishiladi.

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SOYA NAVLARIDA FIZIOLOGIK JARAYONLARNING BOG'LIQLIGI

***Annotatsiya:** Maqolada Surxondaryo viloyati sharoitida turli soya navlari barglarning fotosintetik va transpiratsiya faolligi o'rtasidagi bog'liqlikni o'rganish bo'yicha dala va vegetatsiya tajribalari natijalari keltirilgan.*

***Tayanch so'zlar:** soya navlari, fotosintez, barglar, transpiratsiya, yaruslardagi chiziqli o'zgaruvchanlik.*

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RELATIONSHIP OF PHYSIOLOGICAL PROCESSES IN SOY VARIETIES

***Abstract:** The article presents the results of field and vegetation experiments on the study of the relationship between photosynthetic and transpiration activity of leaves of different soybean varieties in Surkhondaryo region.*

***Key words:** soybean varieties, photosynthesis, leaves, transpiration, linear variation in layers.*

Barglarning fotosintezi va transpiratsiyasi bir-biri bilan chambarchas bog'liq bo'lgan ikkita eng muhim fiziologik jarayon bo'lib, ular o'simliklarni nafaqat qiyin sharoitlarda yashab qolishi, balki to'liq rivojlanish qobiliyatini ham ta'minlaydi. Ma'lumki, transpiratsiya o'simliklarda muhim va zarur fiziologik jarayonlardan biri bo'lib, o'simliklarni quruq va issiq ob-havo sharoitida haddan tashqari isishdan va suvsizlanishdan saqlaydi, shuningdek, suv va suvda erigan moddalarni o'simlik tanasi bo'ylab harakatlanishi, gaz almashinuvida muhim ahamiyatga ega[1]. Yuqori darajada transpiratsiya qiladigan bargning harorati, transpiratsiya qilinmaydigan so'ligan bargdan taxminan 7 °C past bo'ladi[2].

Mo'tadil namlikdagi o'simliklarda umumiy suv miqdorining sutka davomida o'zgarib turishi aniqlangan. Bu transpiratsiyaning jadalligi bilan uzviy bog'liq. Transpiratsiya jarayonida sarflangan suv miqdoriga qarab u yoki bu o'simliklarning suvga bo'lgan talab va ehtiyojini aniqlash mumkin. Transpiratsiya uchun sarflanadigan suv miqdorini aniqlashda bir qancha omillarni hisobga olish zarur. Jumladan, ildiz tizimining massasi va hajmi, o'simlik yer ustki organlarining massasi, ildiz hujayra shirasining osmotik bosimi, yer osti

sizot suvlarining chuqurligi, yog'ingarchiliklar miqdori, havoning harorati va nisbiy namligi, tuproqdagi nam zahirasi, o'simliklar suv potensialining qiymati va boshqalar. Transpiratsiya jadalligi og'izchalarning holati va barglardagi suv miqdori hamda o'simliklarning suv bilan ta'minlanish darajasini belgilaydi. Ba'zi bir holatlarda barglarning tezda suvsizlanishi natijasida og'izchalar suv sarfini boshqara olmay qoladi. Natijada barglarning fotosintetik faolligi pasayadi [3].

Fotosintezning roli shundaki, u qayta tiklanadigan energiyaning asosiy tabiiy manbai bo'lib, buning natijasida ekinlarda 95% gacha organik moddalar hosil bo'ladi [4]. Bu jarayon karbonat anhidrid va suv molekulalarining o'simlik barglarining og'izchalaridan kirishi hamda transpiratsiya bilan bog'liq [5].

O'rganilgan soya navlarining barglaridagi fotosintez jadalligi kun davomida uch marta, ya'ni ertalab soat 9⁰⁰ da, tush payti soat 13⁰⁰ da, kechqurun soat 17⁰⁰ da aniqlandi. Tajribalar natijalaridan ma'lum bo'ldiki, vegetatsion idishlarda o'stirilgan soya o'simliklarining barglaridagi fotosintez jadalligi o'simlikning nav xususiyatlariga, rivojlanish davrlariga bog'liq holda hamda kun davomida o'zgarib boradi. Shuningdek, gullash davrlarida turli yarusdagi turli xil (pastki yarusga nisbatan yuqori yarusdagi barglarda fotosintez jadalligi ko'rsatkichining yuqori) ekanligi kuzatildi.

Yuqoridagilarni hisobga olgan holda, biz soya o'simliklarida fotosintez va transpiratsiya jadalligining namoyon bo'lishining o'ziga xos xususiyatlarini va o'zaro bog'liqligini aniqlashga qaratilgan tadqiqotlar o'tkazdik.

Tadqiqot natijalari va uning muhokamasi. Tadqiqotlarda soya navlari barglarining fotosintetik va transpiratsiya jadalligi o'rtasida yaqin ijobiy munosabatlar mavjud ekanligini tasdiqladi. Bu bog'liqlik barcha navlarda rivojlanishining gullash fazasida aniq namoyon bo'ldi.

Vegetatsion tajribalar asosida olingan ma'lumotlarga ko'ra, o'simliklar rivojlanishining gullash davriga kirganida, barglarining transpiratsiya jadalligi Ustoz MM-60 navida keskin oshishi, To'maris MAN-60 navida esa nisbatan past ekanligi kuzatildi, huddi shu tartibda fotosintez jadalligida ham o'zgarish kuzatildi. Ya'ni, gullash bosqichida bu ko'rsatkichlarning qiymati mos ravishda Baraka navida (TJ) 4,85 mol H₂O/m²soat va (FJ) 9,7 mg/m²soat; To'maris MAN-60 navida (TJ) 3,35 mol H₂O/m²soat va (FJ) 7,1 mg/m²soat; Ustoz MM-60 navida (TJ) 5,35 mol H₂O/m²soat va (FJ) 10,5 mg/m²soat; Vilana navida esa (TJ) 4,21 mol H₂O/m²soat va (FJ) 8,42 mg/m²soat ekanligi qayd etildi.

Bundan tashqari, bu davrda eng yuqori transpiratsiya faolligi eng yosh barglar kabi o'simliklarning yuqori qatlam(yarus)larida joylashgan barglarda ham sodir bo'ladi. Ular tomonidan transpiratsiya jadalligi (yuqoridan asosiy poyaning 3- bo'g'inigacha) 5,35 dan 3,35 mol H₂O/m² soat gacha, o'rta yarusda – 4,1 dan 2,8 mol H₂O/m² soat gacha, pastki yarusda esa – 3,5 dan 2,6 mol H₂O/m² soat gacha transpiratsiya jadalligi kuzatildi. Ya'ni, yuqori barglarning transpiratsiya faolligi pastki barglarga nisbatan o'rtacha 1,5 baravar baland ekanligi qayd etildi.

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BIOPHYSIOLOGY OF SOYBEAN VARIETIES

***Annotation.** In this article given results of bioecological and morphological features klof the perspective varieties of soybean in the conditions of Surkhandarya region. Certain photosynthetic index (maintenances of pigments, productivity of photosynthesis) of different sorts of soy.*

***Key words:** sorts of soy, photosynthesis, pigment, productivity of photosynthesis.*

Introduction: Photosynthesis is the global natural source of renewable energy on earth, ensuring the full functioning of all the organs of a green plant. Therefore, it serves as a key factor in the production process of agricultural crops, resulting in the formation of up to 95% of the organic matter in the crop. [1,2]. Photosynthesis, which is the main process of plant nutrition, depends on the biological properties of plants, as well as complex external factors: sunlight, air temperature, the amount of carbon dioxide in it, soil moisture and the level of mineral nutrition (3).

Any change in environmental conditions primarily affects the intensity and direction of photosynthesis processes. This ultimately leads to changes in plant growth, development and productivity. The growth and productivity of plants in different climates and soil conditions depends on the adaptation of various physiological processes, especially photosynthesis, to environmental conditions.

Therefore, the main indicators of photosynthesis in the leaves of plants of different shade varieties in the specific soil and climatic conditions of Surkhandarya region - leaf level, net productivity of photosynthesis and the amount of plastid pigments were studied.

Object and methods of research. The A.A. Nichiporovich method (based on the formula of Kidda, VestaiBriggsa) [5] was used to determine the net productivity of photosynthesis in plants. It is now common to use chlorophyll counters to determine chlorophyll or leaf greenness. For this reason, we also used the chlorophyll meter ZYS-4N (Hangzhou quality lab scientific instrument co., Ltd., China) in our study to determine the amount of chlorophyll.

Research results and its discussion. Based on the above data, we studied the photosynthetic properties of soybean varieties by their phases of development.

Pure productivity of photosynthesis. The net productivity of photosynthesis is the amount of dry matter in grams accumulated per 1 m² of leaf surface in 1 day. The value of this indicator for different crops is between 1-20 g / m² per day.

The growth of plant productivity is ensured by two main processes of their vital activity - photosynthesis and growth balance. Growth processes that reflect general functional and metabolic changes in plants are closely related to their accumulation of biomass and dry matter from the air.

The photosynthetic activity of plants is closely related to the size of the assimilating surface of the leaf apparatus and its function. Therefore, it is very important to know what the activity of the leaves is and whether it depends on various influences. These indicators are the photosynthetic potential of crops and the net productivity of photosynthesis

The amount of plastid pigments in the leaves of soybean varieties.

Accurate assessment of photosynthetic pigments of leaves is an important element in controlling plant stress and fertilizer application and in managing overall plant productivity, especially in agricultural systems where yields are directly related to plant condition. The photosynthetic pigments of the leaves are the main variables characterizing the photosynthetic reaction and gross primary production in the biosphere, pigments play a central role in light harvesting, protection of photosystems and other growth functions [5-6].

The amount of leaf chlorophyll provides a key indicator of photosynthesis ability and is a very important factor for plant productivity along with measurements such as leaf area index. Therefore, the amount of plastid pigments in the leaves of soybean varieties grown in field experiments was studied. The results obtained are presented in Table 2.

Table 2

The amount of plastid pigments in the leaves of soybean varieties

(Chlorophyll index using ZYS-4N chlorophyll meter for soybean varieties, 2020-2021)

| Shade varieties | Development cycles | Indicator of plastid pigments |
|-----------------|--------------------|-------------------------------|
| Нафис | Trueleaf | 40,84 |
| | Flowering | 43,32 |
| | leg formation | 38,37 |
| Тўмарис ман-60 | Trueleaf | 43,81 |
| | Flowering | 46,51 |
| | leg formation | 41,14 |
| Устоз ММ-60 | Trueleaf | 39,61 |
| | Flowering | 40,98 |
| | leg formation | 37,28 |
| Вилона | Trueleaf | 43,52 |
| | Flowering | 48,26 |

| | | |
|--|---------------|-------|
| | leg formation | 42,75 |
|--|---------------|-------|

Studies have shown that the amount of chlorophyll in the leaves of Vestochka and Tomaris man-60 varieties of soybeans is higher than in other varieties. It was also observed that the amount of chlorophyll changed during the growing season of the soybean plant, i.e., it was highest during the flowering period, followed by a decrease in the amount.

Thus, it was found that the amount of plastid pigments in the leaves of the studied soybean varieties varies during the growing season depending on the biological characteristics of the varieties. Large amounts of plastid pigments to some extent express the intensity of photosynthetic processes in the plant, providing their growth, development rates and weight of the crop.

Chlorophyll counter readings can be affected by many factors other than nitrogen alone. It has been found that anything that can change the color of plants (e.g., diseases, nutrient deficiencies) can affect chlorophyll meter readings.

CONCLUSION

Studies have shown that the net productivity of photosynthesis in plants and the amount of plastid pigments in the leaves depend on the biological characteristics of soybean varieties and growing conditions.

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SCIENTIFIC SIGNIFICANCE AND PROSPECTS FOR THE USE OF ZEA MAYS SAMPLES

***Abstract:** This article describes some species of corn of the cereal family, including varieties grown in Uzbekistan and their characteristics, ways to increase their productivity through intensive methods and their importance in agriculture.*

***Keywords:** Oats (*Sorghum Pers.*), Grain oats (*S. cernuum*), broom oats (*S. technicum*), oats (Sudanese, *S. alnum*), Kattabosh, Chillaki, Uzbekistan 5, Sangzor, Uzbekistan 18, Deafness, Intensive, homotypic, heterotypic, parenchymal tissue, invasive type.*

Decree of the President of the Republic of Uzbekistan "On measures to protect the rights and legitimate interests of farmers, dehqan farms and landowners, to radically improve the system of efficient use of agricultural land" to address such problems and in order to fulfill the tasks set out in the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021. (Control of execution of this resolution to assign to the Deputy Prime Minister of the Republic of Uzbekistan for development of agrarian and food industries Sh.M. Ganiev and the Minister of Agriculture of the Republic of Uzbekistan JA Khodjayev This Regulation determines the procedure for monitoring on agricultural lands and arable lands. The following basic concepts are used in this Regulation:

Agricultural crops - technical crops (cotton, hemp, cannabis, tobacco, broom), cereals (wheat, barley, corn for grain, white corn, rice, millet, oats), rye), vegetables (tomatoes, cucumbers, onions, carrots, cabbage, eggplant, peppers, garlic, beets, radishes, turnips, greens), melons (melons, watermelons, pumpkins), potatoes, oilseeds (sunflower, soybeans, groundnuts, sesame, flax, sorghum), legumes (peas, beans, mosh), fodder crops (for alfalfa, corn silage, hashish beets, annual grasses (rapeseed, perco, triticale, sudanka), berry crops (strawberries, raspberries) and others.

Sorghum (*Sorghum Pers.*) Is a group of annual and perennial plants, cereals and fodder crops belonging to the family of cereals. There are about 50 wild and cultivated species of corn. Grain corn (*S. cernuum*; white corn, coconut corn,

gaolyan, etc.), sweet corn (*S. saccharatum*), durra (*S. durra*), broom corn (*S. technicum*), herbaceous corn (*S. sudanense*). , *S. alnum*) are more common. Homeland - Central Africa. The root network of corn is a poplar root, the main part of which develops in the plowed layer of the soil, and some roots penetrate to a depth of 2.5 m. The stem is a straw stem, 0.5–7 m tall, on average 2–3 m, and the inside of the stem is filled with porous parenchymal tissue. The stem is collected (1-8). The leaves are broad, 10-25. The inflorescence is 15-60 cm long, with 2 spikes at the ends of the lateral branches, one of which bears fruit. Corn is pollinated from the outside. The grain is small and without shell, round, ovoid. Color white or yellow. 1000 grains weigh 20-70 grams. The grain does not have a dormant period and can be sown after harvest.

Oats are an important cereal crop, the grain is used for food. Cereals are used to make cereals, flour, alcohol, and starch, to make bread, and to be used as fodder for cattle and poultry. The blue mass is ensiled. The grain is nutritious, contains 65-75% starch, 10-15% protein (lysine), up to 3.5% fat. 100 kg of oats is equivalent to 119 feed units. There are 23.5 nutrients in 100 kg of green mass, 22 in silage and 49.2 in hay. Stem juice contains 10-15% of sugar and produces molasses.

Broomsticks and brushes are made from broomsticks. Oats are also grown as a secondary crop. It is an annual plant. Resistant to drought and heat. Tolerates drought in soil and air. Tolerates temperatures of 30-40 °. Light-loving, short-day plant. Not demanding to soil, but grows well in porous soils. Resistant to salt, grows slowly at the beginning of the growing season. The field is plowed to a depth of 28-30 cm with a plow. If the soil is dry, it is irrigated before plowing and 10-15 tons of manure, 50-60 kg of phosphorus and 40-50 kg of potassium are applied per hectare. In spring (April-May), when the temperature is 13-15 °, it is planted in wide rows (60-70 cm between rows). Seed sowing rate is 5-10 kg / ha, sowing depth is 3-5 cm, seedling thickness is 70-100 thousand bushes per hectare. 2-3 treatments are performed between the rows. Sown seeds germinate in 10-15 days, accumulate in 25-30 days, enter the tube wrapping period in 40-50 days, germination period lasts 55-65 days, flowering begins 5-6 days after germination.

Varieties: In Uzbekistan, 3 types of corn (groups of grain corn, sweet corn and broom corn) are grown mainly in the irrigated saline lands of the Republic of Karakalpakstan, Khorezm, Bukhara regions, Fergana and Mirzachol. Kattabosh, Chillaki, Uzbekistan 5, Sangzor, Uzbekistan 18, Karlik (Pastak) and other varieties are planted on irrigated lands.

Pests of corn: lice, caterpillars, nightshades, stem moth, caradrina, diseases, powdery mildew, stem and root rot, bacteriosis.

Origin of the variety: a selection variety of the Scientific and Production Center "Altyn Bashak" of the Republic of Karakalpakstan. Variety authors: Massino IV Yedenbayev variety of medium height, 150-175 cm, broom erect, large, ovoid. One broom weighs 180-189 g. The variety ripens quickly, the vegetation period is 129-131 days. The variety is resistant to salt and drought.

Suitable for mechanical harvesting. Average yield: 61.4 s / ha. Protein content is 11.2%, grain yield is 79.4-80.0%.

The plant is recognized as an invasive species in Indonesia, Thailand, the Philippines, a number of U.S. states, Cuba, Nicaragua, Chile, Colombia, Peru, New Zealand, and a number of islands in the Pacific Ocean.

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TUPROQ HOLATINI YAXSHILASHDA BIOCHAR – KOMPOSTNI QO‘LLASH

Annotatsiya. Biochar va kompostni (biochar-kompost) birgalikda qo‘llash tuproqni yaxshilashning yuqori istiqbolli va samarali usuli sifatida tan olingan. Turli tuproqlarda biochar-kompostning takomillashtirish ta’siri baholanadi va keyingi tadqiqotlar uchun yo‘nalishlar va qo‘llash bo‘yicha takliflar ishlab chiqiladi. Umuman olganda, biochar-kompost tuproq organik moddalarining yuqori minerallasuv tezligini, fosfor yetishmasligi va alyuminiy toksikligini yumshatadi. Biochar-kompost uglerodni ajratib olish va tuproqning fizik-kimyoviy xususiyatlarini yaxshilash orqali mo‘tadil qishloq xo‘jaligi tuproqlarini uzoq muddatli barqaror boshqarishga yordam beradi. Biochar-kompost tuproqdagi suv tanqisligi yoki yuqori sho‘rlanish xavfini kamaytirish va natijada tuproq sharoitining yomonlashuvini yaxshilash orqali quruq va sho‘rlangan tuproqlarni qayta tiklashda ijobiy samaradorlikni ko‘rsatdi.

Kalit so‘zlar: Biochar, kompost, tuproq unumdorligi, degradatsiya.

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USE OF BIOCHAR - COMPOST TO IMPROVE SOIL CONDITION

Annotation. The joint application of biochar and compost (biochar-compost) is recognized as a very promising and effective method of soil improvement. The improving effect of biochar compost on various soils is evaluated, directions and application proposals for further research are being developed. In general, biochar compost reduces the high rate of mineralization of soil organic matter, phosphorus deficiency and aluminum toxicity. Biochar compost helps in the long-term sustainable management of temperate agricultural soils by capturing carbon and improving the physico-chemical properties of the soil. Biochar compost has shown positive effectiveness in restoring dry and saline soils by reducing the risk of water scarcity or high salinity of the soil and, as a result, improving the deterioration of soil conditions.

Keywords: Biochar, compost, soil fertility, degradation.

Tuproq unumdorligi ekinlardan yuqori va sifatli hosil yetishtirish, atrof-muhit sifati va tirik organizmlar salomatligini saqlash uchun zarurdir. [6]. Biroq, butun dunyo bo'ylab tuproqlar degradatsiyasi ulushi ortib borayotganligi sababli, tuproqlar degradatsiyasini yaxshilash uchun tegishli boshqaruv strategiyasini ishlab chiqish zarurligi haqida xabardorlikni oshirish kerak [4, 11]. Biochar va kompost kabi organik birikmalar tuproqda ekologik tozaligi, samaradorligi va iqtisodiy hayotiyli tufayli tuproq degradatsiyasini yaxshilash uchun keng taklif qilinadi. [1, 8, 7].

Tuproqlar degradatsiyasiga biochar va kompostning birgalikda qo'shilishi tuproqlar degradatsiyasini oldini olishda katta imkoniyatlarga ega. Biochar ham, kompost ham tuproqlar degradatsiyasining o'simliklarning o'sishi yoki ekin yetishtirishdagi cheklovlarini, masalan, suv tanqisligi, zichlanish, unumdorlikning pastligi va ifloslantiruvchi moddalarning zaharliliği kabilarni yumshatishda samarali [10].

Unumdorligi past tuproqlarning biomassa hosildorligi biochar va kompost qo'shilmasi qo'llanilgandan keyin 305 % ga ko'tarilganligini, ammo biomassa hosildorligi asl biocharni qo'llaganidan keyin kamaydi [2]. Kompost va biochar birgalikda uglerodni barqarorlashtirish va sekvestrlashda faqat biocharga qaraganda samaraliroq ekanligini aniqlandi [12].

Biochar kompostning tuproqda saqlanish vaqtini uzaytirishi mumkin va kompost biochar bilan ta'minlangan ozuqa moddalarining yetishmasligi muammosini hal qilishi mumkin [3, 13]. Biochar yordamida kompostlashni yaxshilash oxir-oqibatda kompost sifatiga, jumladan ozuqaviy qiymati, xavfsizligi va barqarorligiga hissa qo'shadi [9]. Misol uchun, biochar va kompost tarkibidagi ozuqa moddalari va organik moddalarning ko'payishi tuproq sifati va mikroblarning o'sishiga yordam beradi, bu esa o'simliklarning o'sishiga yordam beradi. Biochar va kompostning ko'payishi ozuqa moddalarini saqlash qobiliyatini yaxshilash uchun foydali bo'lishi mumkin. Biochardagi funktsional guruhlar miqdori va kompost tarkibidagi mikroorganizmlar sonining ko'payishi ularning ifloslantiruvchi moddalarni o'zlashtirish qobiliyatini yaxshilashi mumkin [5].

Biocharni tuproq xususiyatlariga ta'siri. Biocharning o'ziga xos xususiyatlari tufayli tuproqning fizik-kimyoviy va biologik xususiyatlari biocharni qo'llashdan keyin ma'lum darajada ta'sir qiladi. Misol uchun, biochar tuproqning massa zichligini kamaytirishi va tuproq g'ovakligini oshirishi mumkinligi isbotlangan. G'ovakli struktura biocharga tuproqning suvni ushlab turish qobiliyatini samarali yaxshilashga va ko'proq suvni saqlashga imkon beradi. Biochar bilan ishlov berish tuproqning agregat qobiliyati barqarorligini oshirishi mumkin, shu bilan tuproq sifatini yaxshilaydi va tuproq degradatsiyasini oldini oladi. Bundan tashqari, biochardan o'simliklar va tuproq mikroblari uchun ozuqa manbai sifatida ham foydalanish mumkin. Biochar qo'shilishi tuproqdagi organik uglerod va N, P, K, Ca, Mg va S kabi mineral ozuqa moddalarini ko'paytirdi.

Kompostni tuproq xususiyatlariga ta'siri. Butun dunyoda keng qo'llaniladigan tuproq o'zgarishi sifatida kompost tuproqning fizik va kimyoviy xususiyatlarini yaxshilashi va tuproq sifatini oshirishi mumkin. Masalan, organik moddalarga boy kompost qo'shilishi tuproqning massa zichligini sezilarli darajada kamaytirishi mumkin. Kompost qo'llanilgan tuproq (0-50 sm) varianti va nazorat variantlari taqqoslanganda kompost qo'llanilgan tuproqlarning massa zichligi 19-21% ga kamayganini kuzatildi. Bundan tashqari, kompost tuproqning infiltratsiya tezligini oshirishi va tuproqning suv ushlab turish darajasini oshirishi mumkin. Shu bilan bir qatorda, u tuproq eroziyasi bosimini yumshatish orqali buzilgan tuproqlarni tiklash uchun qo'llanilishi mumkin. Kompost tuproq zarralarini organik moddalar bilan flokulyatsiya qilish yoki tuproq mikroba faolligini oshirish orqali tuproqlarning mikro- va makro-aglomeratsiyasini rag'batlantirish orqali, ayniqsa, gil va qumloq tuproqlarda tuproq agregatlarining barqarorligini oshirishi mumkin. Darhaqiqat, kompost tuproqning fizik va kimyoviy xususiyatlarini yaxshilashdan ko'ra ko'proq o'g'it vazifasini bajaradi. Kompost uzoq vaqtdan beri arzon va samarali organik o'g'it sifatida qabul qilingan.

Tuproqqa biochar va kompostni birgalikda qo'llash. Hozirgi vaqtda biocharni kompost bilan birgalikda ishlab chiqarish va tuproqqa qo'llashning uchta keng tarqalgan usuli mavjud: (1) biochar va kompost aralash tirgandan so'ng darhol tuproqqa, inkubatsiyasiz; (2) biocharni biomassa bilan kompostlash (masalan, guruch somoni, tovuq go'ngi), uni birgalikda kompostlash deb atash mumkin, shundan so'ng kompostlangan aralash tuproqqa solinadi; (3) biocharni biomassa bilan kompostlash, undan keyin kompostni olib tashlash va faqat kompostlash jarayonida o'zgartirilgan biocharni saqlab qolish, shundan so'ng o'zgartirilgan biochar tuproqqa solinadi.

Xulosa qilib aytadigan bo'lsak, biochar-kompostni qo'llash organik moddalarni minerallasuvining yuqori sur'atlari bilan buzilgan tuproqlarning ko'pchiligining holatini yaxshilaydi va qishloq xo'jaligi ekinlarining hosildorligini sezilarli darajada tiklashga imkon beradi.

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KO‘PHADNING HAQIQIY ILDIZLARI. KO‘PHADLARNING KELITIRILMASLIK ALOMATLARI

Annotatsiya: Ko‘phadlar nazariyasida “tub son“ vazifasini o‘taydigan ko‘phadlar keltirilmaydigan ko‘phadlar deyiladi. Quyida ko‘phadlarning keltirilmaslik alomatlari bilan tanishamiz.

Kalit so‘zlar: haqiqiy ildizlari, ko‘phad, koeffitsent, keltirilmaydigan ko‘phad, keltirilmaslik alomatlari, ildiz, segment.

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THE TRUE ROOTS OF THE POLY. INCREDIBLE SYMPTOMS OF MULTIPLES

Abstract: In the theory of polynomials, polynomials that act as "prime numbers" are called irreducible polynomials. Below we will get acquainted with the symptoms of polynomials.

Key words: real roots, polynomial, coefficient, irreducible polynomial, signs of irreducibility, root, segment.

Ko‘phadning haqiqiy ildizlari

Asosan quyidagi ikkita teoremadan foydalanamiz:

Teorema 1. Faraz qilaylik, $f(x)$ funksiya $[a,b]$ segmentda berilgan bo‘lib, quyidagi shartlarni bajarsin:

1) $f(x) \in C[a,b]$;

2) Segmentning chetki nuqtalari a va b larda har xil ishorali qiymatlarga ega, ya'ni:

$$f(a) < 0 < f(b) \text{ yoki } f(a) > 0 > f(b)$$

bo'lsin.

U holda shunday $c \in (a, b)$ nuqta topiladiki, $f(c) = 0$ bo'ladi.

Teorema 2. Faraz qilaylik, $f(x)$ funksiya $[a, b]$ segmentda berilgan bo'lib, quyidagi shartlarni bajarsin:

- 1) $f(x) \in C[a, b]$;
- 2) $\forall x \in (a, b)$ da $f'(x)$ mavjud va chekli;
- 3) $f(a) = f(b)$ bo'lsin;

U holda shunday $c \in (a, b)$ nuqta topiladiki, $f'(c) = 0$ bo'ladi.

Biz qaraydigan masalalar faqat ko'phadlarga doir bo'lganligi uchun keyingi qatorlarda *Teorema 1* ni 1-sharti, *Teorema 2* ni esa 1- va 2-shartlarini tekshirmaymiz.

Lemma 1. Ixtiyoriy toq darajali ko'phad kamida bitta haqiqiy ildizga ega.

Isbot. Bizga toq darajali $p(x)$ ko'phad berilgan bo'lsin. Umumiylikka ziyon yetkazmagan holda uning bosh koeffitsientini musbat deb faraz qilishimiz mumkin. U holda quyidagi munosabatlarga egamiz:

$$\lim_{x \rightarrow -\infty} p(x) = -\infty \text{ va } \lim_{x \rightarrow +\infty} p(x) = +\infty.$$

Bundan uzluksiz funksiyalarda limit xossalariga ko'ra shunday $a < 0$ va $b > 0$ sonlari topiladiki, ular uchun mos ravishda $p(a) < 0$ va $p(b) > 0$ munosabatlar o'rinli bo'ladi. Demak $f(x) = p(x)$ funksiya $[a, b]$ segmentda *Teorema 1* ning barcha shartlari qanoatlantirar ekan, bundan biror $c \in (a, b)$ soni uchun $p(c) = f(c) = 0$ tenglik o'rinli bo'lishi kelib chiqadi.

Lemma 2. Agar $p(x)$ ko'phad n ta haqiqiy ildizga ega bo'lsa, u holda $p'(x)$ ko'phad kamida $n-1$ ta haqiqiy ildizga ega bo'ladi.

Isbot. Ko'phadning haqiqiy ildizlari $x_1, x_2, x_3, \dots, x_n$ bo'lsin. Umumiylikka ziyon yetkazmagan holda $x_1 \leq x_2 \leq x_3 \leq \dots \leq x_n$ deb faraz qilishimiz mumkin. Quyidagi ikkita holat bo'lishi mumkin:

1) Biror i (lar) uchun $x_i < x_{i+1}$. U holda $p(x_i) = p(x_{i+1}) = 0$ ekanligini inobatga olsak, *Teorema 2* ko'ra shunday $y_i \in (x_i, x_{i+1})$ topiladiki, bu uchun $p'(y_i) = 0$ munosabat o'rinli bo'ladi;

2) Biror i (lar) uchun $x_i = x_{i+1}$. U holda Bezu teoremasiga ko'ra ushbu $p(x) = (x - x_i)^2 \cdot q(x)$ tenglikni qanoatlantiruvchi $q(x)$ ko'phad mavjud bo'ladi. Bundan:

$$p'(x) = (x - x_i)(2 \cdot q(x) + (x - x_i)q'(x))$$

tenglikka ega bo‘lamiz. Demak $y_i = x_i (= x_{i+1})$ soni uchun $p'(y_i) = 0$ tenglik o‘rinli ekan.

Har ikkala holatda ham $p'(y_i) = 0$ tenglikni qanoatlantiruvchi $y_i \in [x_i, x_{i+1}]$ soni topiladi, bu yerda $i = \overline{1, n-1}$ (jami $n-1$ ta).

Misol 1. a_1, a_2, \dots, a_n noldan farqli turli haqiqiy sonlar uchun quyidagi

$$\frac{a_1}{a_1 + x} + \frac{a_2}{a_2 + x} + \dots + \frac{a_n}{a_n + x} = n$$

tenglama n ta haqiqiy ildizga ega ekanligini isbotlang.

Yechim. Tenglamani boshqacha ko‘rinishda yozib olamiz:

$$\frac{a_1}{a_1 + x} - 1 + \frac{a_2}{a_2 + x} - 1 + \dots + \frac{a_n}{a_n + x} - 1 = 0.$$

yoki

$$x \left(\frac{1}{a_1 + x} + \frac{1}{a_2 + x} + \dots + \frac{1}{a_n + x} \right) = 0.$$

Endi

$$p(x) = (x + a_1) \cdot (x + a_2) \cdot \dots \cdot (x + a_n)$$

deb belgilash kiritsak, tenglamani quyidagi:

$$x \cdot \frac{p'(x)}{p(x)} = 0$$

ko‘rinishga kelishini ko‘rish qiyin emas. Bu yerda $p(x)$ aniqlanishiga ko‘ra n ta turli haqiqiy ildizga ega ($^{-a_i}$ lar), demak *Lemma 2* ga ko‘ra, $p'(x)$ ko‘phad $n-1$ ta turli

haqiqiy ildizga ega bo‘ladi, bundan $p'(x)$ ni ildizlari $^{-a_i}$ lar turli bo‘lganligi uchun ular bilan ustma-ust tushmaydi va turli bo‘ladi (*Lemma 2* ni isbotini 1- holi). Demak suratidagi $p'(x)$ ko‘phad hisobiga tenglamada $n-1$ ta turli haqiqiy ildiz bor (yechimlar ichida 0 yo‘qligini ko‘rsatish oson), va n -ildiz esa ko‘paytmadagi x hisobiga 0 bo‘ladi.

Masala 2. a_1, a_2, \dots, a_n noldan farqli turli haqiqiy sonlar uchun quyidagi:

$$p(x) = x^n + a_2 x^{n-2} + \dots + a_{n-1} x + a_n$$

tenglama n ta haqiqiy ildizga ega bo‘lsa, $a_2 \leq 0$ ekanligini isbotlang.

Yechim. Teskarisini faraz qilamiz, ya‘ni $a_2 > 0$ bo‘lsin. Endi *Lemma 2* ni $n-2$ marta quyidagicha qo‘llaymiz:

$p(x)$ dan n ta haqiqiy ildiz $\Rightarrow p'(x)$ da (kamida) $n-1$ ta haqiqiy ildiz $\Rightarrow p''(x)$ da (kamida) $n-2$ ta haqiqiy ildiz $\Rightarrow \dots \Rightarrow p^{(n-2)}(x)$ da esa (kamida) 2 ta haqiqiy ildiz. Boshqa tomonidan farazimizga ko‘ra ($a_2 > 0$):

$$p^{(n-2)}(x) = \frac{n!}{2} \left(x^2 + \frac{a_2}{n(n-1)} \right) > \frac{n!}{2} \cdot \frac{a_2}{n(n-1)} > 0.$$

Tengsizlik bizda bor (ya'ni $p^{(n-2)}(x)$ ko'phad haqiqiy ildizga ega emas). Bu esa ziddiyat, demak $a_2 \leq 0$ bo'lishi kerak ekan.

Ko'phadning keltirilmaslik alomati

Bizga koeffitsentlari butun sonlardan iborat ko'phad berilgan bo'lsin. Bunday ko'phadlarning hammasi ratsional sonlar maydonidagi ko'phadlar ekanligi ma'lum. Shunday qilib,

$$f(x) = a_0 + a_1x + a_2x^2 + \dots + a_nx^n$$

ko'phadning koeffitsentlari butun sonlar deb faraz qilamiz. Barcha $a_0, a_1, a_2, \dots, a_n$ koeffitsentlarining eng kata umumiy bo'luvchisini d bilan belgilaymiz. Agar d ni qavsdan tashqariga chiqarsak,

$$f(x) = d\phi(x)$$

hosil bo'ladi. Bunda $\phi(x)$ ko'phadning koeffitsentlari 1 dan iborat eng katta umumiy bo'luvchiga ega. Agar P maydonda darajasi nolga teng bo'lmagan $f(x)$ ko'phadni shu P maydonda va darajalari $f(x)$ ning darajasidan kichik ikkita $g(x)$ va $h(x)$ ko'phad ko'paytmasi sifatida ifodalash (ko'paytmaga keltirish) mumkin bo'lsa, $f(x)$ ni P maydonda *keltiriladigan ko'phad* deyiladi. Bunday ko'paytmasi sifatida ifodalash (ko'paytmaga keltirish) mumkin bo'lmasa, u P maydonda *keltirilmaydigan ko'phad* deyiladi. Har qanday sonlar maydonida birinchi darajali istalgan ko'phad shu maydonda keltirilmaydigan ko'phaddir.

Teorema. (Eyzenshteynning keltirilmaslik alomati). Agar butun koeffitsentli

$$f(x) = a_0 + a_1x + a_2x^2 + \dots + a_nx^n$$

ko'phadning a_n bosh koeffitsentidan boshqa hamma koeffitsenti P tub songa bo'linsa va ozod had P ga bo'lingan holda P^2 ga bo'linmasa, $f(x)$ – ratsional sonlar maydonida *keltirilmaydigan ko'phad* bo'ladi.

Misol 3. Berilgan ko'phadning Q maydonda keltiriladimi?

$$f(x) = x^4 + 3x^3 - 15x + 9.$$

Yechim. $f(x)$ ko'phadning bosh koeffitsentidan boshqa hamma koeffitsenti 3 bo'linadi, ozod hadi esa 3^2 ga bo'linadi. Demak, Eyzenshteyn alomatiga ko'ra berilgan $f(x)$ ko'phad keltiriladigan ko'phad ekan.

Teorema. (Perronning keltirilmaslik alomati). Agar butun koeffitsentli

$$f(x) = a_0 + a_1x + a_2x^2 + \dots + a_nx^n$$

$a_n \neq 0$ ko'phad quyidagi ikkita shart:

- a) $|a_{n-1}| > 1 + |a_{n-2}| + \dots + |a_0|$;
 b) $|a_{n-1}| = 1 + |a_{n-2}| + \dots + |a_0|$, $f(\pm 1) \neq 0$

dan birini qanoatlantirsa $f(x)$ butun sonlar maydonida keltirilmaydigan ko'phad bo'ladi.

Misol 4. Berilgan ko'phadning butun sonlar maydonda keltiriladimi?

$$f(x) = 2x^5 - 4x^4 + 9x^3 + 5x^2 + 7x - 3.$$

Yechim. Perronning keltirilmalik alomatining birinchi shartiga ko'ra tekshiramiz. Berilgan $f(x)$ ko'phad quyidagi $|a_{n-1}| > 1 + |a_{n-2}| + \dots + |a_0|$ bajarilmasligi sababli butun sonlar maydonida keltiriladigan ko'phad ekanligi kelib chiqadi.

Teorema. (Konning keltirilmalik alomati). Agar p tub soni 10 lik asosga ko'ra;

$$p = a_n 10^n + a_{n-1} 10^{n-1} + \dots + a_1 10^1 + a_0$$

kabi ifodalansa, u holda:

$$f(x) = a_0 + a_1 x + a_2 x^2 + \dots + a_n x^n$$

bunda $0 \leq a_i \leq 9$ butun koeffitsentli ko'phad butun sonlar maydonida keltirilmaydigan ko'phad bo'ladi. Teoremani boshqa asoslarga quyidagicha umumlashtirish mumkin:

Faraz qilaylik $b \geq 2$ natural son va

$$p(x) = a_k x^k + a_{k-1} x^{k-1} + \dots + a_1 x^1 + a_0,$$

$0 \leq a_i \leq b-1$ qandaydir ko'phad bo'lsin. Agar $p(b)$ tub son bo'lsa, u holda $p(x)$ ko'phad $Z[x]$ da keltirilmaydigan ko'phad bo'ladi.

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PEDAGOGICAL FOUNDATIONS OF USING SONG MATERIAL IN ENGLISH LESSONS

***Abstract:** The integration of authentic texts into teaching practice is becoming increasingly important. It is known that a song, especially an authentic one, is an important element of any language and therefore deserves the closest attention. In addition, a song is a great means of increasing interest in both the country of the language being studied and the language itself, as well as a very effective way of repeating language material, especially at the senior stage of education.*

***Key words:** authentic materials, foreign language communicative activity, listening skills, intercultural, songs.*

In modern methods of teaching foreign languages, the possession and process of mastering foreign language communicative activity are qualified as intercultural communication. Among the features of intercultural communication in learning foreign language is the use of authentic materials that contain cultural references. Authentic materials are understood as text materials that are not specially processed and reflect natural language use.

Teaching a foreign language should be structured in such a way that the student himself naturally and organically comes to the need to produce precisely those authentic texts that are provided by the teacher. The student should know some cultural patterns well enough, have an idea of some cultural patterns and adequately respond to the speech and non-speech behavioral codes of his foreign interlocutor.

An English song is a wonderful methodological tool for developing various skills and primary knowledge about another culture. It is used for various purposes, including: developing phonetic, lexical and grammatical skills, improving pronunciation and listening skills.

But in order for the song to play its positive role, it is necessary to adhere to a certain algorithm for its use. You need to start with a careful selection of the song. Here you should adhere to some principles, namely: the song must be authentic, it must correspond to the age and interests of the students (ideally, chosen by the students themselves). It is also necessary for the song to correspond to the level of the students' language, the methodological value of the song and

some correlation with the curriculum. If the choice of the song corresponds to these principles, then it can potentially be very useful. Then the teacher develops a system of exercises for this song.

After listening, which should be preceded by a preparatory stage, since listening to a song is a fairly complex level of listening, the teacher conducts some tasks, depending on the goal set by him. If the teacher has the goal of developing socio-cultural competence, then the system of exercises will be aimed at focusing the students' attention on those elements of cultural information that are contained in the text.

If this algorithm is followed, the effectiveness of using the song will be high. It is also necessary to remember that not only the lyrics of the song are of interest to us, but also the music itself, which can create a favorable creative atmosphere in the classroom, stimulate the imagination of students.

For the development of socio-cultural competence, it is important for the text to contain the following information: geography and history of the country of the language being studied, facts of political and social life, facts of everyday life, the presence of ethno-cultural information, various kinds of symbols, the presence of information about the behavioral culture, including the peculiarities of behavior in various situations, conversational formulas, norms and values of society.

Some features of the environment and property are also reflected in the songs. For some reasons, the everyday culture of Uzbek differs from that of Great Britain and the USA, so some realities in the environment of Americans and Britons may be unfamiliar to an Uzbek person. For example, one of the songs mentions a mantelpiece. Students should learn that a fireplace and a mantelpiece with a ticking clock are part of the home furnishings of any British person, and that the story in the song is about an ordinary resident of England.

Songs can tell you how people spend their time in the country of the language being studied. For example, the concept of “party” is often found in songs. Students should be explained that a party in an English-speaking country is held at someone’s home. A large number of people are invited to the party, but it is considered impolite to come without an invitation. This is different from how people have fun in our country.

The song “An Englishman in New York” depicts the traditional image of an English gentleman, leisurely strolling with a cane in his hands along the streets of New York. Here, the British gentleman, true to his traditional views, encounters the misunderstanding of American society. With the help of this song, one can trace the formation of the British mentality: what factors could have influenced it, what ideal of behavior arose among the British in historical development (the image of a gentleman and a lady), whether this phenomenon finally disappeared, or whether gentlemen simply changed their manner of dressing.

Thus, it is obvious that the song material is really rich in information necessary for the development of socio-cultural competence, with the help of a song one can really raise its level.

However, it should be noted that not all songs carry the same cultural load. Some songs can be used to study a topic, others contain only individual facts that can affect the development of socio-cultural competence and this is a problem, because in this case we simply do not have enough time to listen to a large number of songs in order to learn some of the facts contained in them. In the context of strict time frames of the curriculum, one of the tasks of the teacher is the effective use of study time in such a way as to fulfill educational tasks to the maximum extent. Thus, we are faced with the problem of how to use study time most effectively using interesting, motivating types of work, in this case, authentic musical material.

As a solution to this problem, we can offer several types of work with a song that contains the information we are interested in.

The first type is working with a whole song. In order to use this type of work in the classroom, it is necessary to have an English-language song that is truly saturated with socio-cultural information. However, it is quite difficult to find a song that would meet several requirements at once: it would be interesting to students and would have methodological value.

Communicatively oriented teaching of listening to authentic materials involves developing the ability to understand foreign language speech in acts of natural oral communication, and songs are quite effective material for this.

Despite the importance of teaching listening, it is often considered a by-product of speaking, and therefore work on it is episodic; in addition, teachers are poorly aware of the psychological and linguistic complexities of listening, levels of perception and ways to determine them.

The task of developing the ability to understand foreign language speech in natural conditions is not only to achieve an understanding of the meaning of a foreign language text, but to provide students with the opportunity to communicate in the language being studied, i.e., to teach auditory reception as a communicative act at the intercultural level.

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AVTOMATIK DISPETCHERLIK TIZIMI NASOSLARNI NAZORAT QILISH VA BOSHQARISH

Annotatsiya: Hozirgi vaqtda nasos stansiyalarini zamonaviy avtomatik tizimlardan foydalangan holda boshqarish, nasos agregatlarining ish parametrlarini o'lchash va ularni boshqarish muhim ahamiyatga ega. Bu nasos agregatlarini va nasos stansiyalarining tegishli elektr jihozlarini kompleks boshqarishni, ya'ni avtomatik jo'natish va boshqarish tizimlarini boshqarishni talab qiladi. nazorat qilish usulidan foydalanish yuqori energiya samaradorligi va nasos agregatlarining ishlash ko'rsatkichlarini nominallashtirishga erishishni ta'minlaydi.

Kalit so'zlar: O'lchov asboblari va parametrlari, nasosni avtomatik boshqarish shkafi, harorat, daraja, datchiklar, masofadan boshqarish rejimi, aloqa boshqaruvchilari, radiomodem, radio antenna, adapter bloki.

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AUTOMATIC DISPATCH SYSTEM CONTROL AND CONTROL OF PUMPS

Abstract: currently, it is relevant to control pumping stations using modern automatic systems, measuring the operating parameters of pumping units and controlling them. for this, it is necessary to have a comprehensive control of pumping units and associated electrical equipment of pumping stations, that is, control of automatic dispatching and control systems. the use of the control method ensures the achievement of high energy efficiency and nominalization of performance indicators of pumping units.

Key words: Measuring instruments and parameters, automatic pump control cabinet, temperature, level, sensors, remote control mode, communication controllers, radio modem, radio antenna, adapter unit.

Kirish

Dispetcherlik – umumiy texnologik jarayon bilan bog'langan hududiy ajratilgan nasos agregatlarini markazlashtirilgan nazorat qilish va boshqarish. Dispetcherlash tizimi suv olish, suv tozalash, suv berish va iste'molchilar o'rtasida suv taqsimlash tizimlari uchun ko'zda tutilishi kerak. Avtomatlashtirilmagan ob'ektlarni (kichik nasos stantsiyalari va navbatdagi

xodimlar bilan tozalash inshootlari) dispetcherlashtirish telefon aloqasi yordamida amalga oshirilishi mumkin. Yirik va avtomatlashtirilgan ob'ektlarni dispetcherlash, odatda, telemexanika vositalari bilan amalga oshiriladi. Telemexanika tizimlari (TM) bajariladigan funktsiyalarining xususiyatiga ko'ra telesignalizatsiya (TS), teleo'lchash (TI) va teleboshqarishga (TU) bo'linadi. Telesignalizatsiya tizimlari (TC) dispetcher punktiga (DP) uskunalar va tizimlarning holati va holati to'g'risidagi signallarni uzatadilar: agregat ishlaydi yoki ishlamaydi, yopiq yoki ochiq, filtr ishda yoki yuvishda, yoki u ishlamaydigan holatda (ta'mirda) bo'ladi. Teleo'lchash tizimlari DPga o'lchanadigan parametrlar to'g'risida ma'lumot beradi: nasos stantsiyalarining kollektoridagi bosim, suvlar va magistrallardagi suv sarflanishi, rezervuarlardagi suv darajasi, suv mutligi yoki rangligi, koagulyant va xlordlari va boshqa. Suv ta'minoti ob'ektlarida axborot to'plash va uni DP-ga o'tkazish uchun, shuningdek DP bilan buyruqni ob'ektga o'tkazish uchun nazorat punktlari (KP) jihozlanadi. Axborotni berish aloqa kanallari orqali amalga oshiriladi. Aloqa kanallari maxsus nazorat kabellari, telefon aloqalari, shuningdek radiokanallar bo'lishi mumkin. Ko'p o'tkazgich aloqa kanali har bir boshqaruv ob'ektini (nasos agregati, ыsirgich) boshqaruv organi (tugma, kalit) yoki axborotni qabul qiluvchi uskunalar (tablo, signal lampasi, o'lchash pribor) bilan bog'laydi. Ko'p o'lchamli aloqa tizimi iqtisodiy emas, dispetcherlik punktidan kichik masofadagi boshqaruv ob'ektlari kichik bo'lganda foydalaniladi. Dispetcherlik punktidan ancha aloqada bo'lgan boshqaruv ob'ektlari ko'p bo'lganda, moslamalar yoki telefon parlari orqali amalga oshiriladigan axborotni kichik o'tkazish tizimidan foydalanish afzal bo'ladi. Bunda telemexanika tizimi signallarni ajratish uskunolari (shifраторlar va kod deshifраторlari, filtrlar, signallar tarqatuvchilari) bilan jihozlanadi. Shunday qurilmalar radiokanallardan foydalanishda zarur [2, 35-37].

ADTNB nasos uskunalarini avtomatik boshqarish va korxonadagi nasos stantsiyalari majmuasining dispetcher nazoratini avtomatlashtirishni ta'minlaydi. ADTNB quyidagi afzalliklarni beradi:

-zamonaviy texnik vositalar va nazorat usullarini qo'llash, inson omilini bartaraf etish hisobiga nasos uskunasining ishonchliligi, xavfsizligi va xizmat muddatini oshiradi;

-nasoslarning ishlashi, jihozlarning holati to'g'risidagi ma'lumotlarni tezkorlik bilan yetkazib berish va favqulodda vaziyatlarda dispetcher tomonidan qaror qabul qilish hisobiga nasos stantsiyalarining ishonchliligi va barqarorligini oshiradi;

-yong'in signalizatsiyasini, nasos stantsiyasiga ruxsatsiz kirishni, yong'inni o'chirish tizimini avtomatik ravishda ishga tushirishni ta'minlaydi;

- dispetcherlik xodimlari uchun tezkor va qulay bo'lgan mehnat sharoitlarini yaratadi, zamonaviy dasturiy ta'minot va avtomatik texnik vositalardan foydalanish orqali mahsulot ishlab chiqarish standartlarini yaxshilaydi;

-nasos uskunasining ishlashini tahlil qiladi va texnologik buzilishlarni bartaraf

etish jarayonida, shu jumladan favqulodda vaziyatlarda tezkor dispetcherlik xodimlarining harakatlarini nazorat qiladi;

-energiya sarfini kamaytiradi, nasos uskunalari samaradorligini va texnologik jarayonning samaradorligini oshiradi;

-elektr motorlar uchun selektiv himoya vositalarini qo'llash orqali nasos uskunalari ni ishlatish va ta'mirlash xarajatlarini kamaytiradi [1, 10-11].

Tizimning tuzilishi(strukturas) va funktsiyalari.

Avtomatlashtirilgan dispetcherlik nazorati va boshqaruvi tizimi uch darajali tuzilishga ega bo'lib uni quyidagi bosqichma-bosqichda qurish mumkin (1-rasm).

Nasos uskunalari boshqarishning 1-darajasi

Nasos uskunasi avtomatik yoki qo'lda boshqarishni ta'minlash uchun nasosni avtomatik boshqarish shkafi, bosim, harorat, daraja, oqim sensorlari va boshqalar. Boshqaruv shkafi yordamida quyidagilarni amalga oshirish mumkin:

- favqulodda holatlarda nasoslarni zaxiraga o'tkazish;
- nasoslarning ishlash muddatini bir xilda tugashini ta'minlash uchun vaqti-vaqti bilan almashtirish;

- quruq va past kirish bosimida ishlayotganda nasosni o'chirish;
- ortiqcha yuklanishda dvigatelni o'chirish;
- qisqa quvvat uzilishidan keyin yoqishni kechiktirish (elektr ta'minoti qisqa muddatda yo'qolgandan so'ng yoqishni to'xtatish);

- har bir dvigatel uchun dvigatel soatlarining hisobini yuritish;
- Zarur (kerakli) parametrlarni (bosim, harorat, daraja) o'lchash.

Nasos stantsiyasini boshqarishning 2-darajasi

Butun nasos stantsiyasining holatini nazorat qilishni, uskunaning ishlashi va boshqaruv markaziga uzatish haqida zarur ma'lumotlarni to'plashni, dispetcherlik buyruqlarini qabul qilishni va bajarishni (masofadan boshqarish rejimi – tele boshqarishni) ta'minlaydi.

Ikkinchi darajadagi tarkibga quyidagilar kiradi:

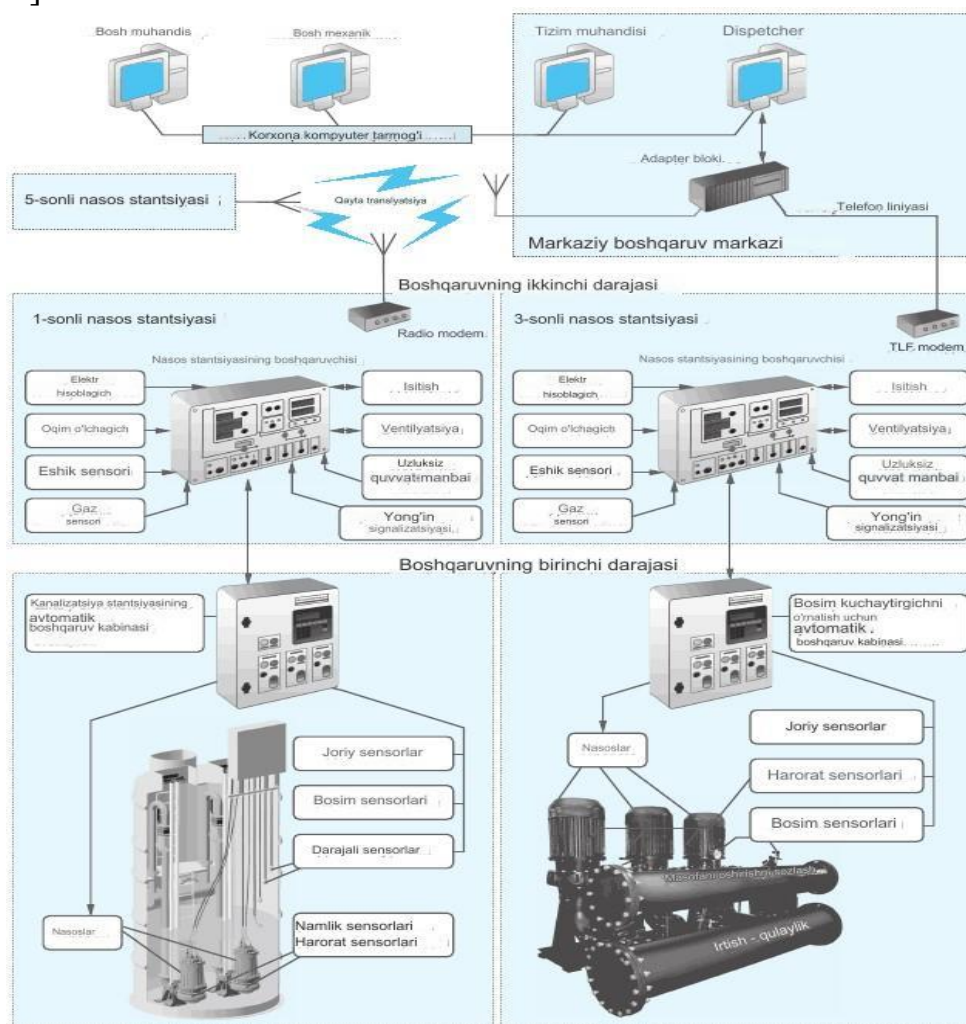
- aloqa boshqaruvchilari (kommunikatsiya nazoratchilari);
- raqamli elektr energiya hisoblagichlari;
- sarf (oqim) o'lchagichlar;
- nasos stantsiyasida eshik sensorlari;
- yong'inga qarshi signalizatsiya sensorlari;
- radio modem;
- radiostantsiya (yoki telefon modemi);
- antenna.

3- yuqori boshqaruv darajasi

Boshqarishning yuqori darajasi markaziy boshqaruv xonasining apparat va dasturiy ta'minotini o'z ichiga oladi. Uskunaga quyidagilar kiradi:

1. Dispetcher, tizim muhandisi va bosh muhandis uchun avtomatlashtirilgan ish stantsiyalari;
2. Adapter bloki (nasos stantsiyasi bilan turli aloqa kanallarini ulash uchun);
3. Elektr ta'minoti va antennaga ega radiostantsiya;

4. GPS signallari yordamida tizim vaqtini sinxronlashtirish uchun radio soat [2, 45-46].



1-rasm. Avtomatik dispecherlik tizimini nazorat qilish va boshqarishning strukturaviy sxemasi.

Natijalar. Avtomatlashtirilgan dispecherlik ish stantsiyasi quyidagilar uchun mo'ljallangan:

1. Nasos stantsiyasining holati to'g'risidagi axborotlar ma'lumotlar bazasida dispatcher uchun qulay memosxem shaklida yig'ish, qayta ishlash, ko'rsatish va avtomatik ravishda arxivga olish;
2. Nasos stantsiyasida suv va elektr energiyasi iste'molini hisobga olish;
3. Dispatcherga vizual va ovozli signal berish, shuningdek, favqulodda vaziyatlar protokoli va ma'lumotlar bazasida ro'yxatdan o'tish, o'lchangan parametrlarning belgilangan chegaralardan chetga chiqishi, nasos uskunasi ishdan chiqishi;
4. Ma'lumotlar bazasidan trendlar, jadvallar, diagrammalar ko'rinishida axborot taqdim etish;
5. Operatsion hujjatlarni yuritish (jurnallar, hisobotlar), smena va kundalik hisobotlarni

yaratish;

6. Nasos stantsiyasining qurilmalarini masofadan boshqarish;
7. Dispatcherlik harakatlarini avtomatik ravishda ro'yxatga olish;
8. Ikki tizimning texnik jihozlari holatini diagnostika qilish, tizim uskunalarida gi nosozliklarni mahalliyashtirish, signalizatsiya qilish va qayd etish;
9. Tizimga ruxsatsiz kirishdan parol bilan himoya qilish [3].

Xulosa o'rnida shuni aytish mumkinki, bugungi kunda nasos stansiyalarni zamonaviy avtomatik tizimlardan foydalangan holatda dispatcherlik boshqarish; nasos agregatlarining ishchi parametrlarini o'lchash, ularni nazorat qilish, monitoring qilish hamda masofadan ularning ishchi holatini kuzatish imkoniyatini yaratadi. Buning natijasida nasos stansiyalaridagi nasos agregatlari va ularga bog'liq elektrotexnik qurilmalari yuqori energiya samaradorligiga hamda nasos agregatlarining ish unumdorlik ko'rsatkichlarini nominallashtirishga erishiladi..

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"O`zbek tili va adabiyoti, tillar" kafedrasida o`qituvchisi*

IMOM AL BUXORIY ASARLARINI PEDAGOGIK AHAMIYATI

***Annotatsiya.** Har bir mamlakatning poydevori yosh avlod hisoblanadi. Yoshlar yurt kelajagidir. Yoshlarni har tomonlama yetuk va barkamol shaxs qilib tarbiyalash muhim vazifadir. Yosh avlodga kerakli bilimlarni berish orqali biz kelajagimiz poydevorini mustahkam qurishimiz mumkin. Yosh avlodga ilg'or bilim berishda ajdodlarimizning asarlaridan keng foydalanilmoqda. Ushbu maqolada muhaddis olim Imom al-Buxoriy asarlarining pedagogik ahamiyati keng yoritilgan.*

***Kalit so'zlar:** Imom al-Buxoriy, ta'lim, pedagog, tizim, yosh avlod, ta'lim-tarbiya, hadis, odob-axloq, ma'naviyat, madaniyat, pedagogika.*

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PEDAGOGICAL SIGNIFICANCE OF THE WORKS OF IMAM AL-BUKHARI

***Abstract.** The foundation of each country is the young generation. Youth is the future of the country. An important task is to educate young people so that they become mature and comprehensively developed individuals. By passing on the necessary knowledge to the younger generation, we can lay a solid foundation for our future. The works of our ancestors are widely used to pass on advanced knowledge to the younger generation. This article widely covers the pedagogical significance of the works of the muhaddi scholar Imam al-Bukhari.*

***Keywords:** Imam al-Bukhari, education, teacher, system, young generation, education, hadith, morals, spirituality, culture, pedagogy*

Kirish qism:

Yangilanayotgan O'zbekistonimiz Renessans davrining 3-bosqichini boshidan kechirmoqda. Bugungi kunda islohotlar soni ko'paymoqda. Bu islohotlarning juda katta qismi ta'lim sohasiga qaratilmoqda. Bunga asosiy sabab yosh avlodni barkamol shaxs qilib tarbiyalashda ta'lim tizimi muhim ahamiyatga ega. Yoshlarni ongiga o'zbek milliy madaniyatini va milliy tuyg'usini singdirish muhim vazifalardan biridir. Har bir yosh avlodni odobli va andishali qilib tarbiyalashda ta'lim tizimining o'rni beqiyosdir. Ta'lim tizimida buyuk mutafakkirlarimizning asarlarini o'rganish va ular amalda ko'rsatib o'tgan

metodlardan keng ko‘lamda foydalanish orqali samarali yutuqlarga erishilmoqda. Jumladan muhadis olim Imom al-Buxoriy bobomizning asarlarini o‘rganish orqali o‘zib kelayotgan yosh avlodning ta‘lim-tarbiyasiga ijobiy ta‘sir ko‘rsatib kelinmoqda.

Mavzuning dolzarbligi: O‘zbekiston Respublikasi Vazirlar Mahkamasining «Imom al-Buxoriy tavalludining hijriy qamariy taqvim bo‘yicha 1225-yilligini nishonlash to‘g‘risida»gi qarori (1997-yil. 29 aprel.) asosida Buxoriyning ilmiy merosini o‘rganish va targ‘ib qilish, xotirasini abadiylashtirish borasida katta ishlar qilindi. (1998-yil 23 oktabrda). Samarqandda yubiley to‘ytantanalari bo‘lib o‘tdi. Buxoriyning boy ma‘naviy merosini chuqur o‘rganish va keng targ‘ib qilish maqsadida O‘zbekiston Respublikasi 1-Prezidenti I. A. Karimovning tashabbusi bilan Imom al-Buxoriy xalqaro jamg‘armasi tuzildi (1998-yil. 4-noyabr; raisi Zohidillo Munavvarov). Jamg‘armaning asosiy vazifasi Qur‘oni karim va Buxoriyning «al Jomi’ as-sahih»i tarjimalarining akademik nashrlarini tayyorlash, buyuk islomshunoslar ilmiy merosini tadqiq etish, diniy-falsafiy mavzularda ilmiy anjumanlar o‘tkazish va shular yordamida yosh avlodni milliy an‘analarimizga sadoqat ruhida tarbiyalashdan iborat. Toshkent Islom institutiga Buxoriy nomi berilgan. Buxoriyning hayoti va ijodiga bag‘ishlab bir necha tillarda kitob, albom, 2 qismli film (1995), «Hadis ilmining sultoni» 4 qismli kinoqissa (1998) yaratilgan.

Mavzuning metodologik asosi: Imom al-Buxoriy nafaqat yirik olim, balki o‘zining go‘zal xulq-atvori, odamoxunligi, muruvvatligi, himmatligi va beqiyos saxovatligi bilan boshqalardan tamomila ajralib turgan. U zehni o‘tkirligi va yodlash qobiliyatining kuchliligi bilan ham xalq orasida g‘oyat shuhrat qozongan. Manbalarda al-Buxoriyning 600 mingga yaqin hadisni yod bilgani qayd qilingan. Imom al-Buxoriyning hadislari ta‘lim tizimida qo‘llanilib kelinayotgan darsliklardan joy olgan. Har bir o‘quvchini keng mushohadaga solib qo‘yadigan bu hadislar o‘quvchini hayot davomida o‘zgarib borayotgan xulq-atvoriga va odob-axloqiga ijobiy ta‘sir qiladi. Ayniqsa, o‘smir yoshdagi yosh o‘g‘il-qizlarga Imom al-Buxoriy bobomizning hadislari to‘g‘ri yo‘l ko‘rsatuvchi vosita hisoblanadi. Imom al-Buxoriy asarlarining pedagogik ahamiyati ham mana shunda. Muhadis olimning hadislari har qanday o‘quvchini qalbini zabt eta oladi hamda odobli bo‘lib voyaga yetishida xizmat qiladi. Bilim olishning qanchalik savobli ekanligini, bilimli kishi hech qachon xor bo‘lmasligini o‘quvchilar anglab yetadi. Alloma ibn Salohning ta‘kidlashicha, al-Buxoriyning bu asariga kiritilgan ishonchli hadislarning soni takrorlanadiganlari bilan birga 7275 ta bo‘lib, takrorlanmaydigan holda esa 4000 hadisdan iborat. Jumladan, taniqli adib va tarixchi an-Nuvayriy (1332 yilda vafot etgan) al-Buxoriyning ushbu asaridan sakkiz nusxa ko‘chirib, har birini ming dirhamdan sotgan. 1325 yilda ko‘chirilgan sakkiz jilddan iborat go‘zal bir nusxasi hozir Istanbulda saqlanmoqda. «Al-Jome’ as-sahih»ga ko‘pdan-ko‘p sharhlar bitilgan bo‘lib, muhim manba sifatida u qayta-qayta nashr ham qilingan. Imom Buxoriyning asarlari orasida eng mashhur bo‘lgani “Al-jome’ as-Sahih”dir. Undan tashqari tarixiy voqealar va shaxslarni

chuqur tahlil qiladigan, hadis ilmining asoslaridan bo‘lgan ilmlarga oid bir qator o‘ta ahamiyatli kitoblar yozdi.

Natijalar va muhokamalar: Buxoriy yaratgan „Kitob alfavoid“ („Foydali ashyolar haqida kitob“), „Al Jomi’ al-kabiyr“ („Katta tayanch“), „Xalq af’ol alibod“, („Alloh bandalari ishlarining tabiati“), „Al Musnad al-kabiyr“ („Katta tayanch“), „Attafsir alkabiyr“ („Katta tafsir“), „Kitob alxiba“ („Xayrehson haqida kitob“) va boshqa asarlarning ba’zilari bizgacha yetib kelmagan. Imom al-Buxoriy avlodlarga boy va qimmatli ilmiy meros qoldirgan bo‘lib, u yozgan asarlarning soni yigirmadan ortiqdir. Ulardan «Al-jome’ as-sahih», «Al-adab al-mufrad», «At-ta’rix as-sag‘ir», «At-ta’rix al-avsot», «At-ta’rixal-kabir», «Kitob al-ilal», «Barr ul-volidayn», «Asomi us-sahoba», «Kitob al-kuna» va boshqalarni ko‘rsatish mumkin. Buyuk allomaning eng muhim asari, shubhasiz, «Al-jome’ as-sahih»dir. Imom al-Buxoriy asarlarining ko‘p qismi nafaqat bizning yurtda boshqa mamlakatlarda ham ta’lim tizmining beqiyos namunasi hisoblanadi. Qohira, Quvayt, Abu-Dabi, BAA va bir nechta arab davlatlarida ham Imom al-Buxoriy asarlari ta’lim sohasida keng qo‘llanilib kelinmoqda.

Xulosa: Imom al-Buxoriy to‘plamlariga kiritilgan hadislar faqat islom ta’limotiga oid umumiy qoidalarni aks ettirish bilan cheklanib qolmaydi. Ular mehr-muhabbat, saxiylik, ochiq ko‘ngillik, ota-ona, ayollar va kattalarga hurmat, yetim-yesirlarga muruvvat, faqir bechoralarga himmat, vatanga muhabbat, mehnatsevarlik va halollikka da’vat etish kabi haqiqiy insoniy fazilatlar va namunali tartibotlar majmuasidir. Unda nima yaxshi, nima yomon, nimani qilish kerak, nimadan o‘zini tiyish lozimligi haqida hozirgi jamiyatimiz ahli, ayniqsa, yosh avlod uchun katta tarbiyaviy ahamiyatga ega yo‘l-yo‘riqlar, pand-nasihat va o‘gitlar aks ettirilgan. Buxoriy asarlari musulmon dunyosining barcha Madrasa va dorilfununlarida payg‘ambar (as) sunnatlari bo‘yicha asosiy darslik, qo‘llanma hisoblanadi. Jamoat arboblari, olimu ulamolar va din peshvolari Buxoriy asarlariga tayanib ish tutadilar.

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KLAYNFELTER SINDROMINING GENETIK ASOSLARI VA KLINIK XUSUSIYATLARI

***Annotatsiya:** Ushbu maqola Klaynfelter sindromining etiologiyasi, diagnostikasi hamda profilaktikasi haqida bayon etildi.*

***Kalit so'zlar:** Gipogandizm, ginekomastiya, osteoparoz, insulin rezistensiyasi, spermatogramma.*

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GENETIC BASIS AND CLINICAL FEATURES OF KLEINFELTER SYNDROME

***Abstrakt:** This article describes the etiology, diagnosis and prevention of Klinefelter's syndrome.*

***Key words:** Hypogonadism, glycomastiya, osteoporosis, insulin resistance, spermatogram.*

Klaynfelter sindromi ilk marotaba 1942-yilda Garri Fitch Klinefelter va uning jamoasi tomonidan aniqlangan. Sindromning nomi ham kashf etgan olim nomi bilan ataladi. Faqatgina erkak jinsi uchun hos sindrom hisoblanadi. Odatda bu sindrom xromosoma kariotipining buzilishi natijasida kelib chiqadi. Bu sindrom nasldan naslga o'tadigan irsiy kasallik hisoblanmaydi.

Statistik ma'lumotlarga ko'ra Klaynfelter sindromi har 500-1000 ta erkakning birida kuzatiladi. 2023-yil statistikasi bo'yicha butun dunyoda erkaklar soni 4.05 mlrd ni tashkil etadi. Bunga asoslanib 4.05-8.1 mln erkakda bu sindrom mavjud deya tahmin qilishimiz mumkin. Ammo sindrom alomatlarini kech aniqlanganligi sababli bunday ko'rsatgichlar haqida aniq ma'lumotlar mavjud emas.

Klaynfelter sindromining etiologiyasi genetik o'zgarishlar bilan bog'liq bo'lib, meyozi jarayonida, ya'ni spermatozoid yoki tuxum hujayralarining rivojlanishi vaqtida noto'g'ri taqsimlanish natijasida yuzaga keladi. Natijada kariotip noto'g'ri taqsimlangan gameta ishtirokida hosil bo'lgan zigotada qo'shimcha X xromosoma mavjud bo'ladi. Sindromning kam uchrovchi turlari ham mavjud bo'lib bular, XXXY yoki XXXXY to'plamli bo'ladi hamda bu holat xromosomaning mozaikasi deb ataladi. Bu sindrom mavjud bo'lgan erkaklarda xromosoma kariotipining buzilishi natijasida quyidagi patogen holatlar: jinsiy rivojlanishlanishdan ortda qolish, tanadagi mutanosibliklar, gormonal

sistemaning buzilishi, psixik zo'riqish va ayrim holatlarda aqliy qoloqlik kuzatiladi.

Ortiqcha X xromosomalar testikulyar funksiyaning buzilishiga olib keladi, bu esa Gipogandizmga (testosteron yetarlicha ishlab chiqarilmasligiga) sabab bo'ladi. Testosteron yetishmovchiligi pubertat davrda jinsiy rivojlanishning to'liq kechmasligiga olib keladi. Natijada Ginekomastiya (taxminan 30-40% erkaklarda ko'krak bezlarining kattalashishiga), jinsiy a'zolarining kichikligi (mikroorxizm), ikkilamchi jinsiy belgilarning (ovozning chuqurlashmasligi va terisida kam tuk bo'lishi) yetarlicha rivojlanmasligi kuzatiladi. Testikulyar rivojlanish buzilganligi sababli sertoli va leydik hujayralari normal ishlamaydi. Bu hujayralar erkak jinsiy gormonlari va spermatozoid ishlab chiqarishda muhim rol o'ynaydi. Natijada sperma juda kam ishlab chiqariladi yoki umuman bo'lmaydi (azoospermiya), bu esa bepushtlikka (95-99% holatlarda) sabab bo'ladi. Testosteron darajasining pastligi suyak zichligining kamayishiga, jinsiy qiziqishning yo'qolishiga va osteoparozga (suyaklarning mo'rtlashishi) olib keladi. Sindrom bo'lgan erkaklarda semizlik-asosan qorin qismida yog' to'planishi, ammo mushak massasining kam bo'lishi, insulin rezistensiyasi, diabet, yurak qon tomir kasalliklari, qo'lning uzun naysimon suyaklarining o'sib ketishi natijasida baland bo'yilik, yelkaning chanoqqa nisbatan tor bo'lishi va kalla suyaklarining ayollarga hos tarzda tuzilishi kuzatiladi.

Sindromni aniqlash uchun kariotip tahlili-genetik test yordamida qo'shimcha X xromosomani aniqlash, qon tahlili-testosteron darajasi va gormonlarning o'zgarishini aniqlash, spermatogramma-spermatozoid ishlab chiqarish darajasini o'lchash kabi diagnostik usullaridan foydalaniladi. Bunda kariotip tahlili eng ishonchli va samarali usul hisoblanadi. Tahlilda qon namunasi yoki boshqa hujayra turlaridan foydalaniladi. Klaynfelter sindromi ba'zida homila rivojlanish bosqichlarida aniqlanishi mumkin. Bu amniotsentez yoki xorionik villus biopsiyasi orqali amalga oshiriladi. Bunda homiladan tahlil uchun namuna olinadi. Lekin juda ko'p hollarda sindrom balog'at yoshiga yetguniga qadar aniqlanmaydi.

Klinefelter sindromi uchun davolash asosan simptomlarni yengillashtirish va hayot sifatini yaxshilashga qaratilgan bo'ladi. Sindromni to'liq davolashning iloji yo'q, chunki bu genetik kasallik. Davolash usullari: testosteron terapiyasi, reproduktiv yordam, ya'ni In vitro fertilizatsiya (ayol tuxumlari bilan urug'lantirish) yoki Testikulyar spermatozoid olish (moyak to'qimasidan spermatozoid olish), ginekomastiyaning jarrohlik yo'li bilan davolash.

Klaynfelter sindromining profilaktikasi quyidagilardan iborat: prenatal testlar, ya'ni tug'ulishdan avval genetik maslahat olish va skrining tekshiruvlaridan o'tish, sog'lom ovqatlanish, jismoniy faollik, stresni boshqarish, tibbiy nazorat va profilaktik tekshiruvlar.

Xulosa qilib aytganda, klaynfelter sindromi genetik izchillikning buzilishi sababli yuzaga chiqqanligi sababli uni butunlay davolashning ilojisi yo'q. Shuning uchun sindromning kelib chiqish sabablariga e'tibor qaratish lozim.

Buning uchun farzand ko'rish yoshiga etibor qaratish, meyoz jarayonida xromosomalar noteng taqsimlanishiga olib keluvchi turli radioaktiv nur vositalaridan saqlanish lozim.

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ELIMINATING DICOTYLEDONOUS AND CEREAL WEEDS IN WINTER WHEAT FIELDS THROUGH HERBICIDE APPLICATION

***Annation:** This article describes various weeds found in winter wheat fields and methods of their destruction using various herbicides. Information is also provided on the effects of several types of herbicides used to eliminate weeds found on winter wheat fields and their effectiveness.*

***Key words:** autumn wheat, weeds, herbicides, cereal crops, dicotyledonous plants, effectiveness, broad-spectrum impact, selective effect, dosage.*

Introduction: Due to the fact that spiked grain crops are planted close together and not specially processed, weeds grow freely among them, absorb water and nutrients, provide shade, create favorable conditions for the free development of diseases, pests, insects and other negative effects on grain yield and quality decreases to 40-50 percent.

The damage caused by the stagnant growth and development of weeds increases due to the creation of favorable conditions when grain crops are grown on irrigated lands. For this reason, there is a need to eliminate weeds in winter wheat fields with the help of ecologically clean and effective herbicides.

Purpose of work: The study of the influence and effectiveness of various herbicides, particularly Granstar and Puma, on weeds found in winter wheat fields.

Research object: The object of the study was a wheat field planted in the autumn on irrigated lands of the Surkhandarya region, experiments were conducted and the results were analyzed.

Research methods: Two types of herbicides were chosen as research methods, and their different doses and methods were tested to determine the effectiveness of the herbicide.

Results: The destruction of dicotyledonous and cereal weeds on winter wheat fields depends on the type, dosage, and methods of herbicide application. Herbicide control of weeds in winter wheat fields depends on the types, methods, and timing of herbicide application.

Due to the different selective properties of herbicides, the Puma Super herbicide is highly effective against cereals, while the Granstar herbicide is highly

effective against dicotyledonous weeds. For this reason, depending on the timing of herbicide application, when using Puma super at a rate of 1 liter per hectare of land, its effect on dicotyledonous weeds was not observed at all, and when applied on March 20, it killed up to 89.9-92.9% of grain weeds, while when applied on April 10, it killed up to 89.5-93.8%. The main reason for the higher efficiency of the same rate (1 l/ha) of Puma super herbicide against spiky weeds in winter wheat fields 20 days later (April 10) can be considered to be the increase in temperature. As the air temperature rises, the physiological processes in the weeds become somewhat more active, and the properties of the internal (systemic) acting Puma super and other herbicides to kill spiky weeds increase. As mentioned, on April 10, compared to March 20, the number of weeds in 1 m² of wheat field increased by 44, and the weeds grew a little, and the vegetative mass increased. Nevertheless, when the rate of 1 l/ha of Puma super herbicide was applied on April 10, compared to March 20, it was observed that the effectiveness was up to 1.1% higher. No effect on dicotyledonous weeds in winter wheat fields was observed when Puma super herbicide was applied at 1 L/ha on March 20th and when applied on April 10th.

Therefore, the use of Puma super herbicide at the rate of 1 l/ha in the beginning of April in the conditions of the experimental region is highly effective for eliminating wild oats, sedges, and other spiky weeds in the winter wheat field.

Granstar herbicide is more effective against dicotyledonous weeds in winter wheat fields when applied on April 10 than when applied on March 20. Because, it was observed that when the norm of 15 g/ha of Granstar herbicide was applied on March 20, it was slightly lower than when it was applied on April 10. Because, when Granstar herbicide was applied 20 times at the rate of 15 g/ha, the effectiveness of the dicotyledonous weeds ranged from 84.6% to 87.5%, depending on the types of weeds, while its effectiveness when applied on April 10 it was observed that it was 90.0-95.7%, depending on the types of weeds. The 15 g/ha norm of Granstar herbicide was not observed at all against spike weeds in winter wheat fields.

Therefore, the use of Granstar herbicide at the rate of 15 g/ha at the beginning of April against dicotyledonous weeds that develop in the fields of winter wheat in the irrigated lands of Surkhandarya region is considered to be a highly effective method.

However, although spike weeds are eliminated in winter wheat fields with Puma Super, dicotyledonous weeds thrive. If dicotyledonous weeds are eliminated only with Granstar herbicide at a rate of 15 g/ha, spike weed will flourish and destroy almost half of the winter wheat crop.

Therefore, one of the variants of our field experiments is research on the control of both spike and dicotyledonous weeds in a single application of herbicides by combining Puma super and Granstar herbicides. was carried out.

For this purpose, the rate of 1 l/ha of Puma super herbicide and 15 g/ha of Granstar herbicide was applied against spike and dicotyledonous weeds in the

winter wheat field on March 20 and April 10. It was observed that the effectiveness in elimination is high depending on the types of weeds and the duration of application. As a result, the effectiveness of both herbicides when mixed and sprayed on March 20 was observed to be 86.0% to 100.0% depending on the types of dicotyledonous weeds. It was observed to be from 7% to 91.7%.

Puma super (1 l/ha) and Granstar (15 g/ha) herbicides were mixed and diluted together to show greater effectiveness against spike and dicotyledonous weeds in winter wheat fields when sprayed on April 10 than when sprayed on March 20. That is, when both herbicides against weeds of both types were used together on April 10, it was observed that the rate of destruction of weeds in wheat fields was up to 25.7%.

Compared to the total number of weeds of all species in the winter wheat field, the herbicides Puma super (1 l/ha) and Granstar (15 g/ha) killed 75% when applied on March 20, the total weed kill rate when applied on April 10 was 82.3%. Of course, among the weeds that did not die, there are also those that do not belong to the dicotyledonous and spiky weeds, which are not affected by Puma super and Granstar herbicides.

It should be noted that while dicotyledonous and spike weeds develop and mature at the same time as wheat in irrigated lands, other types of weeds cannot bloom and germinate. These weeds tend to thrive after the winter wheat crop is harvested.

According to the overall results, it was observed that Puma super (1 L/ha) and Granstar (15 g/ha) applied in a mixed solution gave 93.3% control of white salamander when applied on March 20 and 88.3% when applied on April 10, wild oat was observed to be killed by 85.7% when sprayed on March 20 and 89.5% when sprayed on April 10. In all cases, we consider herbicides to be a highly effective way to control weeds in winter wheat fields at the end of April. Because, during this period, although the weeds have increased and the winter wheat has developed a lot, the germination of dicotyledonous and spiked weeds has stopped, and there is no need for repeated use of herbicides.

Conclusion: Due to the fact that winter wheat is planted in rows on the cover, herbicides against weeds are applied by means of tractor-mounted sprayers, so the tractor wheels can reveal a certain amount of wheat grass and kill or damage it. Therefore, it is an effective method to spray dicotyledonous and spiky weeds at the same time by mixing appropriate herbicides.

Therefore, not only in the Surkhandarya region, but also in the conditions of other regions, in the elimination of dicotyledonous and spiked weeds in winter wheat fields, Puma super (1 l/ha) and Granstar (15 g/ha) herbicides are mixed and dissolved. we recommend to apply it in early April after the plants have fully germinated.

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HEIGHT AND LODGING RESISTANCE OF WINTER WHEAT WHEN USING HERBICIDES AGAINST WEEDS

Annatation: This article describes the effects of various herbicides on weeds found in winter wheat fields. Additionally, the impact of herbicide application on the growth and lodging resistance of winter wheat is discussed.

Key words: winter wheat, resistance, herbicide, weeds, yield

Introduction: Scientific analyses indicate that there are few studies on the negative impact of weeds on wheat lodging in grain fields where weeds are widespread, and limited work has been done to combat this issue. T.Kh. Khodjakulov emphasizes the necessity of developing lodging-resistant varieties through breeding, considering the significant damage caused by the lodging of cereal crops.

N. Khalilov proposed optimizing sowing norms to increase the resistance of wheat to lodging. The works of Z.A. Ibragimov in the Kashkadarya region and Sh.Kh. Rizaev in the Samarkand region can be attributed to the work done in this area.

Purpose of work: Determining the height and lodging resistance of winter wheat when using herbicides against weeds.

Research object: Winter wheat planted in irrigated fields and different types of herbicides were selected as research objects.

Research methods: Application of herbicides to winter wheat field, monitoring and analysis of changes.

Results: As a result of scientific work, the results of the irrigated lands of Surkhandarya region between 2005 and 2007 were analyzed and presented in the form of a table.

Height and lodging resistance of winter wheat when using herbicides against weeds. (when herbicides were applied on March 20)

| | Experience options | Height, cm | Lying down, score |
|---|---|---|---|
| | | The wax is in the ripening phase $X \pm SX$ | The wax is in the ripening phase $X \pm SX$ |
| 2005 yil | | | |
| | Control option without herbicides (st) | 90,8 - | 4,0 - |
| | Puma super 1,0 l/ga | 92,3 \pm 1,5 | 4,5 \pm 0,5 |
| | Granstar 15 g/ga | 91,8 \pm 1,0 | 4,5 \pm 0,5 |
| | Puma super 1,0 l/ga Granstar 15 g/ga | 95,3 \pm 4,5 | 5 \pm 1,0 |
| 2006 year | | | |
| | Control option without herbicides (st) | 91,0 - | 4,0 - |
| | Puma super 1,0 l/ga | 92,8 \pm 1,8 | 4,5 \pm 0,5 |
| | Granstar 15 g/ga | 92,0 \pm 1,0 | 4,5 \pm 0,5 |
| | Puma super 1,0 l/ga Granstar 15 g/ga | 96,1 \pm 5,1 | 5 \pm 1,0 |
| 2007 year | | | |
| | Control option without herbicides (st) | 90,2 - | 4,0 - |
| | Puma super 1,0 l/ga | 92,5 \pm 2,5 | 4,5 \pm 0,5 |
| | Granstar 15 g/ga | 91,5 \pm 1,3 | 4,5 \pm 0,5 |
| | Puma super 1,0 l/ga Granstar 15 g/ga | 95,8 \pm 5,6 | 5 \pm 1,0 |
| 2005-2007 average over the years | | | |
| | Control option without herbicides (st) | 90,7 - | 4,0 - |
| | Puma super 1,0 l/ga | 92,5 \pm 1,8 | 4,5 \pm 0,5 |
| | Granstar 15 g/ga | 91,8 \pm 1,1 | 4,5 \pm 0,5 |
| | Puma super 1,0 l/ga Granstar 15 g/ga | 95,7 \pm 5,0 | 5 \pm 1,0 |

These and other circumstances require the development of new technologies for the elimination of damage caused by weeds in the fields of winter wheat and other grain crops in each region and variety.

From the results of our experiments, it was found that Puma super (1 l/ha) was used to eliminate common spike and dicotyledonous weeds in the fields where the Kroschka variety of winter wheat is grown under the conditions of the irrigated grassy barren soil region of the Surkhandarya region.) and Granstar (15

g/ha) herbicides, when applied separately and together on March 20 and April 10, showed an increase in height and dormancy tolerance, depending on the types of herbicides and methods of application, duration.

The maximum growth and lodging of winter wheat coincides with its wax ripening phase. For this reason, one-time monitoring of growth and lodging was carried out in the experimental options where herbicides were used and in the control option where herbicides were not used, and the results are presented in Tables 4.2.3.14 and 4.2.3.15. During this period, the height and lodging indicators of winter wheat changed in favor of experimental options with herbicides, and the maximum display of height and lodging was observed.

When the height of winter wheat was analyzed according to the tabular data, the height of the Kroshka variety at the wax ripening stage when herbicides were applied on March 20 was 90.8 cm in the control option without herbicides, Puma super (1 l/ha), 1.5 cm when Granstar (15 g/ha) was used, and 4.5 cm when Puma super and Granstar were used together at the specified standards.

The same situation was repeated in 2006-2007 when herbicides were mixed together and applied, compared to the variants where herbicides were applied separately and when herbicides were not applied, the height of the plant was 5.1-5.6 cm higher.

When herbicides were applied on March 20, it was observed that the height of wheat was proportional to that of the untreated control. For this reason, it was observed that when herbicides were applied individually on March 20, 2005, the lodging was 4.5 points, and in the control option without herbicides, it was 4. When herbicides were used together, it was observed that the incidence of lodging was 5 points without being observed at all. The same parameters were repeated in 2006-2007, when Puma super (1 l/ha) and Granstar (15 g/ha) herbicides were mixed together, and a single application on March 20 ensured the stunted growth of wheat. The staying power is also guaranteed to be significantly improved.

Conclusion: Therefore, when Puma super (1 l/ha) and Granstar (15 g/ha) herbicides are used together against spike and dicotyledonous weeds in the winter wheat field, in return for the removal of such weeds, the wheat is stunted and vigorous. While its growth and development are ensured, its tolerance to lying down is also radically improved.

Even when herbicides were applied on April 10, when weeds were fully germinated, winter wheat height and lodging tolerance were repeated when herbicides were applied on March 20 in all years tested. With a difference of 1-2 cm according to the options, the tolerance to lying down was repeated in the same way.

As a proof of our opinion, if we analyze the averages for the data from 2005-2007, when Puma super (1 l/ha) herbicide was applied against spike weeds in the winter wheat field on March 20, herbicides It was 1.8 cm taller than in the untreated control, 1.1 cm taller in the background of Granstar (15 g/ha) and 5.0 cm taller when both herbicides were applied together. - it was observed to be 2.7-

2.9 cm high in experimental options used separately, and 5.7 cm high when used together. However, this elevation was not observed to increase recumbency.

These conditions allow the combined use of Puma super (1 l/ha) and Granstar (15 g/ha) herbicides against spike and dicotyledonous weeds, eliminating such weeds and allowing free growth and development of winter wheat. along with providing, it also indicates the creation of appropriate conditions for increased resistance to lying down.

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O‘QUVCHI YOSHLARNI KASBGA YO‘NALTIRISHNING SAMARALI YO‘LLARI

***Annotatsiya:** Maqolada bugungi kunda yoshlarni kasb-hunarga yo‘naltirish sohasida mavjud bo‘lgan ilmiy xulosalar va tavsiyalarning o‘ziga xos jihatlari yoritilgan.*

***Kalit so‘zlar:** Yoshlar, kasb, kasbga yo‘naltirish, madaniyat, hunar, mutaxassislar, psixologik xizmat, pedagogika, psixologiya, mehnat, burch, jamiyat, vatan, kasbiy maslahat*

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FORMS OF MODERN EDUCATION IN VOCATIONAL EDUCATION

***Annotation:** The article highlights the distinctive aspects of current scientific findings and recommendations in the field of vocational guidance for young people.*

***Keywords:** Youth, profession, career guidance, culture, craft, specialists, psychological service, pedagogy, psychology, work, duty, society, homeland, professional counseling*

Jamiyatda ta‘lim tizimini rivojlantirishning strategik yo‘nalishi – bu insonning turli sohalarida maqsadli mustaqil faoliyati asosida uning intellekt va ahloqiy rivojlanishidir. Jahonning rivojlangan davlatlari qatori mamlakatimizda ham ta‘limdagi islohotlar jarayonida mustaqil ta‘limni rag‘batlantirish muhim yo‘nalish sifatida kelmoqda [1].

Pedagogning kasbiy layoqatliligini tarbiyalash fenomenini tadqiq qilishga bir qator olimlarning ishlarida o‘z ifodasini topgan. Bu mualliflar kasbiy layoqatlilik – ishonchlilik sifatleri bilan birgalikda o‘qituvchining kasbiy – individual hodisa sifatida pedagogik madaniyatini tavsiflaydi degan fikrni olg‘a surganlar. O‘z navbatida, kasbiy layoqatlilik tushunchasi, V.A.Slastenin ta‘kidlaganidek, pedagogning pedagogik faoliyatini amalga oshirishga nazariy hamda amaliy tayyorligining birligini ifodalaydi va uning kasbiy shakllanganligini tavsiflaydi. Bozor iqtisodiyoti sharoitida insonlarning yaxshi yashashida, faoliyatida to‘g‘ri kasb tanlashning ahamiyatini turli xil kasblarning

insonga qo'yadigan talablarini; kasblar olami, kasblar shajarasi, O'zbekiston xalq xo'jaligidagi muhim kasblar, kasblar tasniflagichi; kichik mutaxassislar tayyorlash tizimi; kasblar, mehnat shartsharoitlari, vositalari, fani, maqsadi bo'yicha shajaralanishi, o'quvchilarni o'z qiziqish va moyilliklari, o'z xarakterining o'ziga xos xususiyatlarini, o'z nerv tuzilishi, psixikasi, o'z qobiliyati va ehtiyojlarini kasblar to'g'risida ma'lumot olish maktablarini ayrim kasb mehnat bozori talablari asosida ehtiyojning o'zgarib borishini, salomatligining tanlagan kasbga mos kelishi, hududda joylashgan o'rta maxsus, kasb-hunar o'quv yurtlarida ta'lim yo'nalishini ixtiyoriy tanlashi; o'qishni davom ettirish imkoniyatlari. Kelgusi mavqeini bilishi zarur. Kasbni to'g'ri tanlash – inson turmushida muhim qadamdir, yosh avlodning butun hayotidagi muvaffaqiyat ko'p jihatdan kasbning qanchalik to'g'ri tanlanishiga bog'liq [3,4].

Kasbni to'g'ri tanlash har bir maktab o'quvchisining qiziqishiga, mayliga, qobiliyatiga va imkoniyatlariga mos bo'lishi uchun uning sog'lig'ini, o'zlashtirishini va hissiyotlarini hisobga olish lozim, bular ijtimoiy foydali va unumli mehnatda hammadan ko'ra ko'proq qaror topadi va namoyon bo'ladi. Odam bajarayotgan ishlariga ijodiy munosabatda bo'lib, mehnat unumdorligini doimo oshirib borsa, tanlagan kasbga zo'r qiziqish bilan qarasa, o'z ishining ijtimoiy ahamiyatini tushunsa, uning qobiliyatlari mehnatda takomillashib borsa, o'shandagina u mehnatdan qoniqish hosil qiladi va xursand bo'ladi, bunday hoolda har bir shaxs jamiyatga eng ko'p naf keltiradi. Mana shu aytgan gaplardan kasb tanlashning g'oyat muhim ijtimoiy ahamiyati kelib chiqadi. Kasb-korni erkin tanlash juda katta ahamiyatga ega. Odam shug'ullanayotgan ishini yaxshi ko'rsa, bundan u xursand bo'ladi, qoniqish hosil qiladi, zo'r tashabbus ko'rsatadi, toliqmay mehnat unumini oshiradi.

Maktab o'quvchilarining kasb tanlashi ongli zaruriyat bo'lishi va ayni vaqtda jamiyat manfaatlariga mos bo'lib tushishi, yigit va qizlarning kamolot yo'lida shaxsiy mudaolarini qondirishi lozim. Buning uchun yuksak darajada ma'lumotli bo'lish zarur, hozirgi asrimizda bunday ma'lumotsiz fan-texnika ildam taraqqiy etishi mumkin emas. Umummehnat va maxsus malakalarni, kasbga bo'lgan qiziqishlarini shakllantirishning bunday imkoniyatlari ob'yektiv zaminga ega bo'lib, voqelikda har kuni amalda oshirilmoqda. Kasbga yo'naltirish – bu har bir individumning o'ziga xos individual xususiyatlari va mehnat bozorining ehtiyojlarini hisobga olgan holda, o'z kasbiy o'rnini topishi uchun shaxsga ta'sir etishning ilmiy asoslangan shakl, usul va vositalar tizimidir. U insonning kasbiy qiziqishi va imkoniyatlari hamda jamiyatning aniq bir kasbiy faoliyat turiga ehtiyojlarining mutanosibligiga erishishga yo'naltirilgandir. Kasbga yo'naltirish – mohiyat va samaradorlikni baholash ko'rsatkichlariga ko'ra ijtimoiy-iqtisodiy kategoriyadir. Kasbga yo'naltirishni hal etish vazifalari bo'yicha ijtimoiy-iqtisodiy, tibbiy-fiziologik va psixologik-pedagogik mohiyatga ega muammodir. Kasbga yo'naltirish insonning qobiliyati va iqtidorini maqsadli rivojlantirishda, uning kasb mahorati, ish qobiliyati va salomatligini asrashga imkon yaratadi hamda aholini ijtimoiy himoyalash va uning bandligi sohasidagi

davlat siyosatining muhim elementlaridan biri sifatida namoyon bo‘ladi. Kasbga yo‘naltirish shaxsning mehnat salohiyatidan samarali foydalanish, uning ijtimoiy va kasbiy faolligini oshirish hamda majburiy ishsizlikning oldini olishda muhim rol o‘ynaydi. Kasbga yo‘naltirish tadbirlari inson tomonidan o‘z kasbiy malakasini oshirishning qulay shakllarini izlash, ijtimoiy-iqtisodiy tashabbuskorlik, intellektual va mehnat mustaqilligini rivojlantiradi. Yosh avlodni ongli ravishda kasb tanlashga tayyorlashga, uni har tomonlama va barkamol rivojlantirishning shart-sharoiti sifatida qaraladi. Bu shaxsning ma‘naviy, aqliy, mehnat, estetik va jismoniy tarbiyasi, ya‘ni barcha o‘quv-tarbiya jarayoni bilan uzviy birlikda amalga oshiriladi. Kasbga yo‘naltirish quyidagi qismlarni o‘z ichiga oladi: Kasbiy axborot, kasbiy maslahat, kasbiy tanlov va saralash, kasbiy moslashish. Kasbiy axborot – ma‘lum bir kasbni egallash hohishi bo‘lgan shaxsga, turli mutaxassisliklarni egallashning shakl va sharoitlariga, kasbiy malakalarning o‘shish imkoniyatlariga mehnat bozorining holati va ehtiyojiga, kasbiy qiziqishlarning shakllanishiga, shaxsning istak va ko‘nikmalariga qo‘yilgan talablar hamda zamonaviy kasblarning istiqboli va mazmuni to‘g‘risidagi ma‘lumotlarni to‘plash, targ‘ibot qilish chora-tadbirlaridir [4,5].

Kasbiy maslahat – kasb tanlash yoki faoliyat turini o‘zgartirishda yordamga muhtoj bo‘lgan shaxsning individual-psixologik xususiyatlari, shaxsiy fazilatlarini, kasbiy qiziqishlari, moyilligi, sog‘ligi va mehnat bozori ehtiyojlarini o‘rganish asosida psixologik-maslahatchi bilan ilmiy tashkil etilgan o‘zaro muloqot tizimidan iborat. Kasbiy tanlov va saralash – kasbiy faoliyatning alohida turlariga yaroqlilik darajasini aniqlashga yo‘naltirilgan shaxsning psixofiziologik xususiyatlari (tanlash) yoki aniq bir kasbga bo‘lgan psixofiziologik me‘yoriy talablar (sarlash) asosida shaxsni har tomonlama o‘rganish tizimidir. Kasbiy moslashish – ishlab chiqarishda kasbiy faoliyatning ijtimoiy-psixologik va tashkiliy-texnik sharoitlariga shaxsni moslashtirishga, uni muvofaqiyatli ravishda kasbni egallashi uchun shart-sharoitlarni yaratishga yo‘naltirilgan choralarning majmuaviy tizimidir. Professiografiya (axborot, tashxis, korreksiyalovchi, shakllantiruvchi) va kasbiy tashxis (shaxsni o‘rganishning psixologik, psixofiziologik, tibbiy va boshqa usullarining majmui) kasbga yo‘naltirishning axborot uslubiy ketma-ketligining asosi hisoblanadi [6,7].

O‘quvchilar kasblarni tahlil qila olishi; o‘zlarining shaxsiy sifatlarini, qiziqishini va salomatlik darajalarini to‘g‘ri baholay olishlari, kasblarning insonga qo‘yadigan talablari bilan o‘zlarining individual xususiyatlarini taqqoslay olishlari, shaxsiy kasbiy rejalarini tuza olishlari zarur.

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KASB TA'LIMDA ZAMONAVIY TA'LIMNI SHAKLLARI

***Annotatsiya:** Ushbu maqola pedagogik texnologiyaning shakllari va mazmunini o'rganadi, ta'lim muassasalarida qo'llaniladigan turli xil vositalar va strategiyalarni o'rganadi.*

***Kalit so'zlar:** Yoshlar, kasb, kasbga yo'naltirish, madaniyat, hunar, mutaxassislar, psixologik xizmat, pedagogika, psixologiya, mehnat, burch, jamiyat, vatan, kasbiy maslahat,*

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FORMS OF MODERN EDUCATION IN VOCATIONAL EDUCATION

***Annotation:** This article examines the forms and content of pedagogical technology and explores various tools and strategies employed in educational institutions.*

***Keywords:** Youth, profession, career guidance, culture, craft, specialists, psychological services, pedagogy, psychology, labor, duty, society, homeland, professional counseling*

Hozirgi kunda ta'lim jarayonida interfaol metodlar, innovatsion texnologiyalar, pedagogik va axborot texnologiyalarini o'quv jarayonida qo'llashga bo'lgan e'tibor kundan-kunga kuchayib bormoqda, bunday bo'lishining sabablaridan biri, shu vaqtgacha an'anaviy ta'limda o'quvchi-talabalarni faqat tayyor bilimlarni egallashga o'rgatilgan bo'lsa, zamonaviy texnologiyalar ularni egallayotgan bilimlarini o'zlari qidirib topishlariga, mustaqil o'rganib, tahlil qilishlariga, hatto xulosalarni ham o'zlari keltirib chiqarishlariga o'rgatadi. O'qituvchi bu jarayonda shaxsni rivojlanishi, shakllanishi, bilim olishi va tarbiyalanishiga sharoit yaratadi va shu bilan bir qatorda boshqaruvchilik, yo'naltiruvchilik funksiyasini bajaradi. Ta'lim jarayonida o'quvchi-talaba asosiy figuraga aylanadi.

Shuning uchun oliy o'quv yurtlari va fakultetlarida malakali kasb egalarini tayyorlashda zamonaviy o'qitish metodlari-interfaol metodlar, innovatsion texnologiyalarning o'rni va roli benihoya kattadir.

Pedagogik texnologiya va pedagog mahoratiga oid bilim, tajriba va interaktiv metodlar o'quvchi-talabalarni bilimli, yetuk malakaga ega bo'lishlarini ta'minlaydi. Innovatsion texnologiyalar pedagogik jarayon hamda o'qituvchi va

talaba faoliyatiga yangilik, o'zgarishlar kiritish bo'lib, uni amalga oshirishda asosan interfaol metodlardan to'liq foydalaniladi. Interfaol metodlar - bu jamoa bo'lib fikrlash deb yuritiladi, ya'ni u pedagogik ta'sir etish usullari bo'lib, ta'lim mazmunining tarkibiy qismi hisoblanadi. Bu metodlarning o'ziga xosligi shundaki, ular faqat pedagog va o'quvchi-talabalarning birgalikda faoliyat ko'rsatishi orqali amalga oshiriladi. Mamlakatimizning ijtimoiy iqtisodiy rivojlanishini jadallashtirish va uning iqtisodiy xavfsizligini ta'minlashda ta'lim tizimining o'rni beqiyosdir. Dunyoda ta'lim tizimida ro'y berayotgan ta'limning internatsionallashuvi, talabalarning xalqaro mobilligi, ta'lim dasturining tez o'zgaruvchanligi kabi global tendensiyalar qatoriga ta'lim sifatini ta'minlash masalasi alohida ahamiyat kasb etib bormoqda. Zamonaviy ijtimoiy-iqtisodiy sharoitlar hamda bo'lajak mutaxassislarining ma'naviy-ahloqiy, intellektual va kasbiy salohiyatiga nisbatan qo'yilayotgan yuqori talablar ta'lim muassasalari oldiga xalqaro talablarga javob bera oladigan sifatli kadrlar tayyorlash vazifasini qo'yimoqda. Bu vazifalarni bajarish yo'lida esa ta'limda innovatsion pedagogik texnologiyalardan foydalanish talab etiladi. Ammo ta'lim tizimida zamonaviy tendensiyalarni, ayniqsa, rivojlangan xorijiy mamlakatlardagi ta'lim tizimida foydalanayotgan innovatsion pedagogik texnologiyalarni isloh qilishning zamonaviy tajribalari nisbatan sekin o'zlashtirilmoqda.

Pedagogik texnologiya - bu o'quv jarayonini zamonaviy tashkil etish tizimi bo'lib, u ta'limning zaruriy sifatini ta'minlaydi va jadallashtirish ilmiy-texnik taraqqiyot talablariga javob beradigan, ta'lim shakllarini takomillashtirish vazifasini ko'zlagan o'qitish jarayonlarini texnika va inson omillarida, ularning birgalikdagi harakatlari vositasida yaratish, tadbiiq etishning izchil metodidir. Ta'lim jarayonida innovatsion pedagogik texnologiyalardan foydalanish davr talabi bo'lib hisoblanadi. Pedagogik texnologiya-texnika resurslari, odamlar va ularning o'zaro ta'sirini hisobga olgan holda ta'lim shakllarini optimallashtirish vazifasini qo'yuvchi o'qitish va bilimlarni o'zlashtirishning hamma jarayonlarini yaratish, qo'llash va aniqlashning tizimli metodi (YUNESKO). Ta'lim jarayonida yangi innovatsion texnika-texnologiyalardan foydalangan holda dars o'tish, so'nngi texnikalar bilan jihozlangan laboratoriya xonalaridan foydalangan holda mashg'ulotlar o'tkazish, mutaxassislik bo'yicha, masalan kimyo sohasidagi so'nngi innovatsiyalar haqida ma'lumotlar keltirib, jahon tajribasidan namunalar keltirib o'tish talabalarni yangilik yaratish ruhida tarbiyalashga turtki bo'ladi. Bizning fikrimizcha ta'lim jarayonida avval qiziqish uyg'otib, motivatsiya berib, so'ngra raqobat muhiti yaratilsa talabalarda innovatsiya yaratishdagi yashirin qobiliyatlari uyg'otiladi va albatta rag'batlantirish amalga oshirilsa ko'zlangan maqsadga erishiladi. Talabalarga ilm-fan va innovatsiya yaratishda yutuqlarga erishgan insonlardan misol keltirib, iloji bo'lsa ulardan birini o'rnak bo'luvchi inson sifatida darsga taklif qilib, yoki innovatsiyalar markaziga talabalarni ekskursiyalarga etishni yo'lga qo'yilsa maqsadga tezroq erishilgan bo'lardi [3].

Innovatsion ta'lim (ingl. "innovation"-yangilik kiritish, ixtiro) ta'lim oluvchida yangi g'oya, me'yor, qoidalarni yaratish, o'zga shaxslar tomonidan

yaratilgan ilg'or g'oyalar, me'yor, qoidalarni tabiiy qabul qilishga oid sifatlar, malakalarni shakllanirish imkoniyatini yaratadigan ta'lim.

Innovatsion ta'lim jarayonida qo'llaniladigan texnologiyalar innovatsion ta'lim texnologiyalari yoki ta'lim innovatsiyalari deb yuritiladi [1].

O'qituvchi innovatsion texnologiyalarga asoslanib darsni tashkil etar ekan, turli texnik vositalardan ham (kompyuter, proyektor,elektron doska va hokazo) foydalanishi, interfaol metodlar asosida dars o'tishi ham mumkin. O'qituvchining faoliyatida innovatsiyalar qanchalik ko'p bo'lsa, mazmun shunchalik oshadi. Ta'limda innovatsion texnologiyalar va interfaol metodlar haqidagi tasavvurlar barqaror va mukammal shaklga ega emasligini ham e'tirof etish lozim. Har bir o'qituvchi ta'limda individual ravishda yangilik kiritishi mumkin. O'z fanining mazmun-mohiyati, mavzulari, shu sohadagi yaratilgan ilm-fan yutuqlari va innnovatsiyalar haqida yangi ma'lumotlarni o'rgangan holda o'qitish jarayonida ularni qo'llab, misollar keltirib, ta'limda yangi metodni yaratishi, hamda shu asosida dars o'tishi mumkin. Innovatsion texnologiyalar o'qituvchi o'z faoliyatidan qoniqmasligidan kelib chiqadi, uni yaxshilashga doir yangilik kiritishga harakat qiladi. "Faoliyatni yangilash 3 bosqichda, ya'ni tayyorgarlik, rejalashtirish va joriy etish bosqichlarida amalga oshiriladi."-degan edi mashhur pedagog A.Nikolskaya [2]. Innovatsion texnologiyalardan asosiy maqsad o'qituvchi va o'quvchi mushtarakligiga erishish, o'quvchilarni fanga qiziqtirish, ta'limga bo'lgan munosabatni o'zgartirish, o'rganilgan bilimlarni ijtimoiy sharoitlarda qo'llay olish ko'nikmasiga ega bo'lish, axborot kommunikatsion texnologiyalar va didaktik materiallarni mavzu bilan uyg'unlashtirish kabilarni keltirish mumkin. Hozirgi kunda ta'lim jarayonida interaktiv metodlar, innovatsion texnologiyalar, pedagogik va axborot texnologiyalari o'quv jarayonida qo'llashga bo'lgan qiziqish, e'tibor kundan kunga kuchayib bormoqda, bunday bo'lishining sabablaridan biri, shu vaqtgacha an'anaviy ta'limda o'quvchi talabalarni faqat tayyor bilimlarini egallashga o'rgatilgan bo'lsa, zamonaviy texnologiyalar ularni egallayotgan bilimlarini o'zlari qidirib topishlariga, mustaqil o'rganib, tahlil qilishlariga, hatto xulosalarni ham o'zlari keltirib chiqarishlariga o'rgatadi. O'qituvchi bu jarayonda shaxsning rivojlanish, shakllanishi, bilim olishi va tarbiyalanishiga sharoit yaratadi va shu bilan bir qatorda boshqaruvchilik, yo'naltiruvchilik funksiyasini bajaradi. Ta'lim jarayonida o'quvchi talaba asosiy figuraga aylanadi. Shuning uchun oliy o'quv yurtlari va fakultetlarida malakali kasb egalarini tayyorlashda zamonaviy o'qitish metodlari interaktiv metodlar, innovatsion texnologiyalarning o'rni va roli benihoya kattadir. Pedagogik texnologiya va pedagog maxoratiga oid bilim, tajriba va interaktiv metodlar o'quvchi-talabalarning bilimli, yetuk malakaga ega bo'lishlarini ta'minlaydi [4,5,6].

Innovatsion pedagogik texnologiyalar kelajakda ham mehnat bozorida talab mavjud bo'ladigan zamonaviy mutaxassis-kadrlarni tayyorlash uchun ta'lim jarayonida juda muhim ahamiyatga egadir. Zamonaviy kadrlar tayyorlash uchun pedagogning o'zi ham zamonaviy AKT vositalaridan foydalangan holda, eng

soʻnngi ilm-fan yutuqlaridan, oʻzi bilim berayotgan soha yangiliklaridan xabardor boʻlishi va eng yangi pedagogik texnologiyalar asosida dars oʻtishi talab etiladi. Oliy taʼlimni 2030-yilgacha rivojlantirish boʻyicha konsepsiyada mamlakatimiz oliy taʼlim muassasalarini xalqaro 1000 talik taʼlim muassasalari safiga kiritish maqsad qilingan. Ammo innovatsion pedagogik texnologiyalarning xalqaro tajribasini oʻrganish va unlarni tadbiq etish nisbatan sekin amalga oshirilmoqda. Fikrimizni aniqroq bayon etish uchun turli xildagi abituriyent tayyorlash oʻquv kurslarini misol qilib keltirsak, bir tayyorlov kursi pedagogining maqsadi eng avvalo nomi eng yaxshilar safiga kirishi emas, mehnati samarasi boʻlgan tahsil oluvchilarning koʻzlangan maqsadiga erishishi boʻlib hisoblanadi. Misol uchun, ingliz tilidan IELTS kurslarini tahsil oluvchilari ushbu sertifikatni yuqori ballarda egallashi, fanlar boʻyicha abituriyentlarning oʻzi tanlagan oliy taʼlim muassasasiga yuqori natijalar bilan oʻqishga kirishi- oʻsha pedagogning birinchi oʻrindagi maqsadi boʻlib hisoblanadi va shu maqsadga erishishi oʻz-oʻzidan uni eng yaxshi kurslar qatoriga kiritib qoʻyadi. Chunki har qanday faoliyatning sifatli amalga oshirilganligi uning natijasida aks etadi [4,5].

Taʼlim jarayonining sifatli amalga oshirilishida oʻqitishni innovatsion pedagogik texnologiyalar orqali amalga oshirishning oʻrni beqiyosdir. OTMlardagi muayyan yoʻnalishdagi mutaxassisni tayyorlashda shunday sifatli, amaliyot bilan bogʻliq boʻlgan holdagi taʼlim berish kerakki bitiruvchilar ishga kirish jarayonida yana qoʻshimcha kurslarga borishga hojat qolmasin.

Foydalanilgan adabiyotlar roʻyxati:

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ZAMONAVIY TA'LIM SHAKLLARIDA O'QUVCHILAR O'ZLASHTIRISHDAGI KO'RSATKICHLAR

Annotatsiya: Maqolada zamonaviy ta'lim shakllarida o'quvchilar o'zlashtirishdagi ko'rsatkichlari haqida ma'lumotlar keltirilgan.

Kalit so'zlar: *Pedagogik, ta'lim, tarbiya, og'zaki tekshirish, yozma tekshirish*

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EFFECTIVE WAYS OF DIRECTING STUDENTS TO THE PROFESSION

Annotation: *The article presents data on student performance indicators in modern forms of education.*

Keywords: *Pedagogical, educational, upbringing, oral verification, written verification*

Ta'lim tizimida islohotlarni amalga oshirish jarayonida o'quvchilarning bilim, ko'nikma va malakalarini nazorat qilish va baholash ham yangicha mazmun kasb etdi. Davlat ta'lim standartlarining ishlab chiqilganligi, yangi o'quv dasturining amaliyotga joriy etilganligi, erkin va mustaqil fikrlovchi shaxsni tarbiyalashga nisbatan yuqori talabning qo'yilayotganligi, ta'lim amaliyotiga pedagogik texnologiyalar olib kirilayotganligi, o'quvchilarni kasbga muvaffaqiyatli yo'llash maqsadida psixologik va pedagogik diagnostika barcha turdagi ta'lim muassasalarida keng ko'lamda amalga oshirilayotganligi kabi holatlar ko'zga tashlanayotgan bir vaqtda o'quvchilarning bilim, ko'nikma va malakalarini eng samarali shakl, metod va vositalar yordamida nazorat qilish hamda baholash muhim ahamiyatga ega [1].

O'quvchilarning o'quv faoliyatini nazorat qilish metodlari qo'yidagilar: og'zaki tekshirish, yozma tekshirish, amaliy topshiriqlarni bajarishga asoslangan tekshirish, uy vazifalarini tekshirish.

Og'zaki tekshirish. Bu metod bilimlarni nazorat qilish va baholashning ancha keng tarqalgan an'anaviy usullaridan biridir. Og'zaki tekshirishning mohiyati shunda ko'rinadiki, o'qituvchi o'quvchilarga o'rganilgan mavzuning mazmunidan kelib chiqib, savollar beradi va ularni javob berishga undaydi. Ana shu tarzda ularning o'zlashtirish darajasini aniqlaydi. Og'zaki tekshirish o'quvchilarning bilimlarini tekshirishni savol-javob usuli asosida amalga

oshiriladi. Ushbu usul ayrim hollarda suhbat usuli deb ham ataladi. Ogʻzaki tekshirishda oʻqituvchi oʻrganilayotgan mavzuni alohida qismlarga ajratadi va ularni har biridan oʻquvchilarga savollar beradi. Biroq oʻquvchilarning nutqini oʻstirish hamda ularning chuqur va mustahkam bilimga ega boʻlishlari uchun ulardan shu yoki oldingi mavzuni butunlay esga tushirishni talab qilish mumkin.

Yozma tekshirish – oʻquvchilarning bilim, koʻnikma va malakalarini nazorat qilish va baholashning eng samarali usullaridan biri boʻlib, ularning ijodiy qobiliyatlarini baholash imkonini beradi. Mazkur usulning mohiyati shundaki, oʻqituvchi alohida mavzu yoki oʻquv dasturining maʼlum boʻlimini oʻtib boʻlganidan soʻng oz vaqtning chida barcha oʻquvchilarni tekshirishi mumkin. Yozma tekshirish nazorat ishi, insho, bayon, diktant va boshqalar yordamida olib boriladi. Ammo oʻqituvchi va oʻquvchi oʻrtasida bevosita aloqaning yoʻqligi sababli, uning fikrlashini kuzatish imkoni boʻlmaydi [3, 4].

Amaliy topshiriqlarni bajarishga asoslangan tekshirish. Bajarilayotgan amaliy harakatlar (sport, mehnat harakatlari)ning toʻgʻriligini kuzatish yoki olingan natijalarga tayanishdan iborat boʻlishi mumkin. Amaliy tekshirish tabiiy-matematik sikldagi fanlardan oʻquvchilarning oʻzlashtirishini xisobga olishda keng foydalaniladi. Bu usul yordamida oʻquvchilarning olgan bilimlarini amaliyotda qoʻllay olish malakasi aniqlanadi.

Uy vazifalarini tekshirish. Oʻquvchilarning oʻzlashtirishini nazorat qilish uchun ularning uyga berilgan vazifalarni bajarishini tekshirish katta ahamiyatga ega. Uy vazifalarini tekshirish oʻqituvchiga oʻquvchilarning oʻquv ishiga boʻlgan munosabatini, oʻrganilgan materialni qanchalik egallaganligini, uy vazifalarini bajarishdagi mustaqillik darajasini aniqlashga imkon beradi. Maʼlumki, bugun taʼlim tizimida reyting nazoratidan keng foydalanilmoqda.

Reyting deganda baholash, tartibga keltirish, klassifikasiyalash, bironta hodisani oldindan belgilangan shkala boʻyicha baholash tushuniladi. Reyting nazorati oʻquvchining maʼlum bir fandan reytingini aniqlaydi.

Shkalalash – aniq jarayonlarni raqamlar tizimi yordamida modellashtirish. Reyting nazoratida oʻquvchilarning oʻquv faoliyatini nazorat qilishning yuqorida keltirilgan metodlari bilan birga test usulidan ham samarali foydalanilmoqda. Test soʻrovidan nafaqat oʻquvchilarning bilim, koʻnikma va malakalari darajasini aniqlash, balki 1993 yildan boshlab Oʻzbekiston Respublikasida abituriyentlarni oliy oʻquv yurtlariga tanlov asosida qabul qilish jarayonida ham samarali foydalanib kelinmoqda.

Test – aniq maqsad asosida, muayyan holat darajasini sifat va miqdoriy koʻrsatkchlarda belgilashga imkon beruvchi sinov vositasi. Pedagogik amaliyotda testning bir qator afzalliklari koʻzga tashlanadi. Ular quyidagilardir:

- 1) nazorat uchun vaqtning kam sarflanishi;
- 2) nazariy va amaliy bilim darajasini obʻektiv sharoitda aniqlash imkonining mavjudligi;
- 3) bir vaqtning oʻzida koʻp sonli oʻquvchilar bilan nazoratni tashkil etish mumkinligi;

4) bilim natijalarining o‘qituvchi tomonidan qisqa muddatda tekshirilishi;
5) barcha o‘quvchilarga bir xil murakkablikdagi savollar berilib, ular uchun bir xil sharoitning yaratilishi. Ta’lim tizimi uzluksiz ravishda islohotlarni amalga oshirishni talab etadigan sohadir. Ta’lim tizimida islohotlarni amalga oshirish jarayonida o‘quvchilarning bilim, ko‘nikma va malakalarini nazorat qilish va baholash ham yangicha mazmun kasb etdi [4,5,6].

Foydalanilgan adabiyotlar ro‘yxati:

1. O‘zbekiston Respublikasi Vazirlar Mahkamasining “Xalq ta’limi tizimida ta’lim sifatini baholash sohasidagi xalqaro tadqiqotlarni tashkil etish chora-tadbirlari to‘g‘risida”gi 2018 yil 8 dekabrda 997-son Qarori.
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EFFECT OF COMBINED USE OF HERBICIDES ON WINTER WHEAT YIELD

Abstract: *This article presents the results obtained when several herbicides were used together to control weeds in winter wheat fields and their effect on winter wheat yield.*

Key words: *herbicides, complex application, productivity, weeds, winter wheat.*

Introduction: One of the factors that hinders the production of abundant and high-quality plant products is weeds, which cause huge problems. For this reason, it is an urgent issue to create the scientific and practical basis of combating weeds in the field of grain crops grown on irrigated lands in each soil and climatic conditions, as well as by crop and variety.

Purpose of work: Studying the effects of combined application of several herbicides on weeds and yield in winter wheat field.

Research object: Winter wheat fields in the irrigated lands of Surkhandarya region were selected as the object of research and experiments were conducted.

Research methods: Applying, observing, comparing and evaluating the results of adding various herbicides to the winter wheat field, which is considered the object of research.

It is known from the scientific sources of 1980-1990 that herbicides were mixed with each other, with mineral fertilizers and other chemical agents, and it was observed that the efficiency was high when they were used once. Especially when herbicides are mixed together and used together, repeatedly using tractor-mounted herbicide sprayers to control weeds in a winter wheat field increases both exposure and cost.

The selective effect of herbicides when used to control weeds in winter wheat fields requires the use of several herbicides together to control weeds of different species.

According to the results of our experiments (Table 4.2.7.22), Puma super (1 l/ha) herbicide with spikes, Granstar (15 g/ha) herbicide against dicotyledonous weeds separately and together it was found that when herbicides were applied,

grain yield was significantly increased compared to the control option without application.

Table - 4.2.7.22

Dependence of the productivity of winter wheat variety Kroshka on the level of weed control by herbicides

| Experience is an option lari | Productivity, s/ha | | | | Difference from control (st), +,- | | |
|---|--------------------|-----------|-----------|---------|-----------------------------------|-------|--|
| | 2005 year | 2006 year | 2007 year | average | s/ha | % | |
| When the herbicide was applied on March 20 | | | | | | | |
| I option (st) | 31,3 | 34,4 | 32,8 | 32,8 | - | 100,0 | |
| II option | 45,3 | 50,1 | 48,5 | 47,9 | +15,1 | 146,0 | |
| III option | 46,9 | 49,5 | 47,3 | 47,9 | +15,1 | 146,0 | |
| IV option | 56,7 | 57,3 | 56,1 | 56,7 | +23,9 | 172,8 | |
| Sx, % | 0,36 | 0,17 | 0,26 | | | | |
| EKF05=s/ha | 3,11 | 1,10 | 1,75 | | | | |
| When the herbicide was applied on April 10 | | | | | | | |
| I option (st) | 30,1 | 31,5 | 29,8 | 30,4 | - | 100,0 | |
| II option | 47,3 | 48,1 | 47,1 | 47,4 | +17,0 | 155,9 | |
| III option | 47,8 | 49,7 | 48,1 | 48,5 | +18,1 | 159,5 | |
| IV option | 59,5 | 61,2 | 60,5 | 60,4 | +30,0 | 198,7 | |
| Sx, % | 0,28 | 0,24 | 0,16 | | | | |
| EKF05 =s/ha | 1,86 | 1,52 | 1,04 | | | | |

However, it was observed that grain yield changes depending on the period, type and method of herbicide application.

First of all, when the grain yield of the control option without herbicides was analyzed according to the duration of herbicide application, the following cases were observed. It was observed that the grain yield of the control variant was different in the years of the experiment, in the places where herbicides were applied and where herbicides were not applied, due to the fact that the experimental fields were in different places according to the terms of application of herbicides. However, the fact that the difference in grain yield in the control options does not exceed 2.0-2.5 s/ha can be considered as a result of the error between the experimental options. Because the smallest between-experimental difference (ECF) is 1.10-3.11, this indicator is a natural difference that occurs between experimental options and replications, and such differences that occur in field experiments it is recognized that the experiments were carried out correctly.

Results: According to the first experiment conducted on March 20 to eliminate spike and dicotyledonous weeds in the winter wheat field by applying herbicides, the grain yield of the control variant without herbicide application was 31.3-34.4 s/ha, the grain yield when spiky weeds were eliminated by means of Puma super (1 l/ha) herbicide was 45.3-50.1 s/ha in the years of the experiment, the three-year average additional grain was 15.1 s/ha compared to the control

option without herbicides. When Granstar (15 g/ha) herbicide was used against dicotyledonous weeds, the grain yield differed dramatically from year to year (46.5-49.5 s/ha) and averaged 47.9 s/ha, compared to the control variant, it showed the formation of additional grain yield by 15.1 s/ha. However, when both herbicides were used together at the specified rates, the additional grain yield increased up to 72.8%. That is, according to the three-year experiments, the average grain yield when herbicides are used together is 56.7 s/ha, and the additional grain yield is 23.9 s/ha compared to the control option without herbicides. These conditions are the reason why the grain yield is 8.8 s/ha less when the herbicide Puma super (1 l/ha) is applied alone, compared to when the herbicide Granstar (15 g/ha) is applied together, due to the negative effects of dicotyledonous weeds. This can be expressed as 'secret'. It is natural that the decrease in grain yield when Granstar (15 g/ha) herbicide is used alone, compared to when both herbicides are used together, is caused by the negative effects of spiky weeds. Because spike and dicotyledonous weeds develop in winter wheat fields at the same time and have a negative impact on productivity. Puma super (1 l/ha) and Granstar (15 g/ha) herbicides, when used together, control both spike and dicot weeds at the same time, allowing free growth and development of winter wheat. due to the creation of perfect conditions, the grain yield will increase dramatically.

According to the second experiment, the additional grain yield when Puma super (1 l/ha) herbicide was applied against spikes and Granstar (15 g/ha) herbicide against dicotyledonous weeds on April 10 compared to when herbicides were applied on March 20 was 6 It was observed to increase up to 1 s/ha. This situation can be explained by the fact that herbicides were applied on March 20, and despite the elimination of weeds, new ones appeared and negatively affected the growth and development of winter wheat, reducing the yield. Because on April 10, all types of weeds that have been treated with herbicides will fully germinate and be eliminated by herbicides (early and dicotyledonous). Therefore, it was found that the additional grain yield when Puma super (1 l/ha) was applied on March 20 was 15.1 s/ha, and this indicator increased by 2.0 s/ha when applied on April 10. . Also, when Granstar (15 g/ha) herbicide was applied on April 10 compared to March 20, an increase of 3.0 s/ha was observed. When herbicides are applied together on April 10, when the weeds have fully germinated, the additional grain yield is on average up to 30 s/ha, and the total average grain yield increases to 60.4 s/ha. provides.

Conclusion: So, when spike and dicotyledonous weeds are common in winter wheat fields, Puma super (1 l/ha) and Granstar (15 g/ha) herbicides are used against them by mixing them together and applying them once. due to the cleaning of wheat fields from such weeds, it is possible to ensure an increase in grain yield up to two percent.

We selected the fields where winter wheat was grown a year before the experiment and where winter wheat is planned to be grown next year, and we marked the fields with a lot of spike and dicotyledonous weeds. Even before

conducting the experiments, we calculated such weeds and then applied herbicides according to the experimental scheme. Therefore, it was observed that there was a significant difference in productivity between the experimental variants without herbicides and those with herbicides. Usually, herbicides are applied to crops with a lot of weeds.

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SURXONDARYO VILOYATI URUG' MEVALI BOG'LARINING ASOSIY ZARARKUNANDALARI

Annotatsiya: Ushbu tezisdagi mevali bog'larda keng tarqalib, ularga zarar berayotgan barg o'rovchilar (*Tortricidae*) oilasiga mansub olma mevaxo'ri *Cydia pomonella* (Linnaeus, 1758); *Diaspididae* oilasiga mansub kaliforniya qalqondori *Diaspidiotus perniciosus* (Coms., 1881), binafsharang qalqondor *Parlatoria oleae* (Colvée, 1880) ning tarqalishi, zarari, bioekologik xususiyatlari haqida ma'lumotlar berilgan.

Kalit so'zlar: *Malus domestica* B., *Cydia pomonella*, *Grapholitha molesta*, *Parlatoria oleae*, *Diaspidiotus perniciosus*, biologiyasi, meva, bargi, novdasi.

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INDICATORS OF STUDENT ASSESSMENT IN MODERN EDUCATION SYSTEM

Annotation: This thesis includes *Cydia pomonella* (Linnaeus, 1758), an apple orchard belonging to the family *Tortricidae*, which is widespread in orchards and harms them; The distribution, damage, and bioecological characteristics of the California shield *Diaspidiotus perniciosus* (Coms., 1881) and the purple shield *Parlatoria oleae* (Colvée, 1880), which belong to the family *Diaspididae*, have been reported.

Key words: *Malus domestica* B., *Cydia pomonella*, *Grapholitha molesta*, *Parlatoria oleae*, *Diaspidiotus perniciosus*, biology, fruit, leaf, twig.

Dunyo miqyosida bugungi kunda kechayotgan iqlim o'zgarishlari, aholi sonining shiddat bilan o'sishi, ishlab chiqarish jarayonining jadallashishi kuzatilayotgan bir davrda, barcha sohalar kabi oziq-ovqat yetishtirish sanoatida ham qator muammolar ko'paymoqda. Dunyoda har yili 5 million gektardan ortiq maydonda olma yetishtiriladi. 2017 yilda olma yetishtirish miqdori 76 million tonnani tashkil etgan. 2017-2018 yilda yalpi olma yetishtirish miqdori 2,6 million tonnaga kamaygan. Xususan, jami olma mahsulotining Germaniyada 46%, Italiya 23%, Fransiyada 8% hosil zararli organizmlar ta'sirida nobud bo'lmoqda [6].

Shunga ko'ra qishloq xo'jaligi o'simliklarining, jumladan aholini sifatli meva mahsulotlari bilan ta'minlash zararkunanda hasharotlar tomonidan yetkazilayotgan iqtisodiy zararni kamaytirish sohasida samarali kurash

choralarini takomillashtirish muhim ilmiy amaliy ahamiyat kasb etadi. Respublikamiz mevali bog'larida 260 dan ziyod zararkunanda va 50 dan ziyod kasalliklar, dala ekinlarida 300 dan ortiq zararkunandalar va 100 dan ortiq kasalliklar uchrashi qayd qilingan [2,4].

Olma - *Malus domestica* B. iqtisodiy jihatdan muhim ekin bo'lib, butun dunyoda yetishtiriladi. Dunyo bo'yicha AQSH (4,8 mln.t.), Xitoy (22,01mln.t.), keyingi o'rinlarda Rossiya, Eron, Turkiya, Fransiya, Italiya mamlakatlari olma yetishtirish bo'yicha yetakchilik qiladi. O'zbekistonda olma uzumdan keyingi eng ko'p yetishtiriladigan meva hisoblanadi. Jahon bo'yicha olmaning yalpi hosili 60,2 mln. tonnani tashkil etsa, bu son O'zbekistonda 0,4 mln. tonnani tashkil etadi [1].

Surxondaryo viloyati urug' mevali bog'larining asosiy zararkunandalarini ro'yxatini tayyorlash maqsadida Surxondaryo viloyati Termiz tumani "Navro'z" MFYda joylashgan "SAYROB – AGRO - LIFE" f/x. ning behi, olma bog'larida, Angor tumani "Arslonbek Qurbonov", "Gilambob Bog'i-Angor" f/x. ning olma bog'larida, Uzun tumani "Jonchekka sarhadlari" f/x. ning olma bog'larida, Qumqo'rg'on tumani "Chaman-Sarvar ko'chatlari" f/x. ning olma bog'larida 2020- 2022 yillarda dala tadqiqot ishlari olib borildi. Surxondaryo viloyati sharoitida urug' mevali daraxtlardan olma daraxtidagi xavfli zararkunanda turlari qayd etilib, biologiyasi hamda zarar keltirish xususiyatlari to'liq tahlil etildi. Yo'nalishli kuzatuvlarimiz davomida mevali bog'larimizda sezilarli iqtisodiy zarar yetkazayotgan xavfli kemiruvchi zararkunandalar – barg o'rovchilar *Tortricidae*) oilasiga mansub olma qurt (mevaxo'ri) *Cydia pomonella* (Linnaeus, 1758), Respublikamiz uchun ichki karantin obyekti hisoblangan sharq mevaxo'ri - *Grapholitha (Laspeyresia) molesta* (Busck, 1916) uchrashi aniqlandi. Surxondaryo viloyati hududida mevali bog'larda 2 ta sinf, 3 ta turkum va 8 ta oilaga mansub 15 turdagi so'ruvchi zararkunandalar uchrashi aniqlandi. Tadqiqotlar natijasida urug' mevali bog'larga so'ruvchi zararkunandalardan 8 turi - olma shirasi *Aphis pomi* (De Geer, 1773), qizil qon shirasi *Eriosoma lanigerum* (Haus., 1802), kaliforniya qalqondori *Diaspidiotus perniciosus* (Coms., 1881), binafsharang qalqondor *Parlatoria oleae* (Colvée, 1880), olma qandalasi *Stephanitis oschanini* (Vasiliev, 1935), nok qandalasi *Stephanitis pyri* (Fabricius, 1775), qizil do'lana kanasi *Amphytetranychus viennensis* Zacher, oddiy o'rgimchakkana *Tetranychus urticae* (Koch, 1836) sezilarli zarar keltirishi ma'lum bo'ldi. Mevali bog'larga zarar keltiruvchi zararkunanda hasharotlardan asosiy dominant turlar qatoriga kiruvchi olma mevaxo'ri - *Cydia (Carpocapsa) pomonella* L. 30 turdan ortiq mevali daraxtlarni zararlaydi, ayniqsa, olma, qisman nok va behining asosiy zararkunandasidir. Olma qurti (mevaxo'ri) olma va nok hosilining taxminan 50% ga zarar yetkazadi. Har yili uning zararlashidan tuguncha va g'o'r mevalarning anchagina qismi to'kilib ketadi. Olma qurti tushgan mevalar ko'pincha irib ketadi va ularni saqlab bo'lmaydi. Bu qurt ba'zan o'rik va olxo'rini ham zararlaydi. Olma qurti mevaning eti va urug'i bilan oziqlanadi. Bu qurt olmaning erta pishar navlarini 30-40 % ini, o'rta va kuzgi

navlarini 40-50 % ini, qimmatbaho kechpishar navlar mevasini 80-90 % ini zararlaydi [3,4,5]. Kaliforniya qalqondori olma, nok, shaftoli, olcha, gilos, olxo‘ri kabi daraxtlarning umumiy qilib olganda 270 turdagi o‘simliklarning ashaddiy zararkunandasi. Koksidlar mevalarga dog‘ tushirib, sifatini pasaytiradi. Binafsharang qalqondor tushgan ba’zi olma navlarining 50% da 20 ta va undan undan ortiq dog‘ topildi. Mevalarning 90% da dog‘ borligi aniqlandi. Binafsha rang qalqondor - *Parlatoria oleae Colvee*. va kaliforniya qalqondori – *Diaspidiotus perniciosus Coms.* olma bog‘larida zararlilik darajasi bo‘yicha yuqori o‘rinni egallaydi, ya’ni 34,5% binafsharang qalqondor, 30,2% kaliforniya qalqondori, 11,4% olma vergulsimon qalqondor, qolgan turlar esa 6,9% ni tashkil etdi. Kaliforniya qalqondori urug‘ mevali daraxtlardan olmani 12,8%, nokni 10,1%, behini 10,9%, qolgan turlar esa eng kam darajada 8,6% zararlangani o‘rganildi.

Xulosa qilib aytganda, bu boradagi kamchiliklarni bartaraf etish uchun avvalambor qishloq xo‘jalik ekinlariga talofat yetkazayotgan zararli organizmlarni tur tarkibi, bioekologiyasi va zarar yetkazish darajalarini hamda tabiiy boshqarish qonuniyatlarini ochish va shular asosida ularga qarshi kurashda amaliy tavsiyalar ishlab chiqish zarur.

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ECONOMIC EFFECTIVENESS OF HERBICIDES APPLICATION AGAINST CEREAL AND DICOLYTIC WEEDS IN WINTER WHEAT FIELD

***Annation:** As we know, the result of any research is evaluated by the solution of a scientific problem, a new type of technology or the convenience and economic efficiency of the methods used. This article provides information on the economic efficiency of several selected types of herbicides when applied to weeds in the winter wheat field.*

***Key words:** winter wheat, economic efficiency, herbicide, weeds, yield*

Introduction: Due to the fact that spiked grain crops are planted close together and not specially processed, weeds grow freely among them, absorb water and nutrients, provide shade, create favorable conditions for the free development of diseases, pests, insects and other negative effects on grain yield and quality decreases to 40-50 percent. This will certainly lead to a decrease in economic efficiency. For this reason, it is important to study the effectiveness of using different herbicides separately or in combination at different time intervals.

Purpose of work: The purpose of the work is to determine the effectiveness of Puma super and Granstar herbicides against spiked and dicotyledonous weeds on several varieties of winter wheat on grain yield.

Research object: Several varieties of autumn wheat grown in irrigated lands of Surkhondarya region and various Puma and Grabstar herbicides were selected as research objects..

Research methods: In the course of the study, herbicides were applied to the weeds growing in the winter wheat field at different times, observation and comparison of the results was carried out.

Results: The results of our experiments showed that the effectiveness of Puma super and Granstar herbicides against spiked and dicotyledonous weeds in the field of Kroshka variety of winter wheat increased by up to two times. However, determining the economic efficiency of herbicides used against weeds is of particular importance. Because such herbicides are ecologically pure and effective, and because they are imported from abroad, the price is high. In addition, 40-50% or more damage of weeds in grain fields causes a sharp decrease in the efficiency of grain production. In recent years, despite the sharp increase in

spike and dicotyledonous weeds in wheat fields, the work of eliminating them with the help of appropriate herbicides has significantly decreased.

The demand for such herbicides in the world market is increasing due to the fact that the herbicides used against spike and dicotyledonous weeds in the winter wheat field are effective and environmentally friendly. For this reason, as noted in Table 5.27, the average price of 1 liter of Puma super herbicide used for the complete elimination of wild oats and other spiked weeds in each hectare of winter wheat field is 25,000 soums in 2005, 2006 30,000 soums in 2007 and 32,000 soums in 2007. Similarly, the cost of Granstar herbicide, which should be used to eliminate dicotyledonous weeds in winter wheat fields, is 4,800 soums per hectare in 2005, 5,175 soums in 2006, and 5,280 soums in 2007. because of the organization, our farmers did not buy such herbicides.

table -5.27

Economic effectiveness of herbicides application against cereal and dicolytic weeds in winter wheat field. (when herbicides are applied on March 20)

| № | Indicators | Experience options | | | |
|------------------|--|--------------------|--------|--------|--------|
| | | I (st) | II | III | IV |
| 2005 year | | | | | |
| 1 | Productivity s/ha | 31,3 | 45,3 | 46,9 | 56,7 |
| 2 | Total costs, in sums | 329133 | 354133 | 333933 | 358933 |
| | Herbicides, sum, ha | - | 25000 | 4800 | 29800 |
| 3 | Total income from the sale of grain, in sums | 268210 | 388176 | 401886 | 485862 |
| 4 | Net profit, sums | -60923 | 34043 | 67953 | 126929 |
| 5 | Rate of return, % | -18,5 | 9,6 | 20,3 | 35,4 |
| 2006 year | | | | | |
| 1 | Productivity s/ha | 34,4 | 50,1 | 49,5 | 57,3 |
| 2 | Total costs, in sums | 422073 | 452073 | 427248 | 457248 |
| | Herbicides, sum, ha | - | 30000 | 5175 | 35175 |
| 3 | Total income from the sale of grain, in sums | 394430 | 574447 | 567567 | 657002 |
| 4 | Net profit, sums | -27643 | 122374 | 140319 | 199754 |
| 5 | Rate of return, % | -6,5 | 27,1 | 32,8 | 43,7 |
| 2007 year | | | | | |
| 1 | Productivity s/ha | 32,8 | 48,5 | 47,3 | 56,1 |

| | | | | | |
|---|--|---------|--------|--------|--------|
| 2 | Total costs, in sums | 588336 | 620336 | 593616 | 625616 |
| | Herbicides, sum, ha | - | 32000 | 5280 | 37280 |
| 3 | Total income from the sale of grain, in sums | 432927 | 670151 | 624312 | 740464 |
| 4 | Net profit, sums | -155409 | 19819 | 30696 | 144848 |
| 5 | Rate of return, % | -26,4 | 12,3 | 5,2 | 23,1 |

However, considering that each bush of some weeds sheds up to 0.5 million seeds on the ground every year and increases year by year, the price of such herbicides should be of little interest to our farmers.

At the same time, if we take into account the fact that it develops along with winter wheat and reduces the yield and quality of the crop, we witness the limitless damage caused by weeds. According to the results of our experiments (Table 5.27), the yield from winter wheat fields with a lot of spiky and dicotyledonous weeds does not exceed 29.8-34.4 s/ha, against spiky weeds Puma super (1 l/ha), when Granstar (15 g/ha) herbicides used against dicotyledonous weeds were mixed together and dissolved, it was observed that the grain yield was 56.1-61.2 s/ha.

As a result, there was a sharp increase in net income and profitability due to the increase in income from the sale of grain to the state. As a result, expenses spent on Granstar and Puma super herbicides, along with other expenses, were fully covered, and an increase in net profit was observed.

On March 20, when Puma super was applied separately against wild oats and other spiky weeds, the grain yield was 14.0 s/ha in 2005, 15.7 s/ha in 2006, and 15 s/ha in 2007. It was observed that it increased by 7 s/h.

When Granstar (15 g/ha) herbicide was applied against dicotyledonous weeds on March 20, grain yield was increased by 15.6 s/ha in 2005 compared to the herbicide-untreated control option, and this situation was 15.1 s/ha in 2006. /ha showed that in 2007 it will be more than 14.5 s/ha.

However, when Granstar herbicide was applied separately against dicotyledonous weeds, the grain yield when both herbicides were mixed together and dissolved and applied on March 20 was significantly higher than when the herbicide was applied to the control option and when the herbicides were applied separately. was observed.

When we compare and analyze the experimental options of this situation, we witness the following evidence. In 2005, compared to the control option without herbicides, the grain yield when both herbicides were mixed together was 56.7 s/ha, and it showed that the grain yield was 25.4 s/ha more than the control option.

The purpose of the analysis of data on grain yield in the economic analysis part of the dissertation was to show the high efficiency of the combined use of herbicides. If the grain yield when the herbicide Puma super (1 l/ha) was used

separately against spike weeds was 45.3 s/ha, the additional grain yield when both herbicides were used together, Puma super separately showed that it was 11 s/h higher than the one used. The same speed was observed in the effectiveness of the combined use of Puma super with the separate application of Granstar herbicide, and an additional grain yield of 9.8 s/ha was achieved.

According to the experiments of 2006-2007, the law of 2005 was repeated, showing that the combined use of Puma super (1 l/ha) and Granstar (15 g/ha) herbicides is more effective.

Conclusion: The results of the research show that the herbicide Puma super (1 l/ha) against spike weeds that develop simultaneously with winter wheat, Granstar (15 g/ha) against dicot weeds. It is considered a promising method to mix and melt together at the beginning of April, which is considered the time of sorghum germination, and opens new prospects for further development of grain growing in the conditions of the irrigated southern regions of our country.

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MAKTABGACHA YOSHDAGI BOLALARDA EKOLOGIK ETIKANING FALSAFIY XUSUSIYATLARINI SHAKLLANTIRISH USULLARI

***Annotatsiya.** Ilmiy maqola maktabgacha yoshdagi bolalarda ekologik dunyoqarashni shakllantirish bilan bog'liq muammolarni tahlil qilishga bag'ishlangan. Maqolada erta bolalik davrida ekologik ongni rivojlantirishga ta'sir qiluvchi asosiy jihatlar ko'rib chiqiladi. Tadqiqot zamonaviy adabiyotlar va empirik ma'lumotlarni ko'rib chiqish, shuningdek, maktabgacha ta'lim tashkilotlarida pedagogik amaliyotni joriy etish tajribasiga asoslangan.*

***Kalit so'zlar:** ekologik dunyoqarash , maktabgacha yoshdagi bolalar , shakllanish muammolari , ekologik ta'lim , pedagogik amaliyot , atrof-muhit , erta bolalik , ekologik ta'lim , pedagogik kompetentsiya , interfaol o'qitish usullari .*

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METHODS FOR THE FORMATION OF PHILOSOPHICAL FEATURES OF ENVIRONMENTAL ETHICS IN PRESCHOOL CHILDREN

***Abstract.** The scientific article is devoted to the analysis of problems related to the formation of an ecological worldview in preschool children. The article considers the main aspects influencing the development of ecological consciousness in early childhood. The study is based on a review of modern literature and empirical data, as well as the experience of introducing pedagogical practice in preschool educational organizations.*

***Keywords:** ecological worldview, preschoolers, problems of formation, environmental education, pedagogical practice, environment, early childhood, environmental education, pedagogical competence, interactive teaching methods*

Kirish. Ekologik etika tushunchasi birinchi marta 70-yillarning o'rtalarida G'arb falsafasida paydo bo'lgan. Bugungi kunda ekologik axloq tushunchasi bilan belgilanishi mumkin bo'lgan g'oyalar ancha oldin ifodalangan. Sharq madaniyatlarining dunyoqarashlari dunyoning yagona organizm sifatidagi,

barcha qismlari bir-biriga ta'sir ko'rsatadigan g'oyalarni o'z ichiga oladi. Ekologik axloq deganda biz ekotizimlarning yaxlitligini va inson hayotining munosib sifatini ta'minlaydigan inson va tabiat o'rtasidagi o'zaro munosabatlarning axloqiy tamoyillari to'plamini tushunamiz. Ekologik etika uzoq tarixiy taraqqiyot davomida inson va tabiatning o'zaro munosabati madaniyatida shakllangan va bugungi kunda ekologik madaniyat deb ataladigan muayyan qoidalarga asoslanadi.

Ekologiya va barqaror rivojlanish masalalari tobora dolzarb bo'lib borayotgan bugungi kunda bolalarda ekologik dunyoqarashni shakllantirishga alohida e'tibor qaratilmoqda. Bolalik-bu ekologik savodxonlik asoslarini shakllantirishning asosiy davri, chunki aynan shu davrda shaxsning asosiy qadriyatlari va munosabatlari shakllanadi. Bolalarda atrof-muhitga ongli, mas'uliyatli munosabatni shakllantirish ekologik qarorlar qabul qilishga qodir kelajak fuqarolarni tayyorlashda muhim rol o'ynaydi. Ushbu tadqiqot maktabgacha yoshdagi bolalarda ekologik dunyoqarashni shakllantirish bilan bog'liq asosiy muammolarni o'rganadi, ushbu jarayonning muvaffaqiyatiga ta'sir qiluvchi omillarni aniqlaydi va maktabgacha ta'lim amaliyotida ekologik ta'limni samarali amalga oshirish uchun pedagogik strategiyalarni taklif qiladi.

O'sib borayotgan ekologik muammolarga duch kelayotgan zamonaviy jamiyat sharoitida maktabgacha yoshdagi bolalarda ekologik dunyoqarashni rivojlantirish mavzusining dolzarbligini ortiqcha baholab bo'lmaydi. Bolalar kelajakdagi yetakchilar va jamiyatning faol ishtirokchilari bo'lib, ularning ekologik xabardorligi sayyoramizning barqaror rivojlanishining kalitidir.

Bugungi bolalar iqlim o'zgarishi, biologik xilma-xillikning yo'qolishi va ifloslanish kabi ekologik muammolar keskinlashib borayotgan dunyoda ulg'aymoqda. Ularda o'z xatti-harakatlari oqibatlarini tushunish, tabiatni asrash uchun mas'uliyatni rivojlantirish, barqaror kelajakni yaratishda faol ishtirok etishlarida ekologik dunyoqarashni shakllantirish zarur.

Mavzuga oid adabiyotlar tahlili. Maktabgacha yoshdagi bolalarda ekologik dunyoqarashni rivojlantirish muammosi bo'yicha adabiyotlarni ko'rib chiqish ushbu muammoning turli jihatlarini qamrab oluvchi bir nechta asosiy toifalarni aniqlash imkonini beradi:

Psixologik va pedagogik jihatlar:

- MM. Smailova boshlang'ich maktab o'quvchilarida ekologik dunyoqarashni shakllantirishning psixologik-pedagogik xususiyatlarini o'rganadi.

- H.E. Abdulshehidova didaktik o'yinlar orqali erta maktabgacha yoshdagi bolalarning ekologik dunyoqarashini shakllantirishni tavsiflaydi.

Ekologik ta'limning maqsad va vazifalari:

- M.G. Ashyrova bolalarga ekologik ta'lim va tarbiya berish muammolari va zaruriyatiga to'xtalib, ushbu ta'limning maqsadlarini belgilaydi.

- T.V. Nazarenko katta maktabgacha yoshdagi bolalarda ekologik ta'limni rivojlantirish muammosining nazariy asoslarini o'rganadi.

Shakllantirish texnologiyalari va usullari:

- T.A.Kozlovskaya va Yu.Yu.Peremyshlev kvest o'yinlari texnologiyasini maktabgacha yoshdagi bolalarda ekologik dunyoqarashni rivojlantirish vositasi sifatida tavsiflaydi.

- E.V.Grishchenko maktabgacha yoshdagi bolalarda ekologik dunyoqarashni shakllantirish masalasini ko'taradi.

Samaradorlik va natijalar:

- N.Yu.Mishchenko boshlang'ich maktab yoshidagi bolalarning jismoniy tarbiya jarayonida ekologik kompetentsiyasini shakllantirish bo'yicha tadqiqotini taqdim etadi.

Ekologik ta'limning zamonaviy shakllari va yo'nalishlari:

- I.V.Telnyuk va N.A.Bagayeva katta maktabgacha yoshdagi bolalar uchun ekologik ta'limning zamonaviy tendentsiyalari va formatlarini tahlil qiladi.

- G.N.Kazaruchik maxsus tashkil etilgan tadbirlarda katta maktabgacha yoshdagi bolalarning ekologik ta'limini o'rganadi.

Adabiy manbalardan olingan ma'lumotlarni umumlashtirish maktabgacha yoshdagi ekologik dunyoqarashni rivojlantirish muammosini har tomonlama ko'rib chiqish, turli yondashuvlar, usullar va tadqiqot samaradorligini aniqlash imkonini beradi.

Tadqiqot maqsadi: Tadqiqot ekologik ta'limning samarali usullari va texnologiyalarini ishlab chiqish maqsadida maktabgacha yoshdagi bolalarda ekologik dunyoqarashni shakllantirish muammolarini aniqlash va tahlil qilishga qaratilgan.

Tadqiqot maqsadlari:

1. Mavjud muammolarni tahlil qilish: Maktabgacha yoshdagi bolalarda ekologik dunyoqarashni shakllantirishdagi mavjud muammolarni ko'rib chiqish, ekologik ta'lim jarayonida yuzaga kelishi mumkin bo'lgan asosiy qiyinchilik va cheklovlarni aniqlash.

2. Samarali usullarni eksperimental o'rganish: Maktabgacha yoshdagi bolalarda ekologik dunyoqarashni shakllantirishning turli usullari va texnologiyalari samaradorligini baholashga qaratilgan eksperimental tadqiqot o'tkazish. Atrof-muhit haqida xabardorlikni oshirish va atrof-muhitga ijobiy munosabatni rivojlantirishda qaysi yondashuvlar eng samarali ekanligini aniqlash.

Xulosa. Ekologik axloq tamoyillari asosida majburiy uzluksiz ekologik tarbiya va ta'limning yaxlit falsafiy va pedagogik kontseptsiyasi, shuningdek, ekologik axloqni uning asosiy tarkibiy qismi sifatida o'z ichiga olgan shaxsning ekologik madaniyatini rivojlantirishning samarali usullari yaratilishi kerak. Maktabgacha yoshdagi bolalarda ekologik dunyoqarashni shakllantirish muammolari zamonaviy ta'limning muhim yo'nalishidir. Ushbu tadqiqot nafaqat ushbu muammoning dolzarbligini, balki vaziyatni o'zgartirish uchun shoshilinch choralar ko'rish zarurligini ham ochib berdi.

Erta yoshda ekologik dunyoqarashni shakllantirishning ahamiyati nafaqat texnikaning jadal rivojlanishi, balki tobora kuchayib borayotgan ekologik muammolar bilan ham bog'liq. Bolalar o'rtasida ekologik ta'limga erta kirishish sayyora kelajagi uchun mas'uliyatini tushunadigan yangi avlodni shakllantirishning kaliti bo'lishi mumkin.

Shuni ta'kidlash kerakki, ekologik dunyoqarashni shakllantirish muammolarini hal qilish ta'lim muassasalari, ota-onalar va butun jamiyatning birgalikdagi sa'y-harakatlarini talab qiladi. Bu jarayonda ekologik tafakkurni rivojlantirishga qaratilgan ta'lim dasturlarini tizimli amalga oshirish asosiy o'rin tutadi.

Kelajakdan umid - bugungi kun bolalari samarali ekologik ta'limga ega bo'lib, tabiatni asrashning faol targ'ibotchilariga aylanadi. Bu bizning sayyoramizning barqaror va muvozanatli kelajagini ta'minlaydi, bu erda har bir inson atrof-muhitni saqlashdagi o'z rolini tushunadi.

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O'ZBEKISTONNING JANUBIY XUDUDLARIDAGI TOVUQSIMON (CALLIFORMES) QUSHLARNING NEMATODAFUNA

***Annotatsiya:** Maqolada O'zbekiston janubidagi tog' oldi-tog' zonasidagi yovvoyi va dominant qushlarning nematodalari o'rganiladi. Tadqiqot natijalari shuni ko'rsatadiki, O'zbekiston janubidagi yovvoyi tog' oldi tog' zonasida o'rganilgan yovvoyi va uy qushlarida nematodalarning 14 turi qayd etilgan. Bu nematodalarning 5 turidan uy va yovvoyi qushlarning seron gelmintozlarining patogenlari hisoblanadi.*

***Kalit so'zlar:** ekstensivnosti invazii, intensiv invaziyi, nematodafauna, kapillyarioz, askaridoz, geterokidoz*

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NEMATODAFUNA OF BIRDS (CALLIFORMES) IN THE SOUTHERN REGIONS OF UZBEKISTAN

***Annotation.** The article examines nematodes of wild and dominant birds in the foothill-mountain zone in the south of Uzbekistan. The results of the study show that 14 species of nematodes were noted in the wild and domestic birds surveyed in the wild foothill mountain zone in southern Uzbekistan. Of these 5 species of nematodes are pathogens of serons helminthiases of domestic and wild birds.*

***Keywords:** extensiveness of invasion intensity of infestation, helminthofaun, nematodafauna capillarial disease, ascariasis, heterokeridosis, dyspharynxose.*

Surxondaryo va Qashqadaryo viloyatlarining tog', tog' oldi, to'qay va tekislik zonalaridan yovvoyi tovuqsimonlar, kaklik – *Alectoris chukar*, chil - *Ammoperdix griseogularis*, bedana - *Coturnix coturnix*, qirg'ovul - *Phasianus colchicus*, turlari gel'mintologik tekshirildi. Tekshirish natijasida ushbu tovuqsimonlardan nematodalarning 33 turi aniqlandi. Jumladan, 248 ta

gel'mintologik tekshirilgan tovuqlarning 162 (65%), 12 chilning 1 (6,2%), 52 ta kaklikning 22 (42%), 47 ta bedananing 18 (38%), 68 ta tekshirilgan qirg'ovulning 30 (44%) gel'mintlar bilan zararlanganligi qayd etildi.

Ushbu turlarning defenetiv xo'jayinlari ko'rsatilgan xolda sistematik tartibi, zararlanish ekstensivligi va intensivligi, aniqlangan joyi ko'rsatilgan.

Tur: *Heterakis gallinae* Gmelin, 1790

Xo'jayini: Uy tovug'i - *Gallus gallus domesticus*

Bedana - *Coturnix coturnix*

Qirg'ovul - *Phasianus colchicus*

Zararlanish ekstensivligi: 248 ta tekshirilgan uy tovug'ining 5 (2,0%), 47 ta gel'mintologik tekshirilgan bedananing 3 (6,3%), 68 ta gel'mintologik tekshirilgan qirg'ovulning 4 (5,8%) zararlanganligi aniqlandi.

Zararlanish intensivligi: kaklikda 3-10 nematoda topildi

Joylashishi: ingichka va yo'g'on ichak.

Topilgan joyi: Surxondaryo viloyatining Termiz va Jarqo'rg'on tumanlari

Tur: *Heterakis caudobrevis* Popova, 1949

Xo'jayini: Uy tovug'i - *Gallus gallus domesticus*

Zararlanish ekstensivligi: 248 ta tekshirilgan uy tovug'ining 3 (1,2%) zararlanganligi aniqlandi.

Zararlanish intensivligi: uy tovug'idan 3 nematoda topildi

Joylashishi: ko'r ichak

Topilgan joyi: Surxondaryo viloyatining Termiz va Jarqo'rg'on tumanlari

Tur: *Ganguleterakis altaicus* Spaul, 1866

Xo'jayini: Kaklik - *Alectoris chukkar*

Qirg'ovul - *Phasianus colchicus*

Zararlanish ekstensivligi: 52 ta tekshirilgan kaklikning 3 (5,7%), 68 ta tekshirilgan qirg'ovulning 2 (2,9%) zararlanganligi aniqlandi

Zararlanish intensivligi: kaklikda 2, qirg'ovulda 7 ta nematoda

Joylashishi: Ingichka ichak, yo'g'on ichak va ko'r ichak

Topilgan joyi: Surxondaryo viloyatining Termiz va Sherobod tumanlari

Tur: *Ganguleterakis isolonche* Linstow, 1906

Xo'jayini: Uy tovug'i - *Gallus gallus domesticus*

Qirg'ovul - *Phasianus colchicus*

Zararlanish ekstensivligi: 248 ta tekshirilgan uy tovug'ining 4 (1,6%), 68 ta tekshirilgan qirg'ovulning 2 (2,9%) nematodalar bilan zararlangan

Zararlanish intensivligi: tovuqdan 2, qirg'ovuldan 3 nematoda topildi

Joylashishi: ko'r ichak

Topilgan joyi: Surxondaryo viloyatining Termiz va Jarqo'rg'on tumanlari

Tur: *Ganguleterakis macroura* Linstow, 1883

Xo'jayini: Kaklik - *Alectoris chukkar*

Zararlanish ekstensivligi: 52 ta tekshirilgan kaklikning 2 (3,8%) nematodalar bilan zararlangan

Zararlanish intensivligi: kaklikdan 2 nematoda topildi

Joylashishi: ingichka ichak
Topilgan joyi: Surxondaryo viloyatining Boysun tumani
Tur: Ganguleterakis tenicauda Linstow
Xo'jayini: Kaklik - *Alectoris chukkar*
Chil – *Ammoperdix gris*
Zararlanish ekstensivligi: 52 ta tekshirilgan kaklikning 1 (6,2%)
nematodalar bilan zararlangan.
Zararlanish intensivligi: 2-4 ta nematoda topildi
Joylashishi: ko'r ichak
Topilgan joyi: Surxondaryo viloyatining Boysun tumani
Tur: *Subulura brumpti* Lapez Neyra, 1922
Xo'jayini: Kaklik - *Alectoris chukkar*
Bedana - *Coturnix coturnix*
Uy tovug'i - *Gallus gallus domesticus*
Zararlanish ekstensivligi: 52 ta tekshirilgan kaklikning 2 (3,8%), 47 ta
gel'mintologik tekshirilgan bedananing 1 (2,1%), 248 ta tekshirilgan uy
tovug'ining 3 (1,2%) nematoda bilan zararlangan.
Zararlanish intensivligi: tovuqdan 3-8, kaklikda 3-12, bedanada 2-8 nusxa
nematoda topildi.
Joylashishi: ingichka ichak va ko'r ichak
Topilgan joyi: Surxondaryo viloyatining Boysun, Termiz va Jarqo'rg'on
tumanlari
Tur: *Subulura curvata* Linstow, 1883
Xo'jayini: Kaklik - *Alectoris chukkar*
Zararlanish ekstensivligi: 52 ta tekshirilgan kaklikning 3 tasi (5,7%)
nematodalar bilan zararlangan
Zararlanish intensivligi: 2-9 nematoda
Joylashishi: ingichka ichak
Topilgan joyi: Surxondaryo viloyatining Boysun tumani
Tur: *Subulura skrjabini* Semenov, 1926
Xo'jayini: Bedana - *Coturnix coturnix*
Qirg'ovul - *Phasianus colchicus*
Kaklik - *Alectoris chukkar*
Zararlanish ekstensivligi: 47 ta tekshirilgan bedananing 2 tasi (4,2%), 68 ta
tekshirilgan qirg'ovulning 3 (4,4%), 52 ta tekshirilgan kaklikning 3 tasi (5,7%)
nematodalar bilan zararlangan
Zararlanish intensivligi: bedanada 3-12, qirg'ovulda 2-9, kaklikda 4-11
nematoda topildi
Joylashishi: ingichka va ko'r ichak
Topilgan joyi: Surxondaryo viloyatining Jarqo'rg'on Termiz va Boysun
tumanlari
Tur: *Subulura suctoria* Molin, 1860
Xo'jayini: Kaklik - *Alectoris chukkar*

Bedana - *Coturnix coturnix*

Qirg'ovul - *Phasianus colchicus*

Uy tovug'i - *Gallus gallus domesticus*

Zararlanish ekstensivligi: 52 ta tekshirilgan kaklikdan 2 (3,8%), 47 ta tekshirilgan bedanadan 4 tasi (8,5%), 68 ta tekshirilgan qirg'ovuldan 3 (4,4%), 248 ta tekshirilgan uy tovug'idan 3 (1,2%) nematoda

Zararlanish intensivligi: tovuqda 5-7, kaklikda 3-12, bedanada 2-4, qirg'ovulda 3-8 nematoda ajratib olindi.

Joylashishi: ko'r ichak

Topilgan joyi: Surxondaryo viloyatining Sherobod, Termiz va Jarqo'rg'on tumanlari

Tur: *Seurocyrnea eurycerca* Seurat, 1914

Xo'jayini: Kaklik - *Alectoris chukkar*

Bedana - *Coturnix coturnix*

Qirg'ovul - *Phasianus colchicus*

Zararlanish ekstensivligi: 52 ta tekshirilgan kaklikning 18 (34,6%), 47 ta bedananing 20 (42%), 68 ta qirg'ovulning 17 (25%) zararlanganligi qayd etildi

Zararlanish intensivligi: kaklikda 3-21, bedanada 4-18, qirg'ovulda 2-6 nemetoda aniqlandi.

Joylashishi: muskulli oshqozon po'sti osti

Topilgan joyi: Surxondaryo viloyatining Boysun, Sherobod, Qashqadaryo viloyaning Dehqonobod, Shaxrisabz tumanlari

Tadqiqot natijalariga ko'ra Surxondaryo va Qashqadaryo viloyatlarining turli zonalaridan tekshirilgan tovuqsimon qushlar nematodafaunasi asosan 33 turni tashkil etdi. Shundan uy tovug'ida 21 tur nematoda, qirg'ovulda 16 tur, kaklikda 17 tur, bedanada 17 tur va childa 1 tur nematoda qayd etildi. Shuningdek tovuqsimonlardan bedana – *Capillaria obsignata*, *Eucoleus annulatus*, *Amidostomum anseris*, *Cheilospirura gallinae* nematodalari uchun defenetiv xo'jayin sifatida O'zbekistonda birinchi marta qayd etildi.

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O‘ZBEKISTON YOVVOYI TOVUQSIMONLARINING NEMATODAFANAASI

Annotatsiya: Ushbu maqolada O‘zbekistonningda tarqalgan yovvoyi tovuqsimonlarning nematodafanasini o‘rganish bo‘yicha olingan natijalari keltirilgan

Kalit so‘zlar: qirg‘ovul, bedana, kaklik, nematoda.

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NEMATODAFANA OF WILD CHICKEN-LIKE ANIMALS UZBEKISTAN

Annotation. This article presents the results of a study of the nematodafauna of wild Galliformes, common in the northeastern part of Uzbekistan.

Key words: pheasant, quail, partridge, nematode.

O‘zbekistonning janubiy xududlarida uchrovchi tovuqsimon qushlar gel‘mintlarining taksonomiyasi, tarqalish darajasi va faunasi to‘g‘risidagi ma‘lumotlar amalda kam uchraydi va keltirilgan ma‘lumotlar esa bu borada chuqur tadqiqotlar olib borilmaganligini ko‘rsatadi [1,3,4,6,7]. Shunga asoslanib tog‘ zonasi va tekislik zonalarida uchrovchi tovuqsimon qushlar gel‘mintlarning, xususan nematodalarning faunistik kompleksini taxlil qilish, ularning tabiiy o‘choqlarini aniqlash va ularga qarshi kurash choralarini ishlab chiqish ilmiy, amaliy va iqtisodiy ahamiyat kasb etadi. Nematodalarni ajratib olishda K.I.Skryabinning (1928) “To‘liq gel‘mintologik yorish usuli”, N.Dubinaning (1972) “Qushlarni parazitologik tekshirish” usullaridan foydalanildi [2,5].

Turlarning defenitiv xo‘jayinlari ko‘rsatilgan xolda sistematik tartibi, zararlanish ekstensivligi va intensivligi, aniqlangan joyi ko‘rsatilgan.

Turkum: *Trihocephalidae Spassky, 1954*

Oila: *Capillaria Neveu, Lemaire, 1936*

Avlod: *Capillaria Zeder*, 1800

Tur: *Capillaria obsignata* Madsen, 1945

Xo'jayini: uy tovug'i – *Gallus gallus doomisticus*

Kaklik - *Alectoris chukkar*

Qirg'ovul - *Phasianus colchicus*

Bedana - *Coturnix coturnix*

Zararlanish ekstensivligi: 248 ta tekshirilgan tovuqning 3(1,2%), 52 ta tekshirilgan kaklikning 2 (3,8%), 68 ta tekshirilgan qirg'ovulning 4 (5,8%), 47 ta bedananing 2 (4,2%) zaralangan. Bedana ushbu nematoda *Capillaria obsignata* uchun yangi xo'jayin sifatida O'zbekistonda birinchi marta qayd etildi.

Zararlanish intensivligi: Tovuqda topilgan nematodalar soni 8, kaklikda 2, qirg'ovulda 3 va bedanada 1 tashkil etdi.

Joylashishi: Ingichka va yo'g'on ichak.

Topilgan joyi: Surxondaryo viloyatining Termiz, Jarqo'rg'on va Boysun tumanlari.

Tur: *Capillaria burcata*, Freitas et Almeida, 1934

Xo'jayini: uy tovug'I – *Gallus gallus domesticus*

Qirg'ovul - *Phasianus colchicus*

Bedana - *Coturnix coturnix*

Bedana - *Capillaria burcata* uchun yangi xo'jayin sifatida O'zbekistonda birinchi marta qayd etildi.

Zararlanish ekstensivligi: 248 ta tekshirilgan uy tovug'ining 8 (3,2%), 68 ta tekshirilgan qirg'ovulning 2 (2,9%), 47 ta bedananing 1 (2,1%) zararlanganligi qayd etildi.

Zaralanish intensivligi: tovuqda 15 ta, qirg'ovulda 4 ta, bedanada 3 ta nematoda ro'yhatga olindi.

Joylashishi: Ingichka ichak

Topilgan joyi: Surxondaryo viloyatining Jarqo'rg'on, Termiz tumanlarida ro'yhatga olingan.

Tur: *Capillaria candinflata* Molin, 1858

Xo'jayini: uy tovug'i - *Gallus gallus doomisticus*

Qirg'ovul - *Phasianus colchicus*

Kaklik - *Alectoris chukkar*

Zararlanish ekstensivligi: 248 ta gel'mintologik tekshirilgan uy tovug'ining 10 (4%), 68 tekshirilgan qirg'ovulning 4 (5,8%), gelmintologik tekshirilgan 52 ta kaklikning 4 (7,6%) zararlanganligi aniqlandi.

Zararlanish intensivligi: uy tovug'ida 7, qirg'ovuldan 3, kaklikdan 2 nematodalar ro'yhatga olindi.

Joylashishi: ingichka ichak

Topilgan joyi: Surxondaryo viloyatining Boysun, Angor va Termiz tumanlarida qayd etildi.

Tur: *Capillaria exile* Dujardin, 1845

Xo'jayini: Qirg'ovul - *Phasianus colchicus*

Bedana - *Coturnix coturnix*

Uy tovug'i – *Gallus gallus domesticus*

Zararlanish ekstensivligi: 68 ta gel'mintologik tekshirilgan qirg'ovulning 1 (1,4%), 47 ta tekshirilgan bedananing 2 (4,2%), 248 ta tekshirilgan uy tovug'ining 4 (1,6%) nematoda bilan zararlanganligi aniqlandi.

Zararlanish intensivligi: 1-4 ta

Joylashishi:ingichka ichak.

Topilgan joyi: Surxondaryo viloyatining Termiz va Sherobod tumanlaridan aniqlangan.

Tur: *Capillaria Uzbekistania Sultanov*, 1961

Xo'jayini: Uy tovug'i – *Gallus gallus domesticus*

Zararlanish ekstensivligi: 248 ta tekshirilgan uy tovuqning 3 (1,2%) zararlanganligi aniqlandi.

Zararlanish intensivligi: 2 ta

Joylashishi: ingichka ichak

Topilgan joyi: Surxondaryo viloyatining Jarqo'rg'on tumani.

Avlod: *Eucoleus Dujardin*, 1845

Tur: *Eucoleus annulatus*, 1858

Xo'jayini: Uy tovug'i - *Gallus gallus domesticus*

Qirg'ovul - *Phasianus colchicus*

Bedana - *Coturnix coturnix*

Zararlanish ekstensivligi: 248 ta tekshirilgan uy tovug'ining 4 (1,6%), 68 ta tekshirilgan qirg'ovulning 3 (3,4%), 47 ta tekshirilgan bedananing 2 (4,2%) zararlangan. Bedana nematoda *Eucoleus annulatus* uchun yangi xo'jayin sifatida O'zbekistonda birinchi marta ro'yxatga olindi.

Zararlanish intensivligi: tovuqdan 2, qirg'ovuldan 2, bedanadan 1 nematoda topildi.

Joylashishi: ingichka ichak

Topilgan joyi: Surxondaryo viloyatining Termiz, Jarqo'rg'on tumanlari

Aniqlangan nematodalarning qo'yidagi turlari kapillyarioz, askaridoz, disfarinksoz, geterakidoz, trixostroglioz xavfli gel'mintozlar hisoblanadi.

Ushbu nematoda turlari uy parrandalari va yovvoyi qushlar o'rtasida nematodozlarni almashinishida ishtirok etadi va uy parandalari mahsuldorligini kamaytiradi. Aniqlangan ma'lumotlar tovuqsimon qushlar orasida nematodoz kasalliklarni kelib chiqishida va uning o'choqlarini aniqlashda asosiy manba bo'lib xizmat qiladi.

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**GLOBAL GREEN ECONOMY: IS ONE OF THE PRESSING
PROBLEMS IN THE COUNTRIES OF THE WORLD TODAY FOR
MAKING THE ECOLOGICAL STABILITY**

***Abstract.** This article focuses on the transition to a green economy, which is one of the problems facing the countries of the world in today's globalization. The most important threats in the world are environmental threats. Aspects related to finding the best way to prevent these environmental threats by transitioning to a green economy in the country are highlighted.*

***Key words:** ecology, environmental protection, ecological crisis, ecological threat, modern technology, ecological economy and green economy.*

Like all advanced countries, Uzbekistan is responsible for preserving the environment for future generations. Today, most economic entities do not pay enough attention to economic benefits, depletion of natural resources and prevention of environmental degradation during their activities. It creates the impression that ensuring the production of clean products requires additional costs for the business entity. Failure to comply with laws and regulations, avoiding prosecution and punishment, does not bode well for misguided managers. As a result of the lack of control of business activities, it causes negative environmental and social consequences, including atmospheric air and water pollution, biological diversity, destruction of ecosystems, which causes threats to human health. The occurrence of such situations leads to disruption of sustainable development and environmental pollution. Prevention of environmental damage is more important than compensation. Important tasks in this direction include ensuring ecological stability in the country, accelerating the transition to a "green" economy, developing renewable and alternative energy, increasing the energy efficiency of the economy, improving the health of the population by expanding the scale of waste processing and production of secondary products.

In carrying out reforms, first of all, in accordance with the Strategy of transition to a "green" economy of Uzbekistan, while consistently implementing environmental relations, the implementation and implementation of state programs of another perspective in accordance with the Concept of environmental protection in the country until 2030 is supported. The goal of the green economy project in the country is to develop measures for environmental protection and sustainable development of the economy.

In this regard, the President of the Republic of Uzbekistan Sh. Mirziyoev - "As in the whole world, ecological problems are increasing in the country. "This is sometimes caused by natural factors, and in many cases by human beings," he said.

For example, in the last four years, the number of industrial enterprises has doubled, and the amount of dust and gas in cities has increased four times the norm. "The green spaces in the regions of our country have decreased by 3-4 times. It should be noted that the water has decreased and the underground water level has also decreased" [1].

It is to ensure ecological stability in the country and rational use of natural resources, to create decent living conditions for the population and the future generation, and to build a prosperous society through the wide implementation of the principles of green development. To eliminate the consequences of the ecological crisis, it is necessary to stabilize the country's ecological situation, preserve the environment in its entirety, ensure the rational use of land and water resources, and preserve natural resources for future generations. It is also important to drastically reduce the amount of waste released into the environment, but pay special attention to the costs associated with the elimination of harmful waste.

The Decree of the President of the Republic of Uzbekistan "Development Strategy of New Uzbekistan for 2022-2026" was adopted. In this decree, the issues of "promotion of environmental initiatives in the international arena, including the initiative to develop the World Environmental Charter" have a special place [2].

The work on the development of the green economy in Uzbekistan was launched in October 2019, after the adoption of the "Strategy of the transition to the "green" economy of the Republic of Uzbekistan for the period 2019-2030", on the eve of the COVID-19 pandemic. This strategy envisages reducing greenhouse gas emissions by increasing energy efficiency, expanding the use of renewable energy sources, increasing resource efficiency and crop productivity, and reducing land degradation [3].

Increasing human well-being at the expense of the ecological crisis will clearly show its negative consequences in the near future [4] The only solutions to this problem are the transition to an ecological economy or a green economy.

S. Plekhanov said today it is necessary to gradually implement the transition to a "green" economy. USA, South Korea, Germany, Sweden, Denmark, Holland and other developed countries are moving to "green" economy [5].

Walter Kahlenborn in the German industry "is one of the most important factors that need a green economy, to identify markets and key innovations, as well as to carry out research and innovation policy using the available opportunities to accelerate the transition to a green economy in Germany [6].

D. Beck, E. Nel and others, the transition to a green economy, including technological changes, are affecting the entire society. It is also necessary to develop an effective policy for optimizing the implementation of new technologies; need to be solved by applying technological changes [7].

According to the general economic approach to the definition of "green" economy by N. Vukovich, it is necessary to once again study the issues of sustainable development and implement an integrated approach. This allows us to determine the main interrelationships of ecology, economy, society and "green" economy [8]:

Karl Burkart believes that the "green" economy is a stable part of the systematic management of "ecology-economy-society" [9]. In his opinion, the "green" economy consists in providing a balance in a way that takes into account benefits in a social-ecological-economic system.

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THE PRESSING PROBLEMS IN THE WORLD TODAY FOR MAKING THE ECOLOGICAL STABILITY

***Abstract.** This article focuses on the transition to a green economy, which is one of the problems facing the countries of the world in today's globalization. The most important threats in the world are environmental threats. Aspects related to finding the best way to prevent these environmental threats by transitioning to a green economy in the country are highlighted.*

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According to the general economic approach to the definition of "green" economy by N. Vukovich, it is necessary to once again study the issues of sustainable development and implement an integrated approach. This allows us to determine the main interrelationships of ecology, economy, society and "green" economy [8]:

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Economic activity does not directly affect the environment without some means. Therefore, the development of economic activity is affected by environmental threats. The widespread expansion of environmental problems caused by excessive use of natural resources by the countries of the world, failure to adapt to the production process of modern technologies, and the dumping of toxic waste into the environment leads to the deterioration of public health.

Economic relations occupy a special place in human development, and the development of the country consists of the use of modern technologies, the

effective use of natural resources, the preservation of biodiversity and the provision of the environment in its entirety for future generations. In the process of ensuring the development of the global economy in the country, it is important to "capitalize" environmental activities to increase its role, to achieve economic benefits. Such opportunities, in particular, the Decree of the President of the Republic of Uzbekistan on the long-term development of the country "Development strategy of New Uzbekistan for 2022-2026" was adopted. In this decree, the issues of "Environmental initiatives in the international arena, including the promotion of the initiative to develop the World Environmental Charter"[2] occupy a special place.

The solutions and opportunities provided by enabling a green economy support economic development while mitigating many of the negative environmental impacts. It requires the application of robust and modern policies through the proper application of the green economy to society. Effective use of natural resources, prevention of economic and social damage to the environment, investment in this area, without considering the importance of economic benefits, should support reforms with a view to the future. In any country, it is important to develop socio-economic development strategies for the transition to a green economy, to ensure social stability by attracting investments in environmental indicators and the use of natural resources. Economic activity itself does not pose a threat to the environment. Perhaps the lack of attention to the integrity of the ecological support system in the implementation of economic activity threatens. Today's environmental problems, mainly the expansion of general economic activity, climate change and the loss of biological diversity, require attention to the elimination of emissions from human consumption of natural resources.

It ensures political and social and economic stability while enabling sustainable development and strategic development based on the provision of a green economy.

When establishing international cooperation in solving global environmental problems, it is necessary to pay attention to the following:

- formation of a system of international cooperation in the use and protection of nature, creation of natural, social, economic and political conditions;
- to increase the importance of national main directions and environmental protection, studying advanced foreign experiences in solving environmental problems;
- development of agreements and programs of international cooperation in the field of ecology;
- Interstate cooperation in the field of ecology of Uzbekistan consists of paying special attention to issues of improving the environmental situation at the local, national, regional and global levels.

In order to solve these problems and achieve sustainable development, it is necessary to increase the ecological potential of the biosphere and use it without harming it. The main reason for the origin of the ecological crisis is economic

growth and increasing the consumption potential of society. For human welfare, it is important to reduce the negative consequences, taking into account the elimination of the ecological crisis. Its only solution is to switch to ecological economy or green economy. Green economy means the production of energy-saving products, the use of alternative energy.

The report states that by 2030, the world population's need for food will increase by 50%, the need for electricity will increase by 45%, and the demand for water resources will increase by 30%. In order to implement this, it is necessary to immediately introduce a "green economy", said Ban Ki-moon. Today, the USA, South Korea, Germany, Sweden, Denmark, Holland and other developed countries are gradually moving to the green economy»[5]. The transition to a green economy not only leads to the growth of the country's economy, but also to the production of environmentally friendly products and improves the health of the population.

One of the main principles of the international concept of sustainable development is to ensure that all types of economic activity are green. At the same time, it is difficult to determine the information about the environmental compliance of industrial enterprises with the accepted standards, and accordingly, it is possible to estimate how much the user of nature will spend on the budget of his environmental project. Indicators of environmental costs, the main macroeconomic indicators - gross national product (GNP), items of budget revenues and expenses, allow comparison with some types of the total volume of investments in the economy as a whole. An analysis of statistical data describing the ratio of environmental costs to GDP can be seen in Table 1.

Table 1

The share of environmental costs in relation to the gross domestic product (GDP)

| Indicators | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Environmental costs in large enterprises (billion soums) | 385,4 | 369,7 | 393,2 | 394,8 | 618,8 | 573,6 | 763,1 | 952,9 |
| Environmental costs in micro-firms and small enterprises (billion soums) | 12,5 | 5,7 | 6,8 | 15 | 30,2 | 32,2 | 42,6 | 49 |
| Total environmental costs (billion soums) | 397,9 | 375,4 | 400 | 409,8 | 649 | 605,8 | 805,7 | 1001,9 |
| GDP (billion soums) | 15331 1,3 | 186829 ,5 | 22135 0,9 | 2554 21,9 | 31747 6,4 | 42472 8,7 | 52939 1,4 | 60255 1,4 |

| | | | | | | | | |
|--|------|------|------|------|------|------|------|------|
| The share of environmental costs in relation to GDP, (%) | 0,26 | 0,20 | 0,18 | 0,16 | 0,20 | 0,14 | 0,15 | 0,17 |
|--|------|------|------|------|------|------|------|------|

According to Table 1, the share of total environmental costs in economic entities operating in the republic in relation to the gross domestic product is reflected. In particular, in 2022, compared to 2015, environmental costs in large enterprises will increase by 567.5 billion. to soums or increased by 247.2 percent. Environmental costs in micro-firms and small enterprises are 36.5 billion. increased to soums or 392.0 percent. Compared to 2015, the GDP in 2022 will be 449,240.1 billion. increased to soums or 393.0%, which increased proportionally to environmental costs. It can be observed that the share of environmental costs in relation to GDP has decreased from 0.26 percent in 2015 to 0.17 percent by 2022. This indicator has decreased in recent years, due to the fact that GDP growth is higher than environmental costs, and economic entities do not pay enough attention to environmental costs. As a summary, the share of total environmental spending in relation to GDP in 2022 compared to 2015 decreased by 0.09 points. The decrease of environmental costs in relation to GDP is not considered a "positive situation". Because, in the green economy based on innovative technologies, the need for environmental costs will increase more and more and will affect the size of GDP. That is, to create ecologically clean goods and services, it requires a rational increase in the amount of environmental costs compared to GDP.

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GEOGRAFIYA VA IQTISODIY BILIM ASOSLARI FANLARINI O'QITISHDA CHET TILLARIDAN FOYDALANISH

***Annotatsiya:** Globallashuv jarayonlari dunyoning har bir mamlakatida ta'lim tizimiga sezilarli ta'sir ko'rsatmoqda. Bugungi kunda chet tillarini o'rganish nafaqat mustaqil fan sifatida o'rgatilmoqda, balki boshqa sohalarda ham chet tillari yordamida bilimlarni kengaytirish, ma'lumotlarga kirish imkoniyatlarini oshirish muhim ahamiyat kasb etmoqda. Geografiya va iqtisodiy bilim asoslari fanlari global miqyosda keng tarmoq va ilmiy manbalarni o'z ichiga oladi. Bu sohalarda chet tillaridan foydalanish ilmiy izlanishlar, xalqaro tajribalar va xalqaro bozorlar haqida kengroq ma'lumot olish imkonini beradi. Mazkur maqolada geografiya va iqtisodiy bilim asoslari fanlarida chet tillaridan foydalanishning ahamiyati, usullari hamda samaradorligi haqida so'z boradi.*

***Kalit so'zlar:** yangi yondashuvlar, statistika, moliyaviy tizimlar, iqtisodiy modellar, CLIL, EAL, CBLT, EMI, BMT, Jahon banki, Xalqaro Valyuta Jamg'armasi, ekspeditsiya, uslubiy yondashuvlar, ilmiy ishlar, ilmiy maqolalar, xalqaro konferensiyalar, ilmiy davriy nashrlar, integratsiyalashuv.*

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USING FOREIGN LANGUAGES IN TEACHING GEOGRAPHY AND BASICS OF ECONOMIC KNOWLEDGE

***Abstract:** The processes of globalization are significantly influencing the education systems in every country around the world. Today, learning foreign languages is not only being taught as an independent subject but also plays a crucial role in expanding knowledge in other fields and increasing access to information through foreign languages. The subjects of geography and the fundamentals of economic knowledge encompass extensive networks and scientific resources on a global scale. The use of foreign languages in these fields enables broader access to scientific research, international experiences, and global markets. This article discusses the importance, methods, and effectiveness of using foreign languages in the teaching of geography and the fundamentals of economic knowledge.*

Keywords: *new approaches, statistics, financial systems, economic models, CLIL, EAL, CBLT, EMI, UN, World Bank, International Monetary Fund, expedition, methodological approaches, scientific works, scientific articles, international conferences, scientific journals, integration.*

Geografiya va Iqtisodiy Bilim Asoslari Fanlarini O‘qitishdagi Yangi Yondashuvlar

Zamonaviy ta’lim tizimida chet tillaridan foydalanish o‘quvchilarning global jarayonlarni chuqurroq tushunishlari va ilmiy tafakkurlarini rivojlantirishda muhim rol o‘ynaydi. Geografiya va iqtisodiyot fanlari bevosita xalqaro ma’lumotlar, tahlillar va statistikaga asoslanadi. Masalan, geografiya fanida dunyoning turli davlatlari va ularning tabiiy sharoitlari, iqtisodiyoti, resurslari haqida chuqur ma’lumotlar keltiriladi. Bunday ma’lumotlar ko‘pincha chet tillarida mavjud bo‘lib, ularni to‘g‘ridan-to‘g‘ri o‘rganish bilimni chuqurlashtirishda samarali hisoblanadi.

Bundan tashqari, iqtisodiy bilim asoslari fanida global iqtisodiy jarayonlar, moliyaviy tizimlar va iqtisodiy modellar haqida bilim olish uchun chet tillaridagi manbalardan foydalanish juda muhimdir. Chet tillari yordamida xalqaro tashkilotlarning rasmiy hisobotlari, iqtisodiy tahlillar va ilmiy maqolalarga kirish imkoniyati oshadi.

Shu bilan birga geografiya va iqtisodiy bilim asoslari fanlarini o‘qitishda til va fanni birlashtiruvchi xorijiy tajribalardan foydalanish maqsadga muvofiq bo‘ladi. Misol qilib CLIL, EAL va CBLT larni aytish mumkin.

Geografiya va iqtisodiy bilim asoslari fanini o‘qitishda yangi yondashuvlar tilni o‘rgatish jarayoniga integratsiya qilish orqali ta’lim sifatini oshirishni maqsad qilgan. Tilni o‘rganish va fanni o‘rgatish bir-biri bilan bog‘langan holda olib boriladigan bu yondashuvlar quyidagilardan iborat:

1. Mazmun va Tilning Integratsiyalashgan O‘qitilishi (CLIL): Ushbu yondashuv geografiya va iqtisodiy bilim asoslari fanini chet tili bilan birgalikda o‘qitishni nazarda tutadi. Dars jarayonida mazmunli materiallar nafaqat geografik va iqtisodiy bilimlarni rivojlantiradi, balki o‘quvchilarning til ko‘nikmalarini ham mustahkamlaydi. Misol uchun, iqtisodiy tahlillarni o‘rgatishda inglizcha iqtisodiy terminlar bilan ishlash yoki geografik jarayonlarni ingliz tilida tushuntirish o‘quvchilarga ikki tomonlama foyda beradi.

2. Tilga yo‘naltirilgan resurslardan foydalanish: Geografiya va iqtisodiy bilim asoslari fanlari o‘quvchilariga chet tilini o‘rganish imkoniyatlarini kengaytirish uchun, dars materiallari tilga moslashtiriladi. Bu o‘quvchilarni o‘rgatilayotgan fan doirasidagi texnik terminlar va akademik til bilan tanishtiradi, shu bilan birga til ko‘nikmalarini rivojlantiradi.

3. Til asosida loyihaviy o‘qitish: O‘quvchilarga o‘zlari tanlagan til va fan mavzusi bo‘yicha loyihalar beriladi. Masalan, talaba turli davlatlar iqtisodiyotini tahlil qilib, o‘z loyiha taqdimotini chet tilida amalga oshirishi mumkin. Bu esa

nafaqat fan bo'yicha chuqur bilim olishga, balki tilni amalda qo'llashga yordam beradi.

4. Muammoga asoslangan o'qitish (PBL) va til: O'quvchilar geografiya va iqtisodiy bilim asoslarida real muammolarni chet tilida hal qilishga yo'naltiriladi. Masalan, o'quvchilarga xalqaro iqtisodiy muammolarni ingliz tilida tahlil qilish yoki global geografik masalalarni chet tilida muhokama qilish orqali tilni va mazmuni birgalikda o'zlashtirishga yordam beriladi.

5. Multimedia va til qo'llanmalari: Raqamli texnologiyalar yordamida, chet tili asosidagi interaktiv xaritalar yoki iqtisodiy modellar bilan ishlash o'quvchilarni nafaqat geografiya va iqtisodiy bilim asoslariga, balki til bilan ham yanada chuqurroq shug'ullanishga yo'naltiradi. Bunda o'quvchilar ingliz tilidagi ma'lumotlar bilan ishlashda til ko'nikmalarini mustahkamlaydi.

Ushbu yondashuvlar nafaqat geografiya va iqtisodiy bilim asoslari fanlari mazmunini o'zlashtirishga yordam beradi, balki o'quvchilarga chet tilini real hayotiy vaziyatlarda qo'llash ko'nikmalarini ham rivojlantiradi. Shu orqali o'quvchilar nafaqat fan bo'yicha bilim olishadi, balki global muammolarni hal qilishda tilning muhimligini ham tushunadilar.

Geografiya va Iqtisodiy Bilim Asoslari Bo'yicha Xalqaro Resurslardan Foydalanish

Geografiya va iqtisodiyot fanlarini o'qitishda xalqaro resurslardan foydalanish o'quvchilarni global miqyosda o'ylash va tadqiqot olib borish qobiliyatini rivojlantiradi. Masalan, BMT, Jahon banki, Xalqaro Valyuta Jamg'armasi kabi xalqaro tashkilotlar tomonidan e'lon qilingan iqtisodiy hisobotlar o'quvchilarni qiziqtiradi va bilimlarini

mustahkamlaydi. Ushbu resurslar chet tillarida e'lon qilingan bo'lib, ulardan foydalanish o'quvchilarni turli iqtisodiy tizimlar bilan tanishtirish imkonini beradi.

Hozirda isbotlangan dalillar shuni ko'rsatadiki, dunyo birinchi til sifatida ingliz tiliga ega bo'lmagan mamlakatlarda akademik fanlarni ingliz tilida o'qitishning tezkor oshishini boshdan kechirmoqda. Ingliz Tili Orqali Ta'lim (EMI) asosan oliy ta'limda ro'y berayotgan global jarayon sifatida rivojlanmoqda. Biroq, u allaqachon o'rta ta'lim sohasida o'z o'rnini egallashda va boshlang'ich ta'limga qiziqish bildirilmoqda.

Yevropada magistratura kurslarining 60% dan ko'prog'i hozirda EMI orqali olib borilayotganligi haqida ishonchli taxminlar mavjud. Uning joriy etilishi va kengayishi shunchalik keng va tez bo'ldiki, bu Frantsiyada milliy ommaviy axborot vositalarida munozaralarga va Italiyada uning o'sishini to'xtatishga urinishlar uchun to'g'ridan-to'g'ri huquqiy choralar ko'rishga olib keldi.

Geografiya fanida esa xalqaro ekspeditsiyalar, tadqiqotlar, kartografiya va global ekologik muammolar haqida chet tillarida chop etilgan materiallar juda ko'p. Bu o'quvchilarga tabiiy resurslardan foydalanish, atrof-muhitni saqlash va global iqlim o'zgarishlari kabi muhim masalalar haqida bilimlarni kengaytirishga imkon beradi.

Geografiya va iqtisodiy bilim asoslarini o'qitishda xalqaro resurslardan foydalanish nafaqat ta'lim jarayonini boyitadi, balki o'quvchilarning global muammolar va jarayonlarni chuqurroq tushunishiga yordam beradi. Xalqaro resurslar nafaqat mazmun jihatidan, balki ta'limiy yondashuv va tillarni o'rgatishda ham foydali bo'lishi mumkin. Quyida ushbu fanlar bo'yicha xalqaro resurslardan foydalanishning ba'zi afzalliklari va usullari keltirilgan:

a) Global ma'lumotlar bazalari va onlayn platformalar: Geografiya fanida GIS (Geografik axborot tizimi) kabi xalqaro tizimlar orqali dunyodagi eng yangi geografik ma'lumotlarni olish mumkin. Iqtisodiy bilim asoslarida esa Jahon Banki, Xalqaro Valyuta Jamg'armasi (IMF), BMT kabi xalqaro tashkilotlarning iqtisodiy statistikasi va tahlillaridan foydalanish o'quvchilarga xalqaro darajadagi iqtisodiy jarayonlarni tushunishga yordam beradi.

b) Xalqaro darsliklar va ilmiy maqolalar: Geografiya va iqtisodiy bilim asoslari bo'yicha ingliz tilidagi xalqaro darsliklar, ilmiy maqolalar va tadqiqotlar o'quvchilarga eng yangi bilimlar va tadqiqot natijalarini yetkazib beradi. Masalan, iqtisodiy rivojlanish, barqaror taraqqiyot yoki global iqlim o'zgarishlari haqida xalqaro ekspertlar tomonidan yozilgan adabiyotlar o'quvchilarning fanga bo'lgan qiziqishini oshiradi.

c) Xalqaro ta'lim loyihalari va konferensiyalar: Geografiya va iqtisodiy bilim asoslari fanlari bo'yicha xalqaro ta'lim loyihalarida ishtirok etish yoki konferensiyalarda qatnashish o'qituvchilar va o'quvchilarga boshqa davlatlarning tajribasi bilan tanishish imkonini beradi. Masalan, xalqaro forumlarda qatnashish o'quvchilarga geografik tadqiqotlar va iqtisodiy tahlillar sohasidagi zamonaviy tendensiyalar bilan tanishishga imkon yaratadi.

d) Chet el onlayn kurslari va vebinarlar: O'quvchilar va o'qituvchilar uchun xalqaro onlayn ta'lim platformalari (Coursera, edX, FutureLearn) orqali geografiya va iqtisodiyot bo'yicha kurslar va vebinarlar tashkil etiladi. Bu kurslar dunyo bo'ylab tan olingan universitetlar va mutaxassislar tomonidan olib boriladi va o'quvchilarga yangi bilimlar olish, ko'nikmalarini rivojlantirish imkonini beradi.

e) Raqamli manbalar va video materiallar: Xalqaro miqyosdagi dokumental filmlar, geografik xaritalar, iqtisodiy hujjatlar va statistik tahlillar orqali o'quvchilarga nafaqat nazariy bilimlar beriladi, balki amaliy tushunchalar ham kengaytiriladi. Masalan, National Geographic yoki BBC Earth kabi kanallar orqali tayyorlangan geografik va ekologik hujjatli filmlar o'quvchilarning ko'rish orqali o'rganish ko'nikmalarini oshiradi.

f) Xalqaro tillarda o'qitish: Xalqaro resurslardan foydalanish orqali o'quvchilar chet tillarida, ayniqsa ingliz tilida materiallar bilan ishlashadi. Bu esa ularning til ko'nikmalarini rivojlantirish bilan birga, xalqaro miqyosda tushunarli bo'lish uchun zarur terminologiyalarni o'zlashtirishga yordam beradi.

g) Case-study (vaziyat tahlili) orqali o'qitish: Xalqaro iqtisodiy va ekologik muammolarni tahlil qilish orqali o'quvchilarga real hayotiy muammolarni tushunish va ularni hal qilish ko'nikmalarini rivojlantirish imkonini beradi.

Masalan, global iqlim o'zgarishlari yoki davlatlararo iqtisodiy munosabatlar haqida xalqaro tahlillarni o'rganish orqali o'quvchilar real vaziyatlarni o'rganadi.

Xalqaro resurslardan foydalanish, ta'lim jarayonida chet tilini integratsiyalash orqali o'quvchilarga yanada kengroq ko'lamdagi bilim va ko'nikmalarni berishga yordam beradi. Bu o'quvchilarning bilim darajasini oshiradi va ularni global miqyosdagi o'zgarishlarga tayyorlaydi.

Geografiya va Iqtisodiyot Sohasida Ilmiy Izlanishlar Uchun Chet Tillaridan Foydalanish.

Ilmiy tadqiqot ishlari olib borish jarayonida chet tillarini bilish o'quvchilar uchun yangi eshiklarni ochadi. Chet tillarida yozilgan ilmiy maqolalar, xalqaro konferensiyalar va ilmiy davriy nashrlar tadqiqotchilarga dunyoning turli burchaklarida olib borilgan izlanishlar bilan tanishish imkonini beradi. Geografiya va iqtisodiyot fanlari bo'yicha yetakchi olimlarning asarlarini to'g'ridan-to'g'ri o'qib, ularning uslubiy yondashuvlarini o'rganish orqali ilmiy izlanishlarni boyitish mumkin.

Masalan, dunyoning turli mintaqalarida olib borilgan iqlim tadqiqotlari va xalqaro iqtisodiy munosabatlar bo'yicha nashrlar global iqtisodiy o'zgarishlar va tabiiy resurslar bo'yicha aniq ma'lumotlarni taqdim etadi. Bu esa o'quvchilarning ilmiy ko'nikmalarini oshirishga yordam beradi.

4. Geografiya va Iqtisodiy Bilim Asoslari Fanlarini O'qitishda Chet Tillaridan Foydalanish Bo'yicha Tavsiyalar

Chet tillarini geografiya va iqtisodiy bilim asoslari fanlarini o'qitishda integratsiyalashgan tarzda qo'llash ko'p imkoniyatlar yaratadi. O'quvchilarga geografik va iqtisodiy mavzularni chet tillarida o'qitish o'z bilimlarini chet el manbalaridan olishlariga, keng doiradagi resurslar bilan ishlashlariga yordam beradi.

Amaliy Tavsiyalar:

1. Xalqaro resurslardan foydalanish: O'qituvchilar chet tillaridagi ilmiy maqolalar, kitoblar va onlayn kurslardan keng foydalanishlari kerak.

2. Multimediyadan foydalanish: Xorijiy davlatlarning ilmiy videolari va ta'limiy resurslari o'quvchilar uchun qiziqarli bo'lishi va ularning mavzularni tushunishini yaxshilaydi.

3. O'zaro bog'liq fanlarni o'qitish: Geografiya va iqtisodiyot fanlari bo'yicha xorijiy davlatlarning tajribasini o'rganish orqali ilmiy munozaralar o'tkazish.

4. O'quvchilarni rag'batlantirish: Chet tillaridagi o'quv materiallarini o'zlashtirishga qiziqish uyg'otish uchun maxsus tadbirlar va amaliy mashg'ulotlar o'tkazish.

Xulosa

Ingliz tiliga ega bo'lmagan dunyoda, umuman olganda, yaqinda o'tkazilgan 55 mamlakat qatnashgan so'rov natijalari shuni ko'rsatdiki, oliy va o'rta ta'lim bosqichlarida EMI kurslarining soni oshmoqda. Bu jarayonda xususiy ta'lim

sektori yetakchilik qilmoqda, davlat sektori esa "qolib ketmaslik" uchun kurashishga majbur bo'lmoqda.

Shuni hisobga olgan holda O'zbekistonda ham fanlarni o'qitishda bosqichma- bosqich chet tillarida dars o'tishni boshlash, jumladan Geografiya va iqtisodiyot fanlari ustida sinov olib borish muhimdir.

Geografiya va iqtisodiy bilim asoslari fanlarini o'qitishda chet tillaridan foydalanish o'quvchilarning bilim darajasini oshirishga, xalqaro maydonda muvaffaqiyatli bo'lishlariga xizmat qiladi. Chet tillarida chop etilgan ilmiy manbalarga erkin kirish o'quvchilarga ko'proq imkoniyatlar yaratadi va ularning bilim olish jarayonini yengillashtiradi. Shu sababli, chet tillarini o'rganish nafaqat alohida fan sifatida, balki boshqa sohalar bilan birgalikda o'qitishning muhim vositasi hisoblanadi. O'qituvchilar va ta'lim muassasalari bu jarayonda innovatsion yondashuvlarni qo'llab, o'quvchilarning zamonaviy dunyoqarashini shakllantirishda katta rol o'ynaydi.

Foydalanilgan adabiyotlar:

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978-0-521-13021-9 - CLIL: Content and Language Integrated Learning
Do Coyle, Philip Hood and David Marsh
2. Geography Education (K-12)
3. Joseph Zajda Editor Third International Handbook of Globalisation, Education and Policy Research SpringerDavid Lambert

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SYSTEM OF EXERCISES FOR TEACHING THE ENGLISH SYNONYMS

***Abstract:** in these article we can see on the exercises of synonyms in English, synonyms are not just a luxury, but a real treasure of the language. Synonyms are one of the most meaningful forms of a word, with a number of features, such as the pronunciation, spelling, additional semantic subtlety, the use of emotional meaning, which have the same unifying meaning. are words that are constantly different.*

***Key words:** exercises, teaching English, English language, grouping words.*

Non-contextual exercises can be as follows: learning; nomination of items; grouping words according to certain characteristics; the translation of individual words from one language to another. Monologue speech exercises are: commenting on a series of paintings with the use of studied words; composing monologue to a series of drawings, film; to compare the content of two texts; record on topic; preparation of a report on the topic; explanation of events.

Dialogic exercises include: the use of studied vocabulary in the students' questions to the text; answer the teacher's questions in word or in combination; preparation of micro-dialogues of various types with the use of studied words; preparation of dialogues for typical situations; a series of questions to guess the conceived word.

Ways to practice vocabulary items. "Listen and repeat" is important because we know that confidently pronouncing a word indicates that it will be stored well. Other simple activities include matching (words to definitions, synonyms to antonyms), fill in the blank, pictures representing the vocabulary item, "make up a

sentence using _____," and crossword puzzles [1]. Total Physical Response (TPR) is an excellent way to introduce actions (that is, verbs). Games like "Simon Says" and n "Jeopardy" are adaptable to vocabulary learning. Asking students to invent dialogues or skits where they use as many vocabulary words as possible allows students to be creative and allows them to use the words in realistic contexts (be sure to give feedback to students).

Any sentence can be called as lexical exercise where the learner focuses on teaching vocabulary. The system of lexical exercises involves the concept of teaching vocabulary. The system of lexical exercises – is the general description of the process of vocabulary teaching. The basis for the formation lexical skills has certain laws, principles, and keeping them is a necessary condition for the

efficiency of the learning process. These include didactic principles such as: visibility, activity, durability, consistency, awareness, scientific, age-appropriate and methodical: communicative orientation of education, temporality, collective interaction, life orientation training.

There are also private methodological principles in the work on vocabulary: the gradual formation of skill, the adequacy of the exercises generated by the action, interaction exercises on the formation of lexical, grammatical, phonetic speech of the parties, taking into account the interactions of oral forms, testing of vocabulary with the development of reading and writing, the interaction of all kinds of speech activity.

Commonly, there are several techniques concerning the teaching of lexical synonym vocabulary. However, there are a few things that have to be remembered by most English teachers if they want to present a new lexical synonyms to their students. It means that the English teachers want students to remember new vocabulary. Then, it needs to be learnt, practiced, and revised to prevent students from forgetting. Techniques employed by teachers depend on some factors, such as the content, time availability, and its value for the learners (Takač, 2008). This makes teachers have some reasons in employing certain techniques in presenting vocabulary. In presenting one planned vocabulary item, the teacher usually combined more than one technique, instead of employing one single technique. Teachers, furthermore, are suggested to employ planned vocabulary presentation as various as possible.

Using this technique includes the use of realia, visual aids, and demonstration. They can function to help learners in remembering vocabulary better, because our memory for objects and pictures is very reliable and visual techniques can act as cues for remembering synonym words.

Using Illustrations and Pictures

Pictures connect students' prior knowledge to a new story, and in the process, help them learn new words. There are plenty of vocabularies that can be introduced by using illustrations or pictures. They are excellent means of making the meaning of unknown synonym words clear. They should be used as often as possible. The list of pictures includes: posters, flashcards, wall charts, magazine pictures, board drawings, stick figures and photographs. Pictures for vocabulary teaching come from many sources. Apart from those drawn by the teacher or students, they are sets of colourful pictures intended for schools. Pictures cut out of newspapers and magazines are very useful as well. Nowadays many readers, vocabulary books and course books contain a vast number of attractive pictures that present the meaning of basic words. The teacher can use learning materials provided by the school. They can also make their own visual aids or used pictures from magazines. Visual support helps learners understand the meaning and helps to make the word more memorable.

Contrast

Some words are easily explained to learners by contrasting it with its opposite, for instance, the word "good" contrasted with the word "bad". But some words are not. It is almost impossible to contrast the words whose opposite is the gradable one. When the word "white" is contrasted with the word "black", there is an "in between" word "grey". Furthermore, verb "contrast" means to show a difference, like photos that reveal how much weight someone lost by contrasting the "before" and "after" shots. Many more studies have also shown that vocabulary is best acquired if it is similar to what is already learnt (e.g. Rudska et al., 1982, 1985), it is not surprising that learning synonyms is a way to expand our vocabulary. Learning about synonyms is important also because this is how dictionaries are organised. Putting bilingual dictionaries aside, mono-lingual.

Eliciting

This technique is more motivating and memorable by simply giving pupils a list of synonym words to learn.

Translation

Even though translation does not create a need or motivation of the learners to think about word meaning, in some situations translation could be effective for teachers, such as when dealing with incidental vocabulary, checking students' comprehension, and pointing out similarities or differences between first and second language, when these are likely to cause errors. There are always some words that need to be translated and this technique can save a lot of time.

Defining a synonym is pretty simple: they're words that have the same—or almost the same—meaning as another word. The Merriam-Webster dictionary estimates that there's at least one million words in the English language, including antonyms, synonyms, acronyms, heteronyms, paronyms, numeronyms, and...that's where teaching synonyms gets complicated.

Students [learn vocabulary](#) through reading, listening, speaking, and writing. Recognizing and using synonyms are a vital foundation for future reading comprehension, and the earlier students are exposed, the better. The National Center on Improving Literacy states that “the gap between the growth of children with less exposure to rich vocabulary and that of their peers often widens over time”.

It's not enough for students to simply define a synonym or match words—they'll need to know how, when, and why to use them. That's why I've compiled this collection of teaching tactics that goes beyond worksheets.

Partnered activities

Matching pairs of synonyms on a worksheet is a lesson that feels old as time. It's a classic for a reason, but it can get repetitive and boring for students. I like to move the activity off the worksheet by having students pair synonyms with a partner in a game. This is a great for students to work on group participation skills and active learning.

What you'll need: Index cards or paper cut outs.

First, come up with a list of words and one of their synonyms, and then write each word on a notecard. You can do this ahead of time, or have students each fill out a card. For a creative twist, students can use cut outs or fun shapes as well.

Each student will hold onto one card, but they won't reveal it until everyone is out of their seats and ready to begin. When they're ready, they'll go out to find their synonym partner. For example, the student with "small" has to find the student with "tiny".

Depending on how much time you have, students can repeat these activities a few times by shuffling cards back to the class and starting over. For an extra twist, students could stick the cards to their foreheads or shirts and look for their partner silently.

This can be a great way to introduce new vocabulary as well. Introduce students to the new vocabulary and their meanings, and use them for the hunt. Students could use a word bank to record their new vocabulary before they hunt for their partner.

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METHODS OF TOURISM EVALUATION OF NATURAL INDICATORS OF FERGANA VALLEY USING GIS

***Abstract:** Tourism development in the Fergana Valley hinges on understanding and evaluating its natural indicators, such as topography, climate, and vegetation. This study aims to develop a methodological framework for assessing the tourism potential of the Fergana Valley using Geographic Information Systems (GIS). The GIS-based approach allows for a spatial analysis of key natural features, helping to identify areas with high tourism potential. The study highlights the integration of physical geography indicators with modern GIS technologies, enabling data-driven decision-making for sustainable tourism development.*

***Keywords:** Fergana Valley, GIS, natural indicators, tourism evaluation, spatial analysis*

Introduction

The Fergana Valley, a critical region in Central Asia, boasts a diverse range of natural resources, including scenic landscapes, rivers, and varied climatic zones, making it a region with significant potential for tourism. However, the effective promotion and sustainable development of tourism require a comprehensive assessment of its natural indicators. With the advent of Geographic Information Systems (GIS), it is now possible to conduct spatial analyses of physical geography features, making GIS an indispensable tool in tourism evaluation.

The objective of this research is to present a GIS-based methodology for evaluating the tourism potential of the natural indicators of the Fergana Valley. The study focuses on identifying key natural features, such as topography, climate, vegetation, and hydrology, and assessing their impact on tourism potential using spatial analysis. This approach provides a foundation for decision-makers and stakeholders to plan and promote sustainable tourism development in the region.

Methods

Study Area

The Fergana Valley, located in Central Asia, spans parts of Uzbekistan, Kyrgyzstan, and Tajikistan, with the Uzbek portion being the focus of this study. Characterized by its varied topography, the valley is surrounded by mountain ranges and features a rich river system, contributing to its diverse landscapes. The

climate is continental, with hot summers and cold winters, providing a range of seasonal tourism opportunities.

Data Collection

For the tourism evaluation, the study utilized the following types of data:

- **Topographic data:** Obtained from digital elevation models (DEMs) to assess elevation, slope, and landscape features.
- **Climate data:** Gathered from meteorological stations, focusing on temperature, precipitation, and seasonal variations.
- **Vegetation cover:** Derived from satellite imagery, allowing the analysis of forests, grasslands, and agricultural areas.
- **Hydrology:** River and water body data were collected to evaluate the impact of water features on tourism.

GIS-Based Evaluation

Using GIS software (ArcGIS), the data were integrated to perform a spatial analysis of tourism indicators. The main stages of the GIS-based evaluation included:

1. **Topographic Analysis:** The DEM data were processed to map out elevation zones, slopes, and landforms. Areas with scenic viewpoints and gentle slopes were identified as potential tourism hotspots, particularly for activities like hiking and eco-tourism.
2. **Climate Suitability:** Using GIS, climate zones were overlaid on the topographic map to assess temperature variations and identify the best periods for tourism activities. Winter sports areas and summer recreation zones were delineated.
3. **Vegetation and Land Cover:** Satellite imagery analysis was performed to classify land cover types. Forested regions, known for their ecological and recreational value, were marked as key tourism zones.
4. **Hydrological Features:** Proximity to rivers, lakes, and other water bodies was analyzed to assess the potential for water-based tourism, such as fishing, boating, and riverside camping.
5. **Tourism Suitability Index (TSI):** Based on the weighted sum of the topographic, climatic, vegetation, and hydrological analyses, a Tourism Suitability Index was developed. This index identified zones within the valley with the highest tourism potential, offering opportunities for various forms of tourism.

Results

The spatial analysis revealed several key findings:

1. **Topographic Potential:** The areas near the surrounding mountain ranges, such as the Alay and Tian Shan ranges, offer high tourism potential due to their scenic vistas and opportunities for hiking and mountaineering.
2. **Climatic Zones:** The southern and central parts of the Fergana Valley are more suitable for year-round tourism due to moderate climatic conditions. The northern areas, with harsher winters, show potential for winter sports tourism.

3. **Vegetation and Ecosystem Diversity:** Forested areas, particularly in the foothills, were identified as prime locations for eco-tourism. Agricultural areas were deemed less suitable for tourism due to land-use restrictions.

4. **Water Features:** Proximity to the Syr Darya River and the presence of small lakes enhanced the tourism potential in specific zones, particularly for water-based activities.

5. **Tourism Suitability Index:** The TSI indicated that the highest potential for tourism development exists in the central and southern parts of the valley, where diverse landscapes and moderate climate create favorable conditions for year-round tourism.

Discussion

The results underscore the utility of GIS in evaluating the tourism potential of natural indicators in the Fergana Valley. The GIS-based approach allowed for a comprehensive and systematic analysis of the region's topography, climate, vegetation, and hydrology, highlighting key areas for tourism development. The integration of these natural factors into a tourism suitability model helps in the prioritization of zones with the greatest potential for sustainable tourism.

Moreover, the study demonstrates that GIS can serve as a powerful tool for tourism planning, providing stakeholders with valuable insights into the most viable locations for investment and development. By visualizing spatial data, decision-makers can make informed choices that balance tourism development with environmental conservation.

Conclusion

This study presents a GIS-based method for evaluating the tourism potential of natural indicators in the Fergana Valley. By analyzing topography, climate, vegetation, and hydrology, it is possible to identify areas with high tourism potential and promote sustainable development. The use of GIS in tourism evaluation enables data-driven decision-making and helps ensure that tourism development in the Fergana Valley is both economically viable and environmentally sustainable.

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LAND USE AND LAND COVER ANALYSIS OF FERGANA VALLEY USING REMOTE SENSING AND GIS

Abstract: *The Fergana Valley, an agriculturally significant and densely populated region in Central Asia, faces immense pressure from urbanization and land use changes. Understanding land use and land cover (LULC) dynamics is crucial for sustainable planning. This study employs remote sensing and Geographic Information Systems (GIS) to analyze LULC changes in the Fergana Valley over a 20-year period. The study integrates satellite imagery, supervised classification, and GIS-based spatial analysis to assess LULC dynamics. Results indicate rapid urban expansion and agricultural intensification, with significant implications for water resource management and environmental sustainability.*

Keywords: *Land Use and Land Cover (LULC), Remote Sensing, Geographic Information Systems (GIS), Fergana Valley, Urbanization, Agricultural Expansion, Change Detection, Sustainable Land Management*

1. Introduction

1.1. Background

The Fergana Valley, located at the tri-junction of Uzbekistan, Kyrgyzstan, and Tajikistan, is a strategic agricultural zone. With a population exceeding 10 million, it is a hub of irrigated agriculture, primarily growing cotton, wheat, and rice. Over the last few decades, population growth and urbanization have drastically altered the valley's land use patterns. Consequently, there has been increased concern regarding the sustainable management of land and water resources in the region.

1.2. Research Problem

Understanding the spatio-temporal dynamics of land use and land cover (LULC) is key to sustainable resource management. Remote sensing and GIS have proven to be effective tools in detecting these changes over large areas and extended periods. However, there is limited literature on the Fergana Valley's LULC changes using these techniques.

1.3. Objectives

This study aims to:

1. Map the LULC types in the Fergana Valley using satellite data.
2. Analyze changes in LULC over a 20-year period.
3. Examine the implications of LULC changes for regional planning.

2. Materials and Methods

2.1. Study Area

The Fergana Valley is situated between the Pamir and Tien Shan mountain ranges. It covers approximately 22,000 km², with elevations ranging from 320 to 1,000 meters above sea level. The valley is a critical agricultural zone in Central Asia, and it has a semi-arid climate with an average annual precipitation of 200-300 mm.

2.2. Data Acquisition

Landsat 5 TM (Thematic Mapper) and Landsat 8 OLI (Operational Land Imager) satellite imagery from 2000 and 2020 were acquired for this study. The spatial resolution of both datasets is 30 meters. Additionally, topographic maps and administrative boundary data were collected from local sources.

| Dataset | Sensor | Resolution | Acquisition Date |
|---------------|-------------------------|------------|------------------|
| Landsat 5 TM | Thematic Mapper | 30m | 2000 |
| Landsat 8 OLI | Operational Land Imager | 30m | 2020 |

2.3. Methodology

The workflow consists of the following steps:

1. **Preprocessing:** The satellite images were corrected for geometric and radiometric distortions.
2. **Supervised Classification:** A maximum likelihood classification was applied to classify the LULC into six categories: agricultural land, urban areas, water bodies, forest, barren land, and wetlands.
3. **Change Detection:** Post-classification comparison was used to detect LULC changes between 2000 and 2020.
4. **Accuracy Assessment:** Ground truth data and confusion matrix were employed to evaluate the accuracy of the classification.

| Land Cover Class | Area (2000) | Area (2020) | Change (%) |
|-------------------|------------------------|------------------------|------------|
| Agricultural Land | 10,500 km ² | 11,300 km ² | +7.62 |
| Urban Areas | 1,500 km ² | 2,100 km ² | +40 |
| Forest | 2,300 km ² | 2,100 km ² | -8.7 |
| Water Bodies | 500 km ² | 480 km ² | -4 |
| Barren Land | 5,700 km ² | 4,900 km ² | -14.03 |
| Wetlands | 1,500 km ² | 1,300 km ² | -13.33 |

2.4. GIS Analysis

Using GIS, a spatial analysis of LULC changes was conducted. Buffer zones around urban areas were created to assess the extent of urban sprawl. Additionally, proximity analysis was performed to evaluate the relationship between agricultural land expansion and water resources.

3. Results

3.1. LULC Classification

Agricultural land and urban areas show a marked increase, while barren land and wetlands have decreased. The forest cover has also slightly declined.

3.2. LULC Change Detection

Table 1 summarizes the changes in each land cover class. The most significant change is observed in urban areas, which increased by 40%, largely due to population growth and economic development. Agricultural land has also expanded by 7.62%, primarily due to the conversion of barren lands.

3.3. Implications for Water Resources

The expansion of agricultural land near major rivers such as the Syr Darya raises concerns about water usage. The GIS proximity analysis shows that 80% of new agricultural lands lie within a 5 km radius of major water bodies, potentially leading to increased water extraction and strain on local resources.

4. Discussion

4.1. Drivers of LULC Changes

The results indicate that urbanization and agricultural expansion are the primary drivers of LULC changes in the Fergana Valley. Population growth, economic reforms, and the introduction of modern irrigation techniques have spurred these changes.

4.2. Environmental Impacts

The reduction in forest cover and wetlands poses risks to biodiversity and ecosystem services. Furthermore, the over-reliance on irrigation may lead to water scarcity in the long term.

4.3. Policy Recommendations

Policymakers need to address the unchecked expansion of urban and agricultural land through integrated land use planning. Sustainable water management strategies, such as drip irrigation and crop rotation, should be promoted to mitigate the adverse effects on the environment.

5. Conclusions

This study provides a comprehensive analysis of LULC changes in the Fergana Valley using remote sensing and GIS over a 20-year period. The findings underscore the need for sustainable land management practices to balance urban growth and agricultural demands with environmental preservation.

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SPECIFICS OF A FOREIGN LANGUAGE LESSON AT THE INITIAL STAGE OF LEARNING

***Abstract:** A foreign language lesson has its own specific features that a foreign language teacher cannot ignore. At present, the global goal of mastering a foreign language is considered to be familiarization with another culture and participation in a dialogue of cultures. This goal is achieved by developing the ability for intercultural communication. It is teaching organized on the basis of communicative tasks, teaching foreign language communication, using all the tasks and techniques necessary for this is a distinctive feature of a foreign language lesson.*

***Key words:** foreign language, speech activity, lesson, independent work, teacher, personal interest, teaching, communication.*

Foreign language communication is based on the theory of speech activity. Communicative teaching of a foreign language is of an activity-based nature, since verbal communication is carried out through "speech activity", which, in turn, serves to solve problems of productive human activity in the context of "social interaction" of communicating people. Participants in communication try to solve real and imaginary problems of joint activity with the help of a foreign language. [8].

The activity-based nature of communication-oriented teaching of a foreign language is realized in the context of a humanistic approach to teaching. With this approach, positive conditions are created for the active and free development of the individual in the activity. In general, these conditions are as follows:

- students have the opportunity to freely express their thoughts and feelings in the process of communication;
- each participant in the communication remains in the focus of attention of the others;
- the participants in the communication feel safe from criticism, persecution for mistakes and punishment [8].

With a humanistic approach to teaching, the cognitive barriers characteristic of the educational process, which reduce the motivation of students and encourage them to irritability, disappear.

The humanistic approach assumes student-centered teaching. This means that learning, or rather, students interacting with each other, are the center of cognitive activity in the lesson.

The content, organization and conduct of a foreign language lesson determine the strength of the impact of the educational process on students.

There are many opportunities to increase the effectiveness of a foreign language lesson in modern conditions.

The first of these include teaching pupils' methods of learning, ways of learning a foreign language, which are so necessary for rational independent work of students to master it. Mastering any subject in general, and a foreign language to a greater extent, is possible only under the condition of active work of each student, involving them in the speech activity itself.

Language acquisition is carried out primarily in the classroom. A modern foreign language lesson is a complex formation. Its preparation and implementation require a great deal of creative energy from the teacher.

Firstly, multifaceted tasks are solved in the lesson. In each lesson, students must certainly receive an "increase" to their practical proficiency in the language being studied. This can be expressed in a better understanding of speech by ear due to the acquisition of new words, a new grammatical form, structure; in the acquisition of knowledge about the culture of the country of the language being studied in the field of literature, music, history, that is, students are immersed in the national culture and national psychology of the country of the language being studied.

The material of the lesson and the means for its activation should be used for educational purposes. The teacher decides what exactly should be cultivated in schoolchildren in a given lesson, using techniques and methods for their emotional and intellectual development [4].

Secondly, various organizational forms of work are used in the lesson: group, paired, individual. In order to involve everyone, you need to develop and improve your organizational skills to prepare a kind of lesson scenario.

Thirdly, the lesson must be provided with teaching aids that correspond to the tasks to be solved.

Fourthly, the teacher's use of the teaching and methodological kit components and other teaching aids in the lesson must be brought to the point of free manipulation. This is only possible if the teacher regularly uses them and keeps them in working order at all times.

Fifthly, an important factor is the creation of positive motivation in learning a foreign language with a deep knowledge of the teacher's personality of each student. This is achieved by using techniques that arouse personal interest in the pupils in completing tasks. These include speech tasks, problem tasks.

Thus, a lesson as a complex formation plays a decisive role in students' mastering a foreign language. A foreign language lesson requires especially

Careful preparation. It is where speech skills and abilities are formed and developed.

A teacher's deep understanding of what pupils expect from him should be considered as another opportunity to increase the effectiveness of a foreign language lesson.

In the eyes of learners, a teacher is, first of all, a native speaker of the foreign language he teaches. Consequently, the first thing that students expect from a teacher is a good practical command of the language taught.

A student perceives a foreign language teacher as a philologically educated person familiar with a foreign language culture, an interesting conversationalist in his native language. The teacher "introduces" the culture of the peoples of the countries of the studied language to schoolchildren, introduces them to traditions, cultural monuments, outstanding figures, writers, artists, etc.

A teacher educates, brings up and develops students. He inspires pupils to study a foreign language, organizes the process of mastering it. The teacher creates an atmosphere of a foreign language, conditions for mastering it, ensuring a noticeable advancement of pupils.[1]

To summarize the above, it is necessary to emphasize the importance of interaction and cooperation of students, as well as speech tasks for organizing communicative acquisition of language. Communicative teaching includes the formation of communicative competence, that is, internal readiness and ability for verbal communication, orienting students to "enter" into another cultural space. Such teaching is characterized primarily by non-traditional forms of conducting classes.

The content of the lesson is also determined by the selection of techniques and exercises that precisely correspond to the set tasks. By correspondence to the tasks we mean educational communication situations for oral speech, and the nature of the text material for reading. An educational situation is understood as specially created conditions, circumstances, and a system of relationships between interlocutors for the purpose of educational and pedagogical influence on students when performing speech actions in a foreign language. The educational situation should, if possible, be adequate to the real communication situation in which the language phenomenon being mastered is used. The educational situation should be extremely clear to students. This means: the task is clearly defined (what to ask, what to find out from the interlocutor, what to tell, what needs to be proven, clarified, refuted, etc.). Students know what is required of them, what they can do, since the fulfillment of the task is provided by specific linguistic (words, phrases, structures) and speech (ready-made speech clichés) material, being learned or mastered.

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FREQUENCY-PARAMETRIC CONTROL SYSTEM OF PHASE ROTOR ASYNCHRONOUS MOTOR

***Abstract.** This article investigates the design and implementation of a frequency-parametric control system for a phase rotor asynchronous motor (PRAM). The research focuses on developing an optimized control strategy to enhance motor efficiency and operational stability. The proposed system adjusts the supply frequency and rotor parameters to achieve improved speed regulation and torque control. Experimental results demonstrate the effectiveness of the control strategy in reducing energy consumption and improving motor performance in industrial applications.*

***Key words** Frequency-parametric control, phase rotor asynchronous motor, PRAM, motor speed regulation, torque stability, rotor resistance adjustment, supply frequency control, energy efficiency, variable load conditions, dynamic motor control, industrial motor applications, control strategy optimization, real-time control*

Introduction. Phase rotor asynchronous motors (PRAMs) are widely used in various industrial applications, such as conveyor systems, cranes, and pumps, due to their durability, simplicity, and ability to handle heavy loads. These motors are particularly valuable in applications where variable speed control is required. However, traditional control methods, such as direct-on-line (DOL) or voltage-frequency (V/f) control, often face limitations when it comes to maintaining optimal motor performance under fluctuating load conditions. These challenges can result in inefficiencies, energy losses, and suboptimal torque control.

One of the promising solutions to these challenges is the implementation of a frequency-parametric control system, which allows for dynamic adjustment of both the supply frequency and rotor parameters, such as rotor resistance. By fine-tuning these parameters in real-time, it becomes possible to achieve better control over the motor's speed, torque, and overall efficiency. Frequency-parametric control provides the advantage of greater flexibility in adapting to changes in load, which is essential for industrial processes that require precise control of motor behavior.

This research aims to develop and analyze a frequency-parametric control system for PRAMs, focusing on improving speed regulation, torque stability, and energy efficiency. The study explores the impact of varying supply frequency and rotor resistance on motor performance, presenting an experimental evaluation of the system under different operating conditions. By optimizing these control

variables, the proposed system is expected to offer enhanced motor performance, reduced energy consumption, and more stable operation under variable loads.

Materials and Methods

Asynchronous Motor Setup

The asynchronous motor used in this study is a phase rotor type, with the following specifications:

- Rated Power: 5 kW
- Voltage: 380 V
- Number of Poles: 4
- Rotor Type: Slip ring

The motor was connected to a load simulating industrial conditions, and the control system was integrated to allow dynamic adjustments.

Control Strategy

The proposed control system operates by adjusting two key parameters: the supply frequency and rotor resistance. These adjustments are managed through a microcontroller-based control unit equipped with a frequency converter and a rotor parameter adjustment module.

Supply Frequency Control

The supply frequency is adjusted in real-time based on feedback from the motor's speed and torque sensors. The relationship between speed, frequency, and torque in asynchronous motors is governed by the following equation:

$$N_s = \frac{120f}{P} \quad (1)$$

where N_s is the synchronous speed, f is the supply frequency, and P is the number of poles. The control system monitors these variables to maintain a desired motor speed.

Rotor Parameter Control

The rotor parameters, particularly resistance, are adjusted to optimize the torque-speed characteristic curve. The control system dynamically alters the rotor resistance to improve motor efficiency under varying loads. The modified torque equation is as follows:

$$T = \frac{3V_r^2 R_r}{2\omega_s (R_r + (sX_r)^2)} \quad (2)$$

where T is the torque, V_r is the rotor voltage, R_r is the rotor resistance, ω_s is the synchronous speed, and s is the slip.

Experimental Setup

The system was tested in a laboratory environment with a motor load setup that allowed the simulation of various industrial conditions. The control system was connected to a data acquisition system that monitored motor speed, torque, efficiency, and power consumption. Tests were conducted under different supply frequencies and rotor resistance configurations.

Results

This section presents the findings from the experimental evaluation of the frequency-parametric control system applied to the phase rotor asynchronous

motor (PRAM). The results focus on the system's performance in terms of speed regulation, torque stability, and energy efficiency under varying operating conditions, particularly with adjustments to the supply frequency and rotor resistance.

Motor Performance at Various Frequencies

The first set of experiments assessed the motor's ability to maintain speed under different load conditions by varying the supply frequency. The control system dynamically adjusted the frequency to maintain a constant motor speed across the full load range.

Figure 1 shows the relationship between motor speed and supply frequency under a 50% load condition. As seen, the control system maintained a near-constant motor speed despite changes in the supply frequency, ensuring precise speed control.

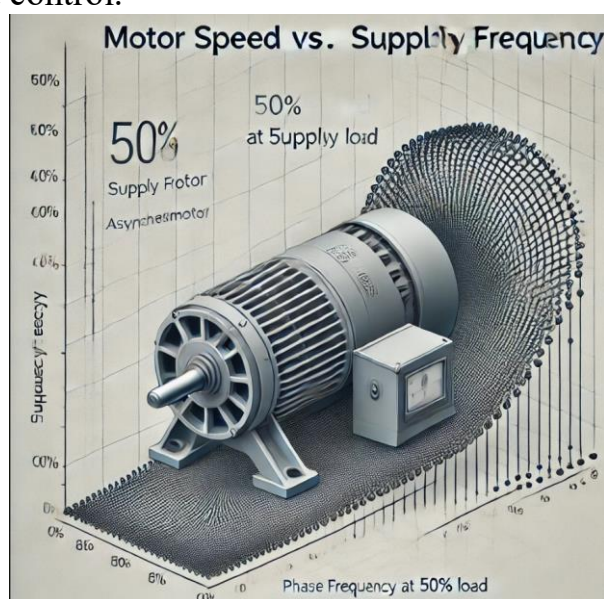


Figure 1: Motor Speed vs. Supply Frequency at 50% Load

Key observations include:

- Stable speed regulation: The control system maintained speed consistency, with deviations of less than 2% even when the load varied between 25% and 100%.
- Improved response time: The motor responded quickly to changes in frequency, achieving stable operation within seconds of parameter adjustment.

Energy Efficiency

The introduction of the frequency-parametric control system significantly improved the energy efficiency of the motor. Table 1 presents the comparison of energy consumption between the conventional control system (voltage-frequency control) and the proposed frequency-parametric control system under different load conditions.

Table 1: Energy Consumption Comparison

| Load (%) | Traditional Control (kWh) | Proposed Control (kWh) | Efficiency Gain (%) |
|----------|---------------------------|------------------------|---------------------|
| 25 | 5.8 | 5.1 | 12 |
| 50 | 11.2 | 9.9 | 11.6 |
| 75 | 16.3 | 14.4 | 11.7 |
| 100 | 21.8 | 19.2 | 11.9 |

As indicated in Table 1, the proposed system reduced energy consumption by up to 12% at low to medium loads, with an average efficiency improvement of around 11.7%. This demonstrates that frequency-parametric control not only achieves precise motor control but also enhances overall energy savings, particularly in industrial applications where motors frequently operate under partial loads.

Torque Stability and Rotor Resistance Adjustment

In another set of experiments, the impact of rotor resistance adjustment on torque stability was evaluated. The rotor resistance was adjusted in real time based on load variations to optimize the torque-speed characteristic. Figure 2 illustrates the torque response of the motor under varying load conditions with dynamic rotor resistance adjustment.

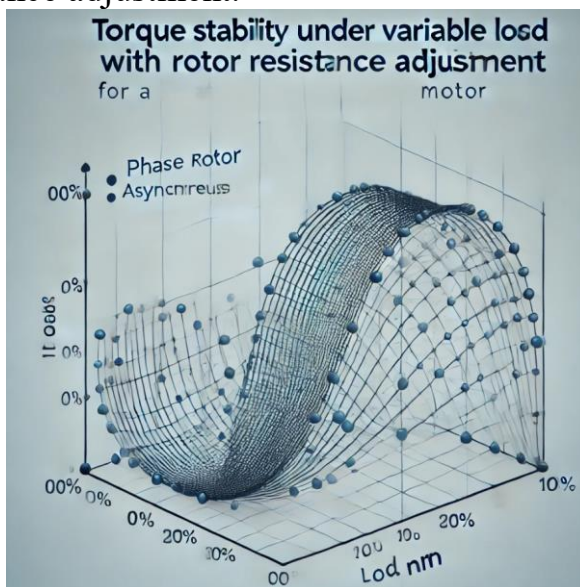


Figure 2: Torque Stability under Variable Load with Rotor Resistance Adjustment

The results show that:

- Stable torque control: The motor's torque output remained stable across a range of load conditions, with minimal fluctuation (within $\pm 3\%$ of the desired torque value).
- Improved torque response: By dynamically adjusting rotor resistance, the system achieved faster torque stabilization, particularly during sudden changes in load.

Combined Effect of Frequency and Rotor Parameter Control

When both supply frequency and rotor parameters were controlled together, the motor demonstrated superior performance compared to traditional systems. By optimizing these two variables simultaneously, the system maintained consistent motor operation across a broad range of conditions. Notably, the combined control allowed the motor to:

- Sustain optimal efficiency: Under varying loads and speeds.
- Reduce mechanical stresses: On the motor components, contributing to longer motor life.
- Improve operational smoothness: Reducing vibrations and noise during load changes.

Load Response Time

The load response time was another critical factor in evaluating the system's performance. The frequency-parametric control system exhibited a faster load response time compared to traditional methods, with the motor adjusting to changes in load within 1-2 seconds, as shown in Figure 3.

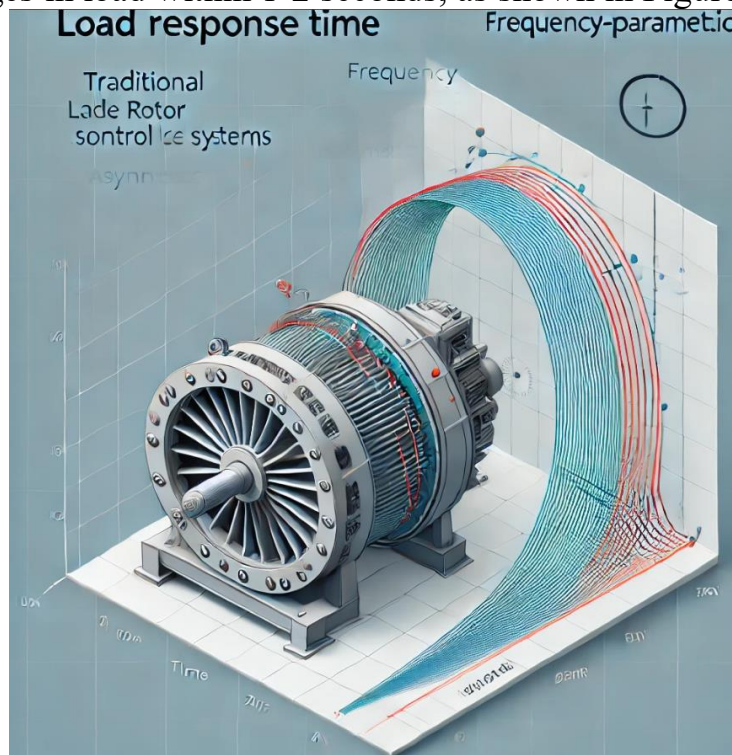


Figure 3: Load Response Time Comparison Between Traditional and Frequency-Parametric Control Systems

The rapid response time ensures that the motor can adapt quickly to fluctuating load demands, minimizing downtime and improving overall operational efficiency.

Discussion

The experimental results demonstrate the effectiveness of the frequency-parametric control system in improving motor performance. By dynamically adjusting the supply frequency and rotor resistance, the system was able to maintain consistent speed and torque under varying load conditions. This control

strategy also resulted in notable energy savings, making it suitable for industrial applications where energy efficiency is a priority.

One of the key advantages of this system is its ability to adapt to changing operating conditions, unlike traditional fixed-parameter systems that may struggle with efficiency under variable loads. However, further research is needed to optimize the control algorithms for real-time applications and to explore the potential integration of machine learning for predictive control.

Conclusion

The frequency-parametric control system for phase rotor asynchronous motors presents a significant advancement in motor control technology. The system achieves better speed regulation, torque stability, and energy efficiency by adjusting supply frequency and rotor parameters in real time. This approach is especially beneficial in industrial settings, where variable load conditions demand flexible and efficient motor control.

Future Work

Future studies should explore the integration of advanced control algorithms, such as model predictive control, to further enhance system performance. Additionally, the potential for implementing machine learning techniques to predict optimal operating conditions could offer further efficiency gains.

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THE IMPORTANCE OF INFORMATION TECHNOLOGIES IN THE FINANCIAL AND BANKING SECTOR IN UZBEKISTAN

***Annotation:** This article explores the role of information technologies (IT) in transforming the financial and banking sectors in Uzbekistan. The research assesses the impact of IT on increasing efficiency, security, and accessibility in banking operations. Specific attention is given to digital banking, cybersecurity frameworks, and efforts to expand financial inclusion. The analysis, based on both qualitative and quantitative data, highlights significant advancements in the sector due to technological innovations. The findings indicate that IT has had a profound effect on the productivity of financial institutions and provides policy recommendations for enhancing its role in the future.*

***Keywords:** Information technologies, digital banking, cybersecurity, financial inclusion, financial sector, Uzbekistan, fintech*

Introduction.

The rise of information technologies (IT) has revolutionized industries worldwide, and Uzbekistan's financial and banking sectors are no exception. In recent years, Uzbekistan has made significant efforts to modernize its economy, particularly in financial services. The government has actively encouraged the integration of digital solutions, which have become essential for improving service efficiency, increasing transparency, and enhancing customer experiences. In this context, it is critical to understand how IT innovations are shaping the financial landscape in Uzbekistan, as well as the associated challenges and future prospects. This study aims to provide a comprehensive analysis of the importance of information technologies in Uzbekistan's financial and banking sectors, with a particular focus on digital banking, cybersecurity, and financial inclusion.

Literature Review.

Various scholars and institutions have analyzed the impact of IT in the financial sector globally and in emerging markets. Locally, research by Sattarov[1] explores the role of cybersecurity in protecting digital infrastructures in Uzbekistan's banking sector. The Central Bank of Uzbekistan[2] has published several reports on the growth of digital banking and fintech services in the country,

further emphasizing the government's reform agenda. The World Bank [3] has also contributed to the discourse by examining the role of digital technologies in enhancing financial inclusion, particularly in low-income and developing regions. This literature review draws from both international and local studies to provide a well-rounded understanding of IT's impact on Uzbekistan's financial institutions.

Methodology.

The research employs a mixed-method approach, combining qualitative and quantitative data. Primary data were collected through semi-structured interviews with banking professionals and IT specialists from major financial institutions in Uzbekistan. Secondary data were gathered from financial reports, central bank publications, and official government policy documents. The data were analyzed using statistical tools to assess key performance indicators (KPIs) such as customer satisfaction rates, adoption of digital banking, cybersecurity investment, and improvements in operational efficiency.

Analysis and Results.

In Uzbekistan, digital banking has seen rapid growth. According to the Central bank of Uzbekistan's 2023 report, the number of digital banking users grew by 47% between 2019 and 2023. Mobile banking applications such as Apelsin and Click have become household names, with over 6 million users by the end of 2023. This rapid adoption is attributed to the ease of access provided by mobile applications and the government's push for digital transformation in banking services.

The integration of IT in banking operations has significantly reduced transaction costs. Automation of routine tasks, such as customer queries, loan processing, and transaction settlements, has reduced the need for manual labor, resulting in a 15% decline in operating costs from 2020 to 2023. Digital solutions have also improved productivity; on average, banks report a 20% increase in transactions processed per day due to faster, more reliable IT systems[4].

With the rise of digital banking comes the increased risk of cyber-attacks. Recent data from Uzbekistan's cybersecurity center indicate that the banking sector was the target of 34 cyber-attacks in 2023, primarily in the form of phishing attempts and malware attacks[5]. In response, financial institutions have significantly increased their investments in cybersecurity, with a 30% rise in cybersecurity budgets between 2020 and 2023. Implementing multi-factor authentication, encryption, and AI-driven threat detection systems has helped mitigate risks.

Information technologies have been instrumental in expanding access to financial services, particularly in rural areas where traditional banking infrastructure is limited. The introduction of mobile banking and e-wallets has enabled millions of previously unbanked citizens to access financial services. According to the World Bank, the percentage of adults in Uzbekistan with access

to a financial account rose from 37% in 2017 to 61% in 2023, largely due to the adoption of digital banking.

As IT continues to evolve, the future of Uzbekistan's financial sector looks promising. Blockchain technology is being explored for secure transaction verification, while AI is expected to play a significant role in customer service automation and fraud detection. The government has also shown interest in expanding fintech innovations to support e-commerce growth, which is projected to increase by 25% annually over the next five years.

Conclusion.

Information technologies are transforming the financial and banking sectors in Uzbekistan, offering numerous benefits in terms of efficiency, cost reduction, and expanded access to financial services. The rapid adoption of digital banking, coupled with increasing investments in cybersecurity, demonstrates the central role that IT plays in shaping the future of Uzbekistan's financial institutions. However, continued efforts are needed to address challenges such as cybersecurity threats and to ensure that IT infrastructure keeps pace with the growing demand for digital services. The findings suggest that with proper investments and policy support, IT will continue to enhance the stability and competitiveness of Uzbekistan's banking sector.

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POSSIBILITIES AND PROSPECTS OF USING VR TECHNOLOGIES IN BIOLOGY CLASSES

***Annatation:** This article presents information about the effectiveness of using VR technologies in the teaching of biological sciences and the impact on the level of students' understanding of the lesson. The results of the questionnaires received from the students are also presented.*

***Key words:** VR technologies, visual lesson, educational technologies, field of natural sciences, virtual reality.*

Introduction: The educational system of the modern world requires making the learning process of students more interesting and interactive. One of the technologies used for this purpose is virtual reality (VR) technologies. Especially in the field of natural sciences, by using VR technologies in the course of the lesson, it gives students the opportunity to observe the events happening in nature in a virtual environment, to study the anatomy of cells, plants and animals in more depth. As we know, the science of Biology is rich in complex and visual processes, so there is an opportunity to easily and interestingly explain these processes through VR technologies. This creates the ground for students to go deeper into the learning process and better understand the topics. This article is devoted to the analysis of the perspectives of VR technologies in teaching biology and their direct impact on educational effectiveness.

Purpose of work: Studying the possibilities and effectiveness of using VR technologies in biology classes.

Research object: Students studying Biology and lesson developments based on VR technology were selected as the object of research.

Research methods: This study was conducted in order to study the effect of VR technologies on the educational process in the teaching of biology. Several methods were used during the research. These are the following:

Questionnaire method: 3 biology teachers and a group of 24 students participated in the research. Special questions were asked to find out their opinions about the use of VR technologies in biology classes. Also, the results were analyzed, and students' attitude to learning through VR technologies was studied.

Experimental method: In the experimental method, an experiment was conducted on students divided into two groups (control and test group). One group was taught in a traditional way, and the other group was taught using VR technologies. The level of understanding and mastering of the lessons of each group was compared.

Literature analysis: Researches and scientific articles investigating modern VR technologies and their possibilities of use in the educational process were studied. Through the data obtained as a result of these works, the prospects and effectiveness of the use of VR in the educational process were analyzed.

Results: The results of the conducted studies show that the use of VR technologies in the field of education is effective. This efficiency is explained as follows.

Level of mastery of lessons on the part of students: Students in groups using VR technologies mastered the topics at a 30% higher level compared to students in other traditional classes. With the help of VR, students have a deeper understanding of the subject matter.

Increasing students' interest in the learning process: About 75% of students reported that their interest in classes increased as a result of the use of VR technologies in the teaching process. This showed that attracting students to classes through the virtual environment is superior to traditional methods.

Attitude of teachers: Biology teachers who participated in the study said that using VR technology, explaining even complex topics is easier than other methods. For example, the internal processes of the cell, the process of DNA replication, or processes such as mitosis and meiosis, have recognized that they can be explained in an understandable and interesting way through VR.

Analysis of opportunities and limitations of using VR technologies: During the research, along with the achievements of VR technologies, its shortcomings were identified and analyzed. In particular, it was noted that the use of VR equipment requires high costs and it is difficult to ensure that it is sufficient for all educational institutions.

Discussion: The use of VR technologies in the teaching of biology provides many opportunities. With the help of these technologies, it is possible to make it easier and more interesting to explain complex topics to students. Also, the high cost of technology and its technical limitations make it difficult to use these technologies on a large scale in education. For this reason, in the future, it was considered necessary to carry out more research on the cost reduction, wider use and wider use of VR technologies in the educational process..

Conclusion: The use of VR technologies in biology classes creates new learning opportunities for students. With the help of VR, students will gain a deeper understanding of the topics and their mastery level will increase. But there are technological and economic limitations to the large-scale use of VR technologies. Nevertheless, the introduction of VR into the educational process

can take the educational process to a new level and create a more interesting and interactive learning environment for students in the future.

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PREDICTION OF THE DEVELOPMENT OF DIASTOLIC DYSFUNCTION OF THE LEFT VENTRICLE IN PATIENTS WITH DIABETES

***Abstract:** More than half of patients with chronic heart failure (CHF) do not have a decrease in left ventricular ejection fraction (LVEF). The main causes of heart failure with preserved ejection fraction (HFpEF) are hypertension and type 1 diabetes mellitus. About half of patients also suffer from chronic kidney disease. The average age of patients with HFpEF is 73 ± 8 years. NYHA functional class is predominantly II–III, LVEF $57 \pm 8\%$. This condition is more common in women. Natriuretic peptides, which are destroyed by neprilysin, play an important role in the pathogenesis of heart failure. Symptoms and signs of HFpEF are nonspecific. To confirm the presence of CHF in such patients, it is necessary to determine the level of natriuretic peptides in the blood and identify signs of LV diastolic dysfunction.*

***Keywords:** left ventricular diastolic function, diabetic cardiomyopathy, Symptoms 1 diabetes mellitus*

Introduction

Chronic hyperglycemia triggers a whole cascade of pathological changes that entail endothelial dysfunction, an imbalance in oxidation-reduction processes that contribute not only to the development of macro- and microvascular complications, but also to autonomic neuropathy of blood vessels and the heart, which contributes to a worsening prognosis for cardiovascular diseases in diabetes mellitus [3, 4]. Left ventricular diastolic dysfunction (LV DD), which develops without a clear connection with atherosclerotic lesions of the coronary arteries and arterial hypertension in patients with diabetes mellitus, is currently considered as diabetic cardiomyopathy [4–7]. Certain aspects of the development of diabetic cardiomyopathy at the molecular-cellular level remain insufficiently studied and controversial, especially in patients with type 1 diabetes [4, 8]. Myocardial damage in diabetes is caused not only by metabolic disorders, microvascular complications associated primarily with the development of endothelial dysfunction, but also fibrosis processes [4,], the relationship between myocardial fibrosis markers and the severity of myocardial remodeling processes in patients with type 2 diabetes mellitus [4, 5] has been shown. Increased production of MMP affects the development of myocardial fibrosis with subsequent impairment of diastolic filling of the LV [4]. Studies devoted to assessing the influence of profibrotic factors on the hemodynamic parameters of the LV in patients with

diabetes mellitus, are rare and quite contradictory [3, 4]. The aim of the study: to identify risk factors for impaired diastolic function of the left ventricle in patients with type 1 diabetes and to evaluate their diagnostic and prognostic value in creating a model for predicting the development of diabetic cardiomyopathy.

Material and methods

All patients included in the study were diagnosed according to the "Algorithms for providing specialized medical care to patients with diabetes mellitus". The diagnostic criteria are the presence of two or more pathological results. The categorical variables were binary, meaning that they have only two values. Since modern statistical programs work with categorical data that have more than two values, they were transformed into dummy variables in our study. In the study, all categorical variables were transformed into dummy variables.

Study results

In the studied sample of patients with type 1 diabetes, LVAD was diagnosed in 13 patients. According to the results of the study of the LV relaxation function in the study participants, LVAD was detected in 7 people. When creating the logarithmic regression model, we checked and met a number of conditions. This was done both at the stage of preparation for the analysis and in the process of creating the model. Our model included independent variables that had previously shown a connection with the development of LV DD in patients with type 1 diabetes.

Discussion

In the study, the most significant prognostic factors were the presence of DCAN, changes in the level of MMP-1, the presence of the T allele of the NOS3 gene, as well as the duration of the disease, presented as a binary variable. The presented parameters are the most significant in patients with T1DM, which requires monitoring and attention from endocrinologists, cardiologists and other specialists. The accuracy of the described model is 61%, with a positive predictive value of 75.9%. The sensitivity of the model is characterized by the proportion of positive results obtained, and this affects the predicted event, with sensitivity ranging from 0 to 100%. The proportion of true negative results characterizes the specificity of the model (from 0 to 100%) [27]. A number of experts in the Russian Federation impose requirements for sensitivity indicators of 91.5% and higher, specificity of 78.0% and higher, which must be confirmed during validation in clinical trials. The mathematical model we created did not allow us to achieve the specified parameters for a number of objective reasons. reasons due to organ restrictions of the possibilities of logarithmic regression as a data analysis method. Nevertheless, the overall accuracy of the model indicates the prospects for further research in this area.

Conclusion

Changes in MMP activity are associated with myocardial remodeling processes. MMP-1 plays a central role in the breakdown of extracellular matrix

components, which contributes to structural and functional changes in the myocardium with the development of LVDD. The use of data analysis using logarithmic regression, the search for predictors of myocardial damage to determine the prognosis and outcome of the disease are currently of great practical importance.

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THE ROLE OF MEDIA EDUCATION IN ENRICHING THE SPIRITUAL WORLD OF YOUTH

***Abstract:** This article shows that the issues of preparation for the conditions and life of the information society are relevant in the upbringing of patriotic young people with high intellectual potential and innovative thinking. In the context of globalization, attention should also be paid to the education of young people, in this sense, information technologies are used today in all areas of human activity. Young people are especially vulnerable online. To address this problem, the implementation of deep reforms in the field of strengthening and improving information security is an important direction of social stability in the country.*

***Key words:** patriotism, spirituality, educator, youth education, the internet, media education, innovative thinking, unorganized youth, intellectual, literacy, media, information immunity, mass culture, cyberattack, cybercrime. The following are some of the key words used in the report:*

INTRODUCTION

The Head of our state Shavkat Mirziyoyev Miramonovich - During the years of independence in our country certain work was carried out to educate young people in the spirit of patriotism, respect for our national traditions and values, to raise spiritually mature and physically healthy people. generation, to protect their rights and interests. At the same time, the situation on the ground and the analysis of the measures implemented are important issues affecting a wide range of young people, especially the creation of appropriate conditions for unorganized youth to find their place in life, their all-round support, career growth. Guidance and employment are provided, initiatives are encouraged. [1]

The writer and enlightener Pithratus said: "This world is a battlefield. "A healthy body, a sharp mind and good manners are the weapons in this field", he said. If there is a little confusion, it is possible that outside forces will masterfully use it to poison the public consciousness, to divert it into different trends, to mislead. In battle, if you don't shoot the enemy, they'll shoot you. That's the logic. [2]

The activities of propagandists are important for the correct education of the consciousness and spirituality of citizens, especially young people.

As the President noted: “Today's rapidly changing world opens up new and great opportunities for humanity and youth. At the same time, they are exposed to various evil dangers that they have never seen before”.

II. METHODOLOGY

- Working with digital technology is not a problem for today's youth. They can easily learn new computer capabilities. It is only necessary to encourage them to actively engage in self-development, to be aware of their individuality, to express themselves, to take into account their needs and opportunities for self-improvement. The following questions are relevant to preparing adolescents for the conditions and life of the information society:

- Developing the skills and abilities to think logically in the face of large amounts of information, to choose information and to take responsibility;

- Formation of skills of independent work on the educational material using information and communication technologies (search for information, its processing, use of various sources of information, work with documents);

- Develop the ability to find and interpret the link between learning and everyday life events, to solve non-traditional issues and problems with the help of acquired knowledge, skills and abilities;

- Develop the flexibility to consider different points of view, to analyse their rationale, to speak publicly, to participate in discussions, to establish, maintain and strengthen relationships, to work as a team and to cooperate. Bad information is also on the rise, due to the fact that the main messages and information in blogs, which are becoming increasingly popular on the Internet, are made up of subjective opinions.[5]

- This situation requires a thorough study of the population's consumption of media products, regulation of the news worldview in the public consciousness, development of new methods of working with information, formation of information culture. To navigate and stay alert in an information jungle full of dangers and threats requires a set of specialized knowledge and skills. Just as you need to know the rules of the road to avoid getting frustrated on the road, in the world of information, you need to sort through information, you need to regulate your relationship with information, based on willpower, self-control, personal experience.

III. EXPERIMENT RESULTS

With the growth of information exchange in the world, globalization has penetrated the sphere of culture and science. As a result, spiritual threats to a nation's culture create new challenges for humanity. We must confront these spiritual and ideological threats from abroad, which poison the minds of our citizens, especially the youth, with individualism and self-centeredness. Protecting the youth, who are the future of the country, from various ideological threats; comprehensive understanding of what the moral threats are aimed at; not remaining indifferent to the events happening around, but increasing the sense of courage

It is known that the life concepts and notions of today's youth are mainly formed under the influence of the Internet. This makes the work of educational institutions more difficult. In order to feel free in a world of information flows, one must have an information culture. In this context, information culture is understood as a systematic set of knowledge, training and skills aimed at satisfying the information needs arising in the process of education, scientific knowledge and other activities. And that's why this problem has gone beyond just one country and has become a global problem.

Today, even a small message directed against human spirituality, seemingly trivial at first glance, can cause invisible but immeasurable damage due to the intensity of the globalization of the information world. In particular, the influence of pressure on the consciousness of young people under the guise of "mass culture", which is a form of moral threats, poses a threat to the development of the country. In particular, the fact that minors are sitting in Internet clubs and visiting pornographic Web sites, misusing cell phones, and distributing obscene films and pictures is doing great harm to a person's spiritual maturity. We have to be careful with these kinds of things that are happening in our society today to get young people on the right path.

These include:

- building their immunity against various spiritual threats;
- regularly introducing young people to examples of our spiritual heritage;
- educating children from an early age about the negative impact of mobile phones and computer games on human health, spirituality and consciousness.

Only then we will save our youth and our people from all kinds of evil forces and spiritual threats, we will be able to form in their hearts feelings of loyalty and love for the Motherland. [6]

On April 21, 2022, on the initiative of President Sh.M. Mirziyoyev, the adoption of the Law "On Cybersecurity" by the Parliament became an important turning point in the field of information security in the country. The adoption of this law has strengthened the legal foundations of the sphere of protection of information communications from internal and external cyberattacks in the country. The law consists of 8 chapters and 40 articles, in which the following basic principles of ensuring the country's cybersecurity are defined: legality, priority of protecting the interests of the individual, society and the state in cyberspace, a unified approach to regulating cybersecurity. cybersecurity sector, local developments in creating a cybersecurity system, priority of participation of manufacturers, openness of the Republic of Uzbekistan to international cooperation in ensuring cybersecurity.

Among other things, the law strengthened the definition by the President of the Republic of Uzbekistan of a unified state policy in the field of cybersecurity. At the same time, it is determined that the State Security Service of the Republic of Uzbekistan is the competent state body in the field of cybersecurity. According to the law, measures taken by cybersecurity actors in relation to cybersecurity

incidents include eliminating vulnerabilities and errors in software and devices, eliminating malicious programs, limiting their distribution, technically limiting the source of cyberattacks, isolating information objects from existing cyberthreats. can be implemented in such forms as providing information about cybersecurity incidents to law enforcement agencies [7].

Also in 2021-2022, the country has carried out deep reforms in the field of strengthening and improving information security, an important direction of ensuring the stability of society. This, of course, was an important part of the reforms that laid the foundations of New Uzbekistan and the Third Renaissance in the country. During this period, as a result of the creation of the GUP "Cybersecurity Center", the adoption of the law "Cybersecurity", the updating and improvement of information security technologies, barriers to cyberattacks were created, as well as the stability and security of society were ensured. Also, in order to further improve the prospects of information security, the development of the material and technical base of this area is evidence of the further development of this area.

Media literacy involves understanding the functions of the media, assessing the quality of the implementation of these functions, and cooperating rationally with the media for self-expression and participation in social processes. Media literacy is the result of media education.

It is important to take into account the unique pedagogical potential of media education in the context of the formation of a modern information culture and the development of new methods for the development of information behaviour of young people. Calculations and statistics are on the way, but the impact of this news noise on people is extremely painful.

With the average user spending six hours a day online, this creates a number of challenges for areas such as health, economics, education, psychology and even politics. For example, the negative effects of media addiction on a person's physical condition and health, such as decreased vision, curvature of the spine, developmental delay, attention deficit, impaired willpower, stress, depression, memory loss, as well as information. manifests itself in the form of causing harm to one's body. Our modern health care and education systems are faced with the challenge of dealing with such problems.

In fact, today, the education system is the segment that gets the most information about the addiction of children and young people to social networks, their addiction to computer games, FOMO sapiens, that is, the generation that is worried that they will be left without something if they are not online in the global web, the fabbing, the avoidance of real communication due to phone addiction, alienation and nomophobia “ the fear of being left without a phone” is a national imperative. In general, the abundance of information negatively affects the independent thinking and self-awareness of a person. Experts estimate that 49 percent of the information distributed on the Internet is direct or indirect propaganda of violence and evil, 57 percent is immoral, 25 percent is false,

fabricated, and 31 percent is completely untrue. This situation applies equally to destructive ideas, harmful habits and skills that are contrary to the national mentality, and unverified information that has a strong influence on the minds of young people. [8]

IV. CONCLUSION

Based on the above, in the process of media education, it is necessary to familiarize young people with the important rules for ensuring safety in the process of communication on the Internet: all personal information (name, address, telephone number, e-mail) -e-mail address, personal data of parents, mother) are not disclosed; do not trust strangers in media networks: on the Internet everyone can hide who they really are, etc. The main objective of media education “is to increase media literacy of young people, to shape their media culture, to protect them from negative media content, to prevent them from becoming a victim of manipulation, to protect their personal information and to consciously seek it. to, interpret and use information in the modern world to develop communication skills and media competencies by expanding worldview” is to set objectives for education. To do this, it is advisable to introduce media education gradually in every educational institution.

In conclusion, the Internet and the information it provides have become an important part of our lives. In such a situation, the issue of Internet use, Internet security and the impact of the Internet on the human psyche and thinking becomes more relevant than ever. So it's important for our society to know the concept of information consumption culture when it comes to information.

In this regard, it is advisable to strengthen cooperation between the family, the neighborhood, the educational institution, which contributed to the enrichment of the knowledge and ideas of young people about the correct use of the Internet, the support of the interests and aspirations of young people, spiritual and spiritual. organize activities related to the issues of further increasing the effectiveness of religious affairs. At the same time, in order to strengthen the spiritual world of our youth and protect its integrity, it is important to always be alert, vigilant and vigilant, to strengthen deep thinking based on the scientific method and continuous spiritual education against threats.

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AVTOMOBILLARGA GAZ TO‘LDIRISH SHAHOBCHALARINI XAVFSIZLIK TEXNIKASI QOIDALARI ASOSIDA LOYIHALASH

***Annotatsiya:** Maqolada gaz ballonli avtomobillarning gaz uskunalariga moslanganligini baholash, ekspluatatsiyadagi siqilgan va suyultirilgan gaz ballonlaridan foydalanish jarayonida uning inson hayotiga zarar yetkazuvchi jiddiy oqibatlarini oldini olish va kamchiliklarni bartaraf etish chora-tadbirlari ishlab chiqilgan.*

***Kalit so‘zlar:** Avtomobil, dvigatel, gaz ballon, siqilgan gaz, suyultirilgan gaz, xafvsizlik.*

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***Abstract:** The article develops measures to assess the adaptation of gas-powered vehicles to gas equipment, prevent serious consequences that threaten human life, and eliminate shortcomings in the operation of compressed and liquefied gas cylinders.*

***Keywords:** Automobile, engine, gas cylinder, compressed gas, liquefied gas, safety.*

Ma'lumki avtomobil transporti mamlakat iqtisodiyoti rivojlanishida muhim ahamiyat kasb etadi. Shu sababli mamlakatimizning iqtisodiy va ijtimoiy rivojlanishining asosiy yo'nalishlaridan biri hisoblangan avtomobilsozlik sanoati sohasida xalq xo'jaligining barcha talablariga javob beradigan va atrof-muhitga kam zararli shuningdek, yonilg'i tejamkorligi yuqori avtomobillarni ishlab chiqarish tarkibini oshirish va takomillashtirish asosiy vazifa hisoblanadi. Bu esa o'z navbatida avtomobil yonilg'isi sifatida qo'llaniladigan benzin va dizel yonilg'ilariga bo'lgan talabning o'sishi sababli avtomobillar uchun muqobil yonilg'ilardan foydalanishni taqozo etmoqda.

Gazsimon yonilg'ilar odatda suyultirilgan va siqilgan holatda ishlatiladi hamda uni qayta ishlash neftni qayta ishlashdan arzonligi va yonganda chiqindi gazlar zaxarliligi darajasi kamligi bilan ajralib turadi.

Hozirgi kunda tannarxi jihatidan arzon bo'lgan tabiiy gazlardan avtomobillarning yonilg'isi sifatida foydalanish keng yo'lga qo'yilgan. respublikamizda tabiiy gazning ko'plab zahiralari bor va bu zahiralarda yuqori sifatli tabiiy gazlar bo'lib ulardan avtomobil dvigatellari uchun yonilg'i sifatida foydalanishda ortiqcha gazni qayta ishlash yoki kimyoviy usullarda ishlov berish texnologiyalari qo'llanilmasdan, to'g'ridan-to'g'ri yonilg'i sifatida foydalanish mumkin[2].

Bu borada mamlakatimizda yoqilg'i-energetika resurslari bilan ta'minlashda bir qancha ishlar olib borilmoqda. Jumladan avtomobil transporti uchun neft asosidagi yonilg'i ishlab chiqarish bilan bir qatorda gazsimon yonilg'ilarni qayta ishlash va shu bilan birgalikda qishloq-xo'jalik chiqindilaridan olinadigan alternativ yonilg'ilarni qayta ishlash o'sib bormoqda [2]. Gazsimon yonilg'ilardan foydalanish uchun transport vositalari qayta jihozlanmoqda va gaz quyish, gaz to'ldirish kompressor shahobchalari qurilishi, ulardan foydalanish yuzasidan bir qancha chora-tadbirlar amalga oshirilmoqda. Tabiiy gazda harakatlanayotgan avtomobillar xavfsizligini oshirish, ular bilan sodir bo'layotgan mudhish hodisalarning oldini olish va zararlarini kamaytirish, siqilgan tabiiy gazda ishlaydigan avtomobillarning gaz uskunalarining muammoli vaziyatlarni hal qilish yuzasidan ko'plab ishlar bajarilmoqda. Lekin tabiiy gaz yonilg'isi bilan harakatlanuvchi transport vositalarining sonining oshishi bilan proporsional ravishda gaz ballonlarining portlashi bilan bog'liq baxtsiz hodisalarning soni ham oshib bormoqda. Gaz to'ldirish shahobchalarida quyidagi yuqori darajadagi halokatli holatlar mavjud:

- Egiluvchan shlangda germetikaning buzilishi va avtomobilga gaz quyish paytida gaz oqimining gaz to'ldirish shahobchasi beton maydoni yuzasiga urilishi;
- Elektr energiya ta'minoti uzilishi;
- Qurilmalar nosozligi;
- Saqlash klapani buzilishi;
- Yonilg'i sathini ko'rsatuvchi indikator oynasi sinishi va zararlanishi;
- Atrof-muhit va odamlarga zarar keltiruvchi sanitariya holatining vujudga kelishi [3].

Avtomobil gaz ballonlari portlashi bilan bog'liq hodisalar asosan avtomobillarni gaz bilan to'ldirish kompressor shahobchalarida gaz ballonlarini to'ldirishda, gaz balloni uskunalarining birikkan joylari zichligi va ishonchliligini davriy sinovdan o'tkazishda, shuningdek, jismonan va ma'nan eskirgan gaz ballonlaridan foydalanish oqibatida belgilangan talab va tartiblarni buzish holatlari natijasida sodir bo'lmoqda. Portlayotgan gaz ballonlarining qariyb 90%i aynan avtomobillarga gaz to'ldirish shahobchalarida gaz to'ldirish va texnika xavfsizligi qoidalariga amal qilmaslik natijasida sodir bo'lmoqda.

Har qanday halokatli holatlarning va portlash xavfini tug'diruvchi gaz aralashmalari paydo bo'lishining oldini olish hamda unga qarshi tadbirlarni amalga oshirish uchun avvalo portlashga xavfli hududlar chegaralarini aniqlash

lozim. Portlashga xavfli hududlar o'lchamini quyidagicha aniqlash maqsadga muvofiqdir.

Portlashga xavfli hududlar o'lchamini aniqlash usuli.

Gaz quyish shahobchalarida agarda quyidagi tengsizlik yuzaga kelsa, portlovchi gaz konsentratsiyasi hosil bo'ladi,

$$t_g \geq t_{chaq}$$

Bu yerda, t_g – gaz xarorati, $^{\circ}C$, t_{chaq} – chaqnash harorati, $^{\circ}C$.

Yuqoridagi tengsizlikni hisobga olgan holda,

$$R = \sqrt{\frac{A \cdot m_{gb}}{\varphi}}$$

Bu yerda, R – konsentratsiya maydonini chegaralovchi, yong'in tarqalishini pasaytiruvchi va bug'lanish manbasi chegarasidan keyingi hudud o'lchami, m , A – konstanta $0.17m^{-1}$, m_{gb} – gaz bug'lari massasi, kg , φ – yong'in tarqalishining eng kichik konsentratsiyasi chegarasi, kgm^{-3} [2].

Yuqoridagi formuladan ko'rinib turibdiki gaz quyish shahobchalarida turli uslublar yordamida baholash orqali xavfli hududlarni baholash imkoni yaratiladi.

Favqulodda yong'in sodir bo'lganda yoki avariya holatlarida ularning oldini olish yoki zararlarini kamaytirish maqsadida har bitta AGTKSHlar yong'inga va portlashga qarshi arxitektura-qurilish yechimlari talablariga asoslanib loyihalaniishi kerak. Yong'inga qarshi arxitektura-qurilish yechimlari talablari bo'yicha binolar boshqa binolardan yonmaydigan 0,75 soat yong'inga turg'un devor bilan ajratilgan bo'lib, bu devorlar chang, gaz o'tkazmaydigan bo'lishi lozim. Bu devorlarga o'rnatiladigan eshiklar 0,6 soat yong'inga turg'un bo'lishi lozim. Ishlab chiqarish toifasiga ko'rabinolar proemlari orasidagi masofa 6m dan kam bo'lmasligi va binolar ustki qoplamasi yengil olib tashlanuvchan bo'lishi lozim.

Avtomobillarga gaz to'ldirish kompressor shahobchalarida (AGTKSH) avariya holatlarining oldini olish uchun AGTKSH kompressor bo'limi quyidagi talablarga javob berishi kerak:

- ❖ Kompressor bo'limida gazning portlashga xavfli konsentratsiyasini nazorat qilish uchun gaz tahlillagich datchiklari o'rnatilgan bo'lishi;
- ❖ Gaz miqdori 0,6% oshib ketsa, avariya havo tortish shamollatgichi va signalizatsiya avtomatik ravishda ishlab ketishi;
- ❖ Gaz quvurlarini tayyorlashda, quvurlarning to'la germetikligini ta'minlash maqsadida payvandli birikmalar maksimal darajada mustahkam bo'lishi talab etiladi.

Xulosa qilib aytganda agar avtomobillarga gaz to'ldirish kompressor shahobchalari yuqorida keltirib o'tilgan barcha xavfsizlik texnikasi qoidalariga asosida loyihalansa va qoidalarga amal qilish ustidan tegishli tashkilotlar

tomonidan qat'iy nazorat olib borilsa, gaz ballonlarining portlashi bilan bog'liq bo'lgan mudhish hodisalarning oldi olingan bo'lardi.

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AUDIOVIZUAL JURNALUSTIKADAGI LOYIHALARDA MUALLIFNING MAQSADI VA TOMOSHABIN EHTIYOJLARI O'RTASIDAGI MUTANOSIBLIK

***Annotatsiya:** Bu maqolada aydiovizual jurnalistikaning muhim bo'lagi bo'lmish teleloyihalarda qahramonlar obrazi hamisha ham yakka shaxs bo'lmashligi, balki ma'lum ijtimoiy qatlamga mansub bo'lishi ham mumkinligini aniqladik. Muallifning maqsadi auditoriya ehtiyojiga mos kelishini bilish har bir jurnalist uchun muhimligi, ammo bu xuddi lotereyadek avvaldan to'liq aniqlab bo'lmashligini misollar asosida isbotlashga urindik.*

***Kalit so'zlar:** televidenie, qahramon, muallif, ayditoriya, shaxs, telemahsulot, ehtiyoj, madaniyat.*

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THE RELATIONSHIP BETWEEN AUTHORS PURPOSE AND AUDIENCE NEEDS IN AUDIOVISUAL JOURNALISM PROJECTS

***Abstract:** In this article we found out that in television projects, which are an important part of audiovisual journalism, the image of the heroes is always similar types, but is also limited to a certain social class. We tried to prove with examples that the author's goal is to find out whether the audience is suitable for the journalist, but it can be determined in advance, like in a lottery.*

***Keywords:** television, character, author, audience, personality, television product, need, culture.*

KIRISH

Muallifning o'z oldiga qo'ygan vazifasi va auditoriya ehtiyojining bir-biriga mos kelish masalasi televideniyede amaliyotida hamisha bo'lgan. Televideniyede qahramon obrazi haqidagi ma'lumotlar sarhisobi tomoshabin ongi bilan bevosita bog'liq. Tomoshabinlar demografik, mafkuraviy, madaniy-ma'rifiy va boshqa segmentlarda bir-biridan farq qilgani uchun ham, auditoriyaning integratsiya²⁸si kundan kun kamaymoqda. Telejurnalist, dastur yaratish uchun qahramon va boshqa ishtirokchilarni saralayotganda mediamahsuloti uchun mo'ljallangan auditoriya obrazini taxminan bo'lsada modellashtirishni hisobga olishi kerak. Kommunikatorning qabul qiluvchilar haqidagi tasavvuri qanchalar aniq bo'lsa, tomoshabinga ta'siri shunchalar samarali bo'ladi.

²⁸ Integratsiya lot. integration – tiklash, to'ldirish.

Muallif auditoriya ehtiyojini to'la qonli his qila olmasligi aniq, ammo u shunga intilishi zarur. Jurnalistning tomoshabinlar haqida tasavvurga ega bo'lishi dasturning har tomonlama samaradorligini oshirib, ko'rsatuv qahramonini tushunishga xizmat qiladi.

Infosfera oqimi shiddat bilan kirib kelayotgan davrda auditoriya ehtiyojlari va xususiyatlarini aniqlashning o'zi yetarli emas. Yuqoridagilarni hisobga olib, o'zaro ta'sir strategiyasini ishlab chiqish darkor. Teleloyiha va undagi qahramon haqidagi tasavvurni ongli iste'molchi g'oyalari bilan bog'lash uchun telejurnalist o'ta ziyrak bo'lishi, tomoshabin pozitsiyasiga o'tishi va o'ziga quyidagi savollarni berishi kerak: agar men shu guruhga mansub bo'lsam, dastur qahramonini qanday qabul qilgan bo'lar edim, unga nisbatan menda qanday nuqtai nazar shakllangan bo'lar edi? Maqsadli auditoriyaga nisbatan bunday yondashgan dastur yaratuvchisi nafaqat tomoshabinlar bilan o'zaro munosabatlar strategiyasini yo'lga qo'yib ko'proq imkoniyatlarga ega bo'ladi, balki optimal rakurslarni to'g'ri tanlab, o'z qahramonini iste'molchilarga taqdim etadi. Har qanday telekanalning auditoriyasi doimiy va muqim emasligini yodda tutish kerak. Vaziyatga qarab televizion iste'molchi kanalni yoki dasturni tanlashi mumkin.

Televizion madaniyat auditoriya uchun ko'ngil yozishga imkon beruvchi «erkinlik illyuziyasi»dir. Zamonaviy dasturlar olamiga sho'ng'igan tomoshabin, ekrandagi qahramon bilan o'zi o'rtasida masofa yo'qligini his qilib, ruhiyatiga yaqin holatdan bahramand bo'lishi mumkin. Xayoliy erkinlik tuyg'usidagi inson oynai jahon qarshisida imkon qadar ko'p vaqt o'tkazib, dasturlardan o'ziga tanish qahramonni izlashga tushadi. Demak, tomoshabin uchun uning qadr-qimmatini, nuqtai nazari, emosional holatini aks ettiruvchi personajlar kerak. Auditoriyaning xohishi esa sub'yektiv va xilma xildir. O'nlab telekanallar mavjudligini hisobga olib, tomoshabin istagini inobatga olgan holda turli mavzuda dasturlar tayyorlanyapti. Ekran ortidagi insonlarning qadriyatlarini va axloqiy munosabatlari aks etayotgan, har bir tomoshabin uchun o'zining «qahramon»i hisoblangan stereotiplar yaratilyapti desak, yanglishmaymiz.

Vaholanki, televideniye faqatgina ma'lumot berib ko'ngilocharlik bilan shug'ullanmaydi, balki inson ruhiyati va shaxsiyatini shakllantiradi va tarbiyalaydi ham²⁹. Mantiqiy mulohazalarga berilsak, hozirgi tomoshabin televideniye bilan birga voyaga yetdi, asosiy omma hali ham oynia jahon bilan birga ulg'aymoqda. Lekin avvalgidek ko'p millionli auditoriyani ushlab turish oson bo'lmayapti, telekanallar soni ortganiga qaramay ijtimoiy tarmoqlar ma'lumot yetkazishda tezkorlikni qo'lga olgani sabab tanlov imkoniyati ko'paydi. Demak qaysi telekanal talab darajasidagi mahsuloti orqali ommani o'ziga jalb qilsa, yutuq ham uniki.

²⁹Дворниченко О. И. Телевидение вчера, сегодня, завтра. – М.: Искусство. 1986. –С.46.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

20-25 daqiqalik teledasturni tomosha qilgach, inson ongi ekran orqali uzatilgan har qanday ma'lumotni o'ziga singdira boshlaydi³⁰. Bunday ruhiy holatni amalda ishlashi uchun auditoriyani, avvalo, ekranga jalb qilish zarur. Muhim jihatlardan biri shundaki, passiv tomoshabin uchun oynai jahon teatr, kino, muzey va boshqa maskanlarning o'rnini bemalol to'ldira olyapti. Faol bo'lmagan auditoriya millionlarni tashkil qilishi hech kimga sir emas.

Telekanallar qahramon yaratishda tomoshabinning xohish-istagini inobatga olishi kerakmi yoki televideniye manfaatlarini ko'zlagan holda o'z auditoriyasini yig'ishi kerakmi, degan savol tug'ilishi tabiiy. Hozirgi axborot oqimi soniya sayin yangilanib borayotgan davrda bu mulohazalarga aniq qolip yoki stereotip to'g'ri kelmasligi ayon.

Bir tomondan teledasturlarni tijoriylashuvi va ularning ishlab chiqarish rentabelligi³¹ reklama harajatlarini qoplash uchun auditoriya qiziqishlari va maqsadlarini o'rganishni talab qiladi. Boshqa tomondan, ko'p millionli auditoriya bir xil talab va qiziqishlarga ega bo'la olmaydi. Demak, tomoshabinni yo'qotmaslik va moddiy jihatga zarar yetmaslik uchun oltin o'rtaliqni topish muhim. Mamlakat siyosati va iqtisodiyotidan kelib chiqqan holda, teleekran qarshisida ko'p vaqtini o'tkazadigan va ta'sir doirasiga beriladigan tomoshabinni hisobga olish zarur.

Maqsadli auditoriya o'z ichiga yoshi, jinsi, daromad miqdori yoki qiziqishlari kabilarga ko'ra umumiy tavsiflarga ega bo'lgan tomoshabinlarni qamrab oladi. Bular aniq guruh bo'lib, unga mo'ljallab teletashkilotlar kontent yaratadi va yangiliklarni taklif etadi.

NATIJALAR

Biz zamonaviy televizion auditoriya obrazini quyidagicha tahlil qilishni lozim topdik:

1. Faol fikrlovchi suhbatdosh;
2. Fuqarolik pozitsiyasiga ega shaxs;
3. Qo'shimcha ishtirokchilar – ommaviy sahnalarda qarsak chalib yoki munosabat bildirib o'tiruvchilar;
4. Ko'rsatuvlarga ongli ravishda munosabat bildiruvchi tomoshabin;
5. Televizorga xonadonida bo'lishi shart bo'lgan maishiy texnika sifatida qaraydigan aholi;
6. Professional telemahsulot bilan zavqlanuvchi tomoshabin;
7. Gender bo'yicha taqsimlash: ayol va erkak auditoriyasi;
8. Oddiy tomoshabin.

Telejurnalist loyihasi uchun tanlangan va saralangan qahramonini ko'p millionli auditoriya tomosha qilib, fikr bildirishini, shu orqali reytingi oshib,

³⁰ Зелинский. С. А. Информационно-психологическое воздействие на массовое сознание.—СПб.: Скифия, 2008.—С. 197.

³¹Rentabellik (nem. Rentable – daromadli, foydali) – korxonaning mikroiqtisodiy miqyosdagi iqtisodiy faoliyatining samaradorligi.

homiylarni jalb qilishni istaydi. Hozirgi zamonaviy televideniya reklamaning o'rnini muhim. Televideniya faoliyat yurituvchi xodimlarni moddiy jihatdan rag'batlantirish uchun ham tijoriy ko'rsatuvlar zarur.

Aslida har qanday davrda teleqahramon hurmatga sazovor bo'lgan. Zangori ekran tom ma'nodagi ko'rsatuvlari, ishtirokchilari bilan tomoshabinni ekran qarshisida ushlab tura olgan va tarbiyalagan. Infosfera shiddat bilan xonadonlarimizni zabt eta boshlagach, tomoshabin ma'lumotlar ichidan o'ziga yoqqanini, qulayini tanlash imkoniga ega bo'layotganini anglay boshladi. Bu inson ruhiyati bilan bog'liqligini inkor etib bo'lmaydi. Yuqorida qayd etganimizdek, imkoniyatlar kengaya borgan sari auditoriya ham turli toifalarga bo'linadi.

MUHOKAMA

Dasturlar o'z loyihasini boshlagan ilk pallada tomoshabinlar sonini ko'paytirish uchun sun'iy ravishda bilvosita tasvirga olish maydonida intrigali vaziyatlarni yaratadilar. Yoki, tadqiqotchi P. Allamberganovanning izlanishlarida qayd etilganidek: «Mabodo ishtirokchilar o'zini risoladagiday tutadigan bo'lsa, boshlovchining o'zi quyushqondan chiqaruvchi savollar ham beradi»³².

Ijodkorning borligi ham, boyligi ham so'z bilan³³. Ommaviy axborot vositalari orqali aytilgan so'zning kuchi qamrovi kengligi, ta'siri bo'yicha ma'lumot tarqatishning har qanday shaklidan o'za oladi. Agar bu informatsiya teleekran orqali ommaga taqdim etilsa, ham mazmun, ham shakl jihatidan ta'sir tezligi ortadi. Shuning uchun yuqorida ko'rsatuvlardagi mavzularga nisbatan shunday fikr bildirilganki, tok-shou natijasida ta'sirlangan tomoshabin hayot haqidagi fikrini o'zgartiradi va tabiiyki, yashash tarzi ham o'zgaradi.

Har kungi va har daqiqadagi translyasiya oqimi jamoaviy imijni shakllantiradi. Shuningdek, ommaviy axborot vositalari jamoatchilik ongida mavjud qadriyatlarni aks ettirib, ongning ijtimoiy prototiplari asosida tan olish holatini yaratadi. OAVning bir turi bo'lmish televideniya qayd etilgan so'zning ta'siri kuchli, ayniqsa tasvir bilan dalillangach, kommunikatsiyaning ayrim shakllarini ortda qoldiradi va bugungi ijtimoiy tarmoqlardagi ma'lumot bo'yicha tezlikni hisobga olmasak, boshqa barcha shakllardan o'zib ketishi shubhasiz. Tabiiyki, ekranda aks etayotgan qahramonlar va ishtirokchilar jamoatchilik fikriga, zamonaviy jamiyatning ehtiyojlarini shakllantirishga ta'sir ko'rsatadi.

Ommaviy axborot vositalarining zamonaviy qahramonlari ijtimoiy taraqqiyotning dominantlarini belgilovchi media liderlardir³⁴. Ta'kidlash zarurki, zamonaviy jamiyatda tijoriy manfaatlar kuchli pozitsiyani egallayapti. Bir vaqtlar ekran qahramoni sifatida namoyon bo'lgan ishchi va mehnatkashlar o'rnini tadbirkorlar egallayapti. Bozor iqtisodiyotiga o'tish davrida bu jihat tabiiy va butun dunyo shunday tajribadan o'tdi, o'tyapti. Yildan yilga telekanallar soni

³²Allamberganova M. Telejurnalistika janrlari. – T.: Yangi asr avlodi, 2014. – B.56.

³³Qurbon N. Kechinmalar va kechirmalar. – T.: «Lesson Press», 2023. – B.130.

³⁴Зубанова Л.Б. СМИ как арена ценностного обмена // Вестник Челябинского университета. 2012. – №32. – С. 30.

oshayotganini hisobga olsak, tomoshabin uchun kurash ketyapti. Buning uchun esa auditoriya ehtiyojini o'rganish o'rinli. Demak, zangori ekran iste'molchilarini «o'ziniki» qilib olish uchun teleloyihalar rang-barang g'oyalarni ishlab chiqish ijodkorlar zimmasiga tushyapti. Keyingi vaqtdagi kuzatishlarimiz shuni namoyon qilyaptiki, tomoshabin sonini oshirish uchun, ayniqsa xususiy telekanallar jurnalistlari taniqli shaxslarni shaxsiy hayoti bilan qiziqib, ommaga olib chiqishga urinmoqda va shu orqali auditoriya sonini kengaytirishga umid qilishyapti. «MY5» telekanalining «Markaziy studiya» ko'rsatuvining sonlaridan birida³⁵ marhum aktrisa Gavhar Sharipova haqida so'z borib, boshlovchilar aktrisa Feruza Sobitovaga Gavhar Sharipovaga taalluqli o'ta shaxsiy savollarni berib, javob berishga undayotganini anglash qiyin emas. Ko'p hollarda bu kabi savollar teleloyiha mualliflari tomonidan tomoshabinlar qiziqishyapti, degan mulohazalar bilan beriladi. Aslida natija har doim ham ijobiy bo'lmasligi mumkin. Yoki «Milliy TV» telekanali orqali efirga uzatiladigan «Nishonda» ko'rsatuvining so'z ustasi Avaz Oxun qatnashgan sonida³⁶ muallif va boshlovchi Sardor Komilov qitmir savol sifatida ko'ngilga va shaxsiyatga tegadigan savollari bilan murojaat qildi. Ba'zan jurnalistlar bu holatni atayin uyushtirganliklarini, ishtirokchining emosiyalari junbushga kelganda haqiqatni aytish ehtimoli ko'proq va biz muxlislar ehtiyojini qondirishimiz kerak deb, o'zlarini oqlashadi. Ammo bu jurnalist ahloqi qoidalariga to'g'ri kelmaydi.

Avvallari ziyraklik va ehtiyotkorlik bilan yashirilgan holatlar: maishiy hayot, jinsiy munosabatlarni bo'rttirishga urinish holatlari hozirgi kunda oshkor etilishi kuzatilmoqda. Ilgari shoir she'r va ilhomdan iborat edi, hozir esa shoirning xotinlari, uning fiziologiyasi, kasalliklari, tasodifiy munosabatlari, kundalik hayoti dolzarb...³⁷

Intrigalarga, shov-shuvlarga o'ch tomoshabin taniqli shaxslarning ojiz tomonlari, kamchiliklarini bilishga, ko'rishga qiziqadi. Teleloyihalar mualliflari auditoriyasini kengaytirish maqsadida bachkana kontentlarga qo'l urishlari kuzatilmoqda. Buni mentalitetimizga xos bo'lmagan «Yor-yor» (Zo'r TV»), «Ilk uchrashuv» kabi ko'rsatuvlarda, «Sabriya» («Sevimli TV»), «Baxt ovchisi» («Milliy TV») va h.k. seriallarda kuzatish mumkin. Shu tariqa, shaxsiy hayotidagi sirlari «fosh» bo'lgan el suygan san'atkorlar ijobiy qahramondan salbiy qahramonga aylanadi. Intilishga, taqlid qilishga misol bo'la oladigan namunalar kamaygan sari ma'naviyatda bo'shliq paydo bo'lishi hech kimga sir emas. televideniyaning engt xavfli jihati, kuchi ham aynan shu holatda aks etadi.

Mediasanoat teleloyihalarda salbiy jihatlari ko'p shaxsni omma e'tiboriga taqdim etavergach, bu ommaviy targ'ibotga aylanadi. Bu holatda barcha ijtimoiy xavflar namoyon bo'ladi: shafqatsizlik, zo'ravonlik, ahloqsiz hatti-harakatlar, ahloqiy qadriyatlar, xalqimiz davomida ming yillar davomida ishlab chiqilgan tamoyillarni rad etish. Tadqiqotchi N.B. Manyakovskayaning fikricha:

³⁵«MY5» telekanali efiri. «Markaziy studiya». Mualliflar – Bahodirov S., Umarov A.21.11.2019. 20:00

³⁶«Milliy TV» telekanali efiri. «Nishonda» ko'rsatuv. Muallif – Komilov S. 15.12.2019. 22:00

³⁷Архангельсий А. Жизнь тапочка// Огонёк. 2008. – № 32. – С. 8.

«Antiqahramonning paydo bo'lishi shaxsiyat inqirozidan dalolat beradi va nosog'lom fikrlaydigan ommaviy madaniyat shaxsini shakllantirishga yordam beradi»³⁸.

XULOSALAR

Zamon qahramonlari obrazlarini yaratishda, salbiy ta'sir ko'rsatuvchi tashqi omillar mavjudligini aytish o'rinlidir. Avvalo, bu o'ziga xos xavf – insonning jamiyatda tutgan o'rnini yo'qotishi, qadriyatlarini o'zgartirishi va qayta baholashi bilan bog'liq. Shu nuqtai nazardan, nima uchun jurnalist «zamonimiz qahramonlarini» taqdim etishga ikkilanayotgani, qiynalayotgani mantiqan to'g'ri. Globallashuv davri insonni dunyo bilan xilma-xil munosabatga kirishayotgan vaqtida shaxsni o'rganish tobora murakkablashib, jurnalistni chalg'itayotgani tushunarli. Shuningdek, ijtimoiy hayotni shaxs ma'naviyatiga putur yetkazishi va marjinal³⁹ holatdagi ijtimoiy guruhlarining mavjudligi – jurnalistni chalkashtirishi tabiiy. Yodda tutish lozimki, telejurnalistikaning vazifasi faqat taniqli shaxslarni tantanali va umuman, yuzaki portretlarini yaratish emas, balki turli ijtimoiy guruhlarining zamon qahramonlari obrazlari galereyasi orqali jamiyatni ma'naviy va ahloqiy tarbiyasiga ta'sir ko'rsatishdir.

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³⁸Маняковская Н.Б. Эстетика постмодернизма. – СПб. : Алетейя. 2000. – С.301.

³⁹ Marginalizm (frans. marginal – chegaraviy, eng so'nggi) - huquqiy normalar va qadriyatlar borasida bir-biriga qarama -qarshi bo'lgan turli ijtimoiy guruhlar, tizimlar, madaniyatlar ta'siriga tushib qolish.

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VIRTUAL XIYONAT: NIKOHDAN AJRATISH SABABI SIFATIDA.

***Annotatsiya.** Maqolada nikohdan ajralishga sabab bo'luvchi omillardan biri sifatida virtual xiyonat masalalari hamda bu boradagi olimlarning fikrlari yoritilgan. Bugungi kunda nikohdan ajrashish virtual xiyonat sababli ham tobora ko'payib bormoqda. Shundan kelib chiqib, maqolada virtual xiyonat tushunchasiga mualliflik ta'rifi ishlab chiqildi. Shuningdek, virtual xiyonat oilaning buzilishiga sabab bo'lishi haqidagi baxsli munozaralar muhokama qilingan.*

***Kalit so'zlar:** oila, nikoh, er-xotin, nikohdan ajratish, xiyonat, virtual xiyonat, nomunosib hulq-atvor, intrnet muhiti, jismoniy yaqinlik, ahloqsizlik.*

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VIRTUAL INFIDELITY: AS A REASON FOR DIVORCE

***Abstract:** The article highlights the issues of virtual infidelity as one of the factors that cause divorce and the opinions of scientists in this regard. Today, divorces due to virtual infidelity are increasing more and more. Based on this, the author's definition of the concept of virtual betrayal was developed in the article. Also, the controversial discussion about virtual infidelity as a cause of family breakdown was discussed.*

***Key words:** family, marriage, couple, divorce, infidelity, virtual infidelity, inappropriate behavior, Internet environment, physical intimacy, immorality.*

Ma'lumki, nikohdan ajratish haqidagi ishlarning ko'rilishi boshqa yana 15 turdagi fuqarolik nizolarining kelib chiqishiga sabab bo'ladi. Bunday nizolar qatoriga aliment undirish, moddiy ta'minot undirish, bolani olish, bola bilan ko'rish tartibini belgilash, otalikni belgilash, uyga kiritish, uydan foydalanish huquqini yo'qotgan deb topish va boshqa nizolarni kiritish mumkin.

X.Yodgorov nikohdan ajralishga sabab bo'luvchi omillar sifatida oilaviy hayotga zarur tayyorgarlikning yo'qligi, oila mas'uliyatini bilmaslik, zararli

odatlariga o‘rganib qolish, turli doiradagi (shu jumladan, virtual tarmoqlardagi) aralashuvlarni ko‘rsatib o‘tadi⁴⁰.

Haqiqatan ham, bugungi kunda virtual xiyonat masalasi alohida muammoga aylangan deyish mumkin. Nikoh munosabatlarida xiyonatni o‘rganishda turlicha standartlar tanlab olinishi ham sir emas. Masalan, erkaklar xiyonati bu oddiy hayotiy holat, ayollar xiyonati esa uyat hisoblanishi bu boradagi ikki xil standartlardan dalolat beradi⁴¹.

Nikoh mavjud bo‘lgan holatda xiyonat jiddiy masala hisoblanadi. Bu holatni psixolog va yuristlar shaxsiyatdagi buzilishlar bilan bog‘laydilar. O‘z navbatida, destruktiv xulq-atvor psixogen depressiyani yuzaga keltiradi, bu esa amalda “aldangan” turmush o‘rtoq sog‘lig‘i uchun jismoniy va ruhiy jihatdan salbiy ta’sirni ko‘rsatmay qolmaydi⁴².

Er-xotindan birining nikohdan tashqari aloqalari bo‘yicha ko‘plab tadqiqotlar olib borilgan. Bu muammoni ilmiy jihatdan o‘rganib, tadqiqot obyekti sifatida izlanish olib borgan amerikalik olimlar Jon Ganbon, Jon Moni, germaniyalik izlanuvchilar Gunter Shmitd, Volter Fridrix, Kurt Shtarkelarning tadqiqotlarida nikohdan tashqari munosabatlar o‘ziga xos tarzda tanqid qilingan bo‘lsa-da, o‘sha davrdagi ijtimoiy muhit, jamiyatdagi ro‘y bergan o‘zgarishlar tufayli ushbu muammolar kengayib, oila barqarorligiga salbiy ta’sir ko‘rsatishi ta’kidlangan⁴³.

Milliy qonunchilik nafaqat virtual xiyonat, balki xiyonat masalasini ham nazarda tutmaydi. Biroq xiyonat milliy urf-odat va an’analarimizga ko‘ra noto‘g‘ri va nomunosib xulq-atvor hisoblanishi barchaga ayon holat hisoblanadi. Bu borada milliy va diniy tushunchalar ham o‘z ta’sirini ko‘rsatadi.

Ayrim holatlarda xiyonat mol-mulk bo‘linishida inobatga olinishi ham kuzatiladi. Masalan, agar boquvchi turmush o‘rtoq yagona bo‘lgan holatda hiyonat qilsa, uning turmush o‘rtog‘i esa faqatgina uy yumushlari va farzandlar tarbiyasi bilan band bo‘lgan holatda o‘z xizmat lavozimlaridan voz kechgan va mehnat faoliyatini amalga oshira olmagan bo‘lsa, xiyonat qilgan shaxs turmush o‘rtog‘ining normal hayot tarzini ta’minlash majburiyatini bajarishi zarur⁴⁴.

Qayd etish lozimki, pandemiya nafaqat turli huquqiy institutlar rivojiga, balki oilaviy munosabatlarga ham o‘z ta’sirini ko‘rsatdi. Xususan, “xiyonatga ruju qo‘ygan” shaxslarni aniqlashda ham muayyan o‘zgarishlar bo‘ldi. Aynan raqamli muhitda xiyonat qilishni jismoniy aloqasiz, virtual muhitda axborot

⁴⁰ X.Yodgorov. Oilaviy qadriyatlarni avaylab-asrash – kelajak avlodlar oldidagi muqaddas burchimizdir // O‘zbekiston Respublikasi Oliy sudining axborotnomasi. № 2. 2018. – B. 41.

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⁴² Бобровская М.А. Супружеские измены как фактор расторжения семейных отношений // Скиф. 2020. №1 (41) // URL: <https://cyberleninka.ru/article/n/supruzheskie-izmeny-kak-faktor-rastorzeniya-semeynyh-otnosheniy>

⁴³ Gieze H., Schmidt G., Studenten – Sexualität: Verhalten und Einstellung. – Reinbek, 2007. p. 223.

⁴⁴ Что грозит за супружескую измену по Семейному Кодексу РФ: законы и последствия // Источник: <https://dzen.ru/media/pravomoe/chto-grozit-za-supruzheskuiu-izmenu-po-semeinomu-kodeksu-rf-zakony-i-posledstviia-5bcef6fa0c9b0500a944cd24>

texnologiyalaridan foydalangan holda, turmush o'rtog'idan sir saqlagan holda turmush o'rtog'iga bo'lgan qiziqishni yo'qotishda ifodalanuvchi fenomen sifatida ko'rish mumkin⁴⁵.

Ayrim mutaxassislarning fikricha, shaxsiy ehtiyojlarni qondirish uchun internetdan foydalangan holda virtual hamkor bilan muloqot qilayotganda ehtiyotkorlik bilan ajrimning oldini olish mumkin. Internet muhitidagi anonimlik holati sezib qolishdan qo'rquvni yuzaga keltiradi, xavfsizlik muhiti bo'lsagina, inosn o'z emotsiyalarini erkin ifodalay oladi⁴⁶.

Bu o'rinda muallif fikriga qo'shilish mumkin. Garchan, xiyonatning tushunchasi va holati birmuncha murakkab holat hisoblanib, xiyonat odatda inson bilan inson o'rtasidagi munosabat sifatida qaralsada, virtual munosabatlarda real jismoniy yaqinlik mavjud bo'lmagan holatda uni xiyonat deyish mumkin.

Fikrimizcha, virtual xiyonat – bu noma'qul xulq-atvor bo'lib, er-xotinning bir-biriga nisbatan sadoqatidan chetga chiqqan holda boshqa shaxs bilan internet muhitida qiziqish bildirish va uning huquqiy oqibatga olib kelishidir.

A.G.Krivsov o'ziga xos tadqiqot o'tkazib, nikohdan tashqari munosabatlar sabablarini o'rganadi. Uning fikricha, o'zaro nikohdagi shaxslarning munosabatlari mos kelmasligi, jinsiy tarbiyadagi farqlar, tarbiyadagi nisbatlar, hattoki psixo-gigiyenik bilimlarning pastligi ham sabablar sifatida keltirilgan⁴⁷.

V.A.Sisenko esa, bu borada jismoniy moslikka doir fikrlarni ilgari suradi va juftliklardan birining jinsiy ehtiyoji qondirilmashligi, shu jumladan hurmatsizlik bilan munosabatda bo'lish, doimo tanqid qilish ham nikohdan tashqari munosabatlarga sabab bo'lishini ko'rsatib o'tadi⁴⁸.

Fikrimizcha, nikohdan ajrashishga sabab bo'luvchi nikohdan tashqari munosabatlar qachonki er va xotin o'rtasida o'zaro hurmat va tushunish, moddiy manfaatlarining yetarli darajada qondirilishi va mehr-muhabbat yetarli bo'lgan taqdirdagina yuzaga kelmasligi mumkin.

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SPECIFICS OF A FOREIGN LANGUAGE TEXTBOOK

***Abstract:** This work is devoted to the study of one of the current problems of the methodology of teaching foreign languages and cultures - the requirements for a modern textbook on foreign languages. The purpose of this work is to systematize the requirements for organizing the program content of a textbook and educational and methodological complex on a foreign language and to analyze modern teaching and methodological complexes taking into account these requirements.*

***Key words:** foreign language, students, educational process, textbook, learning and language teaching, theory.*

Foreign language literacy in the current conditions should be considered as an economic category. Integrating with technical sciences and material production, it turns into a direct productive force.

The role of a foreign language as an academic subject is also increasing in connection with the introduction of Educational Standards, where the development of the student's personality based on universal educational activities, knowledge and mastery of the world constitute the goal and main result of education. The transition from a knowledge paradigm to an educational one makes the enormous educational potential of the subject "Foreign Language" especially in demand. Foreign language is truly unique in its educational capabilities and is capable of making its own special contribution to the main result of education - the upbringing of learners.

The textbook is the core of the system of teaching aids, the main component, "managing the activities of the teacher and students, reflecting a certain conceptual approach to teaching a foreign language, goals, principles, content of teaching, which in turn determines the strategy and tactics, the teaching system as a whole" (M.V. Yakushev).

In the theory of a foreign language textbook, the textbook is considered as a complex subsystem, determined by the goals, program, content of the subject, methods and means of teaching and the pedagogical process, as well as interaction with the environment [1].

Under the monopolistic educational ideology that dominated the education sector until the mid-1980s, only one textbook/educational methodological kit had the status of a legitimate manual for a specific general education institution.

However, at present, due to the development of democratic trends in the educational system, there are variable textbooks for a specific model of teaching a foreign language. At the same time, not only domestic but also foreign textbooks receive the status of legitimate manuals. All this makes it relevant to develop objective criteria for the quality of a specific textbook.

As for the pedagogical and cognitive aspects of the learning objectives, we should primarily talk about the fact that the didactic content presented in the textbook should develop:

- the language and speech ability of the student;
- mental processes underlying the acquisition of foreign language activity (intelligence, attention, memory, perception, imagination);
- emotional and motivational-incentive spheres of the personality;
- interest in educational and cognitive activity in general;
- as well as such personality traits of the student that will allow him to communicate at the intercultural level: sociability, tolerance (tolerance), the ability to socially interact with communication partners, the ability to hear/listen to the interlocutor (communication culture), to understand the commonality and difference of his culture and the culture of the country of the studied language.

The content of teaching a foreign language consists of the interaction of three important elements of the teaching system:

- the subject's teaching material;
- the teacher;
- the student.

The teaching material or didactic content is presented, as a rule, in a textbook/educational methodological kit. The didactic content of the textbook affects the motivational-need sphere of the teacher's activity, arouses interest and desire to work with him or, on the contrary, for one reason or another (inconsistency with the teacher's professional level, his mental and personal qualities, established stereotypes in teaching activity, etc.) becomes a factor in the emergence of alienation between them.

In turn, the content "extracted" by the teacher from the textbook/educational methodological kit and the methods and methods of teaching used by him are to some extent colored by his individuality. In this sense, the teacher's activity can be compared with the activity of a director: in both cases, his moral principle is expressed as the extraction of an idea from a work created by the author.

Mediated through the personality of the teacher, his creative experience, emotional sphere, the educational material influences the student, who, assimilating it (or not assimilating) and at the same time experiencing the influence of the teacher, is formed as a personality. That is why such a significant role in the implementation of the educational and developmental potential of the

textbook is played by the methods, techniques and forms of teaching and assimilation of a foreign language presented in it or modeled with its help.

Thus, a textbook can be considered as a means by which the main properties of a methodological system are modeled, and then, in accordance with this system, a certain educational process is implemented. Therefore, any textbook is a carrier of a certain educational content and, at the same time, an organizer of the process of assimilation of this content by students.

The textbook is always compiled in accordance with the curriculum.

The structure of the textbook, the structure of the lesson, the method of familiarization with the language material, the system of exercises that form the skills and abilities of foreign language communication, reflect the author's concept of the approach to teaching a foreign language. [4]

A practical study of the issue (analysis of some teaching and methodological complexes) showed the fundamental possibility of analyzing a foreign language textbook using schemes and criteria. At the same time, the study of practical experience, the results of observations and questionnaires allowed us to conclude that the analysis is subjective and that there is a need for a personal assessment of educational materials oriented to specific learning conditions.

Thus, each teacher, relying on these schemes and criteria for analysis, on the content and structure of various teaching and methodological complexes in a foreign language, can and should choose the textbook that corresponds to the characteristics of his educational institution, the age and individual qualities of students, the specifics of his methodological training and his mentality.

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TOSHKENT VILOYATI SHAROITIDA KROSS ROSS-308 PARRANDALARINING KOLIBAKTERIOZ KASALLIGI TASNIFI

Annotatsiya. Maqolada parrandalarda uchraydigan kolibakterioz kasalligining tasnifi to'g'risidagi adabiyot ma'lumotlar keltirilgan. Kolibakterioz kasalligining surunkali kechishi, uzoq vaqt davom etishi parranda go'shti va tuxum etishtirilishini salohiyatini tushurib yuboradi. Parrandachilik xo'jaliklarida kasallikning bunday davom etishi va kechishi natijasida xo'jalik iqtisodiyotiga, etishtirilayotgan mahsulotlar sifati va miqdoriga hamda iqtisodiy ko'rsatkichlariga salbiy ta'sir qilmoqda.

Kalit so'zlar. Parrandachilik, kolibakterioz, E-coli, koli infeksiya, aerosakkulit, salpingit, infeksiya, immunitet, Escherichia coli, patogen, shtamm, septitsemiya, pnevmoniya, enterit, diareya, inkubatsiya, kolonizatsiya, fimbriya, ekzotoksin, enterotok, shigatoksin.

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CLASSIFICATION OF COLIBACTERIOSIS OF ROSS-308 CROSSBRED POULTRY IN CONDITIONS OF TASHKENT REGION.

Annotation. The article presents literature information on the classification of colibacteriosis in poultry. The chronic course of colibacillosis, its long-term course, inhibits the potential for the reproduction of poultry meat and eggs. As a

result of this continuation and course of the disease on poultry farms, it has a negative impact on the economy of the farm, the quality and quantity of the products grown, as well as on economic indicators.

Key words. *Poultry, colibacteriosis, E-coli, coli infection, aerosacculitis, salpingitis, infection, immunity, Escherichia coli, pathogen, strain, septicemia, pneumonia, enteritis, diarrhea, incubation, colonization, fimbria, exotoxin, enterotoc, shigatoxin.*

Kirish. O'zbekiston hukumati parrandachilik sanoatini rivojlantirishga katta e'tibor qaratib kelmoqda va bu yo'nalishda bir qancha davlat dasturlari amalga oshirilmoqda. Shu sababli, parrandachilik mahsulotlari, xususan, tuxum va parranda go'shti ishlab chiqarish hajmi oshgan. O'zbekiston Respublikasi Qishloq xo'jaligi vazirligining ma'lumotlariga ko'ra chorvachilik sohasida etishtirilayotgan mahsulotlarning 25-30 % ini sohaning muhim tarmog'i sanalgan parrandachilikdan olinadigan go'sht va tuxum mahsulotlari tashkil etadi. Mamlakatimizda oziq-ovqat xavfsizligi, ichki bozor talabi va eksport salohiyatini ta'minlash borasida tadbirlar tizimli tarzda amalga oshirilmoqda. Birgina aholining parranda go'shti va tuxumiga bo'lgan iste'mol talabi soha mutaxassislarini sifatli tovuq go'shti va tuxum etishtirish uchun mahsuldor liniyalar ko'lamini kengaytirish va yaratish hamda veterinariya – sanitariya tadbirlarini tashkil etish, profilaktika va kasalliklarni bartaraf etishning samarali yechimlarini qo'llashni talab qiladi. Bugungi kunda sifatli parranda go'shti va tuxum etishtiruvchi tadbirkorlarni qiynayotgan parrandalarning kolibakterioz kasalligining salbiy oqibatlarini ta'sirida ijtimoiy va iqtisodiy zararlar vujudga kelmoqda.

Asosiy qism. Kasallikning sabablari va omillari: Kolibakteriozning rivojlanishi parranda xo'jaliklaridagi gigiena sharoitlarining yetarli darajada emasligi, zich joylashtirilgan parrandalar, toza suv va sifatli ozuqa yetishmasligi kabi omillar bilan bog'liq bo'lishi mumkin. Bundan tashqari, boshqa infeksiyalar yoki immunitetning susayishi kolibakteriozning rivojlanishini osonlashtiradi.

Kolibakterioz kasalligi, asosan, *Escherichia coli* (*E. coli*) bakteriyasi tomonidan qo'zg'atiladi va turli hayvonlarda, jumladan, parrandalarda uchraydi. Kasallikning tasnifi, klinik va patologik belgilariga, shuningdek, kasallikning o'tkir yoki surunkali kechishiga asoslanadi. Kolibakteriozda yuqori patogen shtammlar bilan zararlangan o'tkir kolibakterioz tez rivojlanadi va hayvonlarning umumiy holatining keskin yomonlashuvi bilan xarakterlanadi. O'tkir shakl ko'pincha septitsemiya va poliorgan yallig'lanish bilan kechadi. Surunkali kolibakterioz asta-sekin rivojlanadi va uzoq davom etadi. Surunkali shaklda, odatda, bronxit yoki pnevmoniya kabi nafas olish tizimi kasalliklari, shuningdek, enterit, nafas olish tizimini zararlaydi va pnevmoniya yoki aerosakulit chaqiradi. Bakteriya ichakni zararlaydi va enteritga olib keladi, bunda diareya va ozuqa hazm qilishda muammolar kuzatiladi. Tuxum ishlab chiqarish jarayoniga salbiy ta'sir qilishi va tuxum ishlab chiqarish hajmining pasayishiga olib kelishi

mumkin. Mushaklar va bo'g'imlar zararlanganda shish, og'riq va yurganda qiyinchiliklar yuzaga kelishi mumkin. Bakteriyalar qon orqali butun organizmga tarqalib, septitsemiya chaqiradi. Bu o'ta xavfli bo'lib, ko'pincha o'lim bilan yakunlanadi. Kolibakterioz parrandalarda tuxum ichidagi embrionlarning rivojlanish jarayonida ham uchraydi. Infeksiya inkubatsiya jarayonida yoki tuxumdan chiqish vaqtida jo'jalarni zararlaydi. Bu holat inkubatsiya muvaffaqiyatsizligi va tuxumdan chiqqan jo'jalarning yuqori o'limiga olib keladi.

Kolibakteriozning yuqoridagi kasalliklari tana haroratining ko'tarilishi, depressiya, ishtahaning yo'qolishi, nafas olishda qiyinchiliklar va o'lim darajasining yuqori bo'lishi, jo'jalar o'sishining sekinlashishi, ozuqa iste'molining kamayishi, umumiy zaiflik va turli organlarda yallig'lanish jarayonlarning vujudga kelishi bilan kechadi.

Kolibakterioz patogenezi: *Yopishish va kolonizatsiya:* E. coli bakteriyalari hayvon organizmiga tushganidan so'ng ichak devorlariga yopishib oladi. Bunda bakteriyaning pili yoki fimbriyalar deb ataladigan maxsus strukturasi yordam beradi. Bakteriyalar ichak shilliq qavatida kolonizatsiya qilib, ko'payishni boshlaydi.

Ekzotoksinlar ishlab chiqarish: E. coli bakteriyalari turli ekzotoksinlar ishlab chiqarishi mumkin, masalan, enterotoksinlar va shigatoksinlar. Enterotoksinlar ichak epiteliasining ion transportiga ta'sir qilib, suv va elektrolitlarning ichakka ajralishini oshiradi, bu esa diareyaga olib keladi. Shigatoksinlar esa epitelial hujayralarga zarar yetkazib, ularning o'limiga sabab bo'ladi, bu esa ichak devorining buzilishiga olib keladi.

Ichak devorining buzilishi va yallig'lanish: bakteriyalarning ko'payishi va toksinlarining ajralishi natijasida ichak devorida yallig'lanish jarayoni boshlanadi. Ichakning shilliq qavati shikastlanib, qon tomirlari orqali toksinlar va bakteriyalar sistematik ravishda tarqalishi mumkin. Bu bakteriemiya va septikemiya kabi og'ir holatlarga olib kelishi mumkin.

Organizmning javobi: organizm E. coli infeksiyasiga qarshi immun javob qaytaradi, bu esa o'z navbatida yallig'lanishni kuchaytirishi mumkin. Agar immun tizimi kuchli bo'lsa, infeksiya lokalizatsiya qilinadi va tiklanish jarayoni boshlanadi. Ammo immun tizimi zaif bo'lsa yoki infeksiya og'ir bo'lsa, kasallikning o'lim bilan tugashi mumkin.



Fibrinli aerosakkulit



Jigarda perigepatitlar

Oldini olish va davolash - Profilaktika: Kolibakteriozning oldini olishda tashkiliy xo'jalik, zootexnik, zoogigiyenik tadbirlardan iborat kurash kompleksi

bajariladi. Xo'jalikda o'stirilayotgan jo'jalarni dezinfeksiyalangan binolarda, zoogigiyenik normativ qoidalarga asoslangan holda oqsil, vitamanga boy, to'liq sifatli ozuqalar bilan oziqlantirish zarur. Yaxshi gigiena sharoitlarini saqlash, sifatli ozuqa va toza suv bilan ta'minlash, vaksinatsiya o'tkazish kolibakteriozning oldini olish uchun muhim hisoblanadi. *Antibiotiklar bilan davolash*: Kasallik yuzaga kelgan hollarda veterinariya shifokori tomonidan tasdiqlangan antibiotiklardan foydalanish kerak. Antibiotiklar mikroorganizmlarning rezistentligi (qarshilik) hosil qilishiga olib kelmasligi uchun to'g'ri va me'yorida qo'llanishi zarur.

Xulosa. Kolibakterioz kasalligi o'zining klinik ko'rinishlariga qarab turli shakllarda tasniflanadi. Har bir shakl uchun davolash va profilaktika choralari, kasallikning og'irligiga, bakteriyaning virulentligiga va hayvonlarning immunitet holatiga bog'liq holda o'zgaradi. Kasallikni to'g'ri tashxislash va davolash usullarini qo'llash uning oqibatlarini kamaytirish va oldini olishda muhim ahamiyatga ega.

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STUDY OF CHARGING CHARACTERISTICS OF ENERGY STORAGE SYSTEMS AT POWER PLANTS OPERATING ON THE BASIS OF RENEWABLE ENERGY SOURCES

***Abstract:** This study explores the charging characteristics of various energy storage systems (ESS) deployed at renewable energy source (RES)-powered plants, such as those relying on solar and wind energy. As RES generation is inherently variable, the integration of ESS like lithium-ion batteries, pumped hydro storage, and flywheels is essential to stabilize and store energy, ensuring grid reliability and continuous power supply. By conducting a comparative analysis of charging efficiency, energy retention, response rates to load fluctuations, and depth of discharge, this research provides valuable insights into the suitability of different ESS types for renewable integration. Data from operational RES power plants reveal that lithium-ion batteries offer rapid charging with high efficiency, whereas systems like pumped hydro and flywheels exhibit robust energy retention and large-scale storage capabilities. Findings suggest that hybrid configurations of ESS can optimize performance across RES plants, addressing both short-term and long-term energy storage needs. This work contributes to the evolving field of renewable energy storage solutions, facilitating enhanced integration of RES into national grids.*

***Keywords:** renewable energy sources, energy storage systems, charging characteristics, lithium-ion batteries, pumped hydro storage, flywheels, grid reliability, energy retention, power fluctuations, hybrid ESS configurations*

Introduction

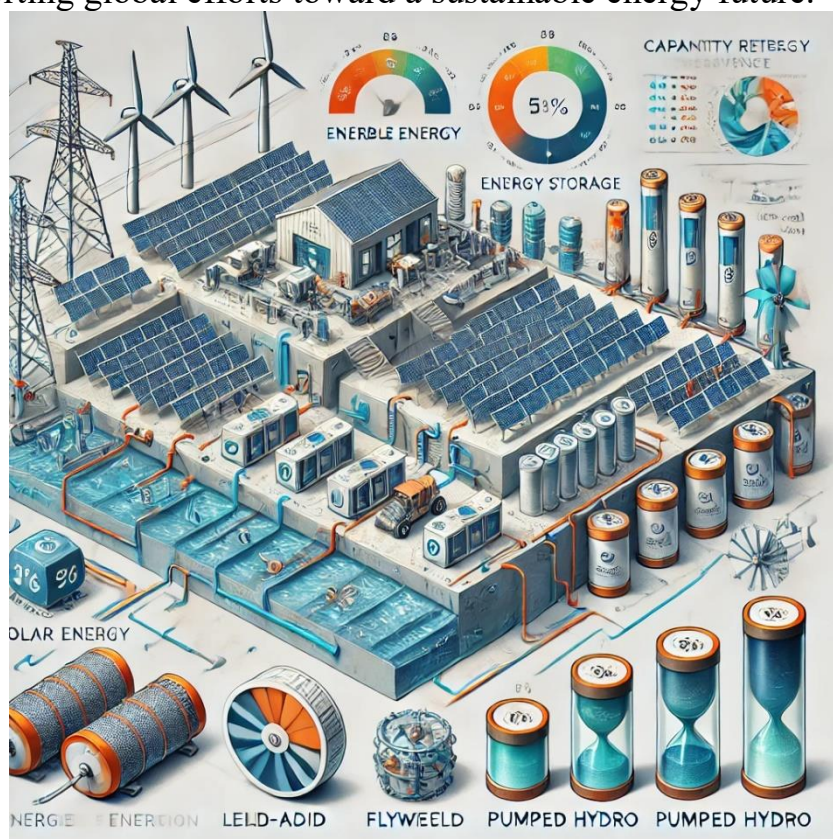
As global energy demands rise, renewable energy sources (RES) like solar, wind, and hydropower have become essential in addressing climate change and reducing reliance on fossil fuels. However, the intermittent nature of RES poses challenges for grid stability, as energy production can fluctuate significantly due to weather conditions and time of day. These fluctuations complicate the task of balancing supply and demand, making it difficult to ensure a continuous power supply. To address these challenges, energy storage systems (ESS) have been integrated into renewable energy plants to store surplus energy generated during peak production periods and release it during times of high demand or low energy generation.

Energy storage systems come in various forms, including lithium-ion batteries, pumped hydro storage, flywheels, and flow batteries. Each system has distinct characteristics, such as charging rates, efficiency, storage capacity, and

response to energy fluctuations, making some ESS types more suitable for particular RES applications than others. For example, lithium-ion batteries are known for their high charging efficiency and rapid response times, making them ideal for applications requiring quick energy storage. In contrast, pumped hydro storage and flywheels provide large-scale storage solutions with excellent long-term energy retention but generally have slower charging and discharge rates.

This study aims to analyze and compare the charging characteristics of different ESS types used in RES power plants, focusing on factors such as charging efficiency, energy retention, depth of discharge, and system response to power fluctuations. By examining real-world data from operational RES power plants, this research seeks to identify the strengths and limitations of each ESS type and provide recommendations for optimizing ESS configurations in renewable energy integration.

The findings of this study will help inform decision-makers and energy developers on the most effective ESS options for renewable energy plants, contributing to more resilient and reliable power grids. This research ultimately aims to enhance the stability and efficiency of renewable energy integration, supporting global efforts toward a sustainable energy future.



Methods

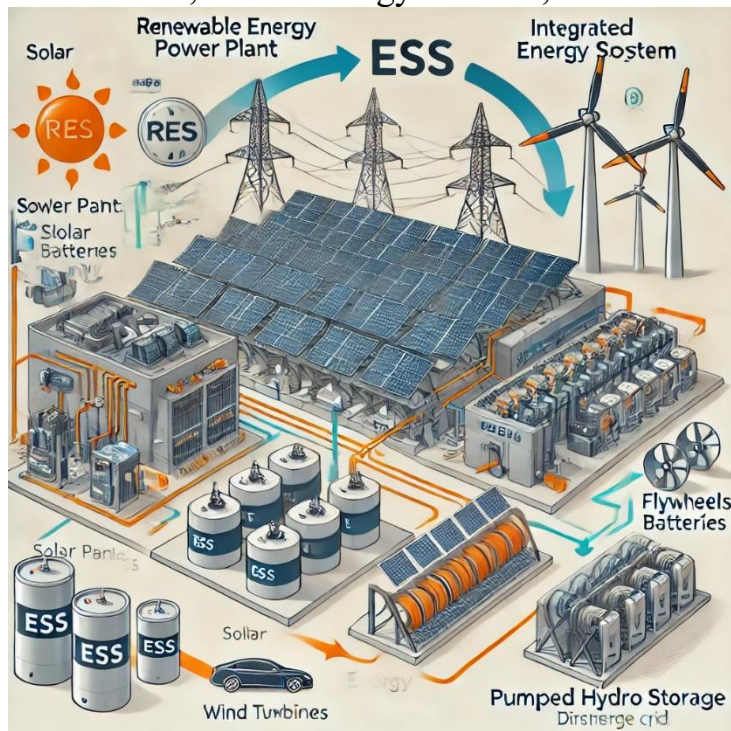
Data Collection and Analysis

The study evaluates various ESS, including lithium-ion batteries, lead-acid batteries, flywheels, and pumped hydro storage, at RES-powered facilities. Data collection involves monitoring the charging rates, efficiency levels, depth of discharge, and state of health (SoH) of these systems under various operational

conditions. Real-time monitoring software and sensor-based systems were installed in selected RES power plants, providing data on hourly and daily charge-discharge cycles over six months.

System Models

Mathematical models were employed to analyze the charging characteristics of different ESS. A differential equation model was developed to estimate the charging time for each ESS type based on energy input from renewable sources, rate of energy demand, and internal ESS resistance.



Results

The analysis of charging characteristics for various energy storage systems (ESS) deployed at renewable energy source (RES)-based power plants reveals distinct performance trends across the tested ESS types: lithium-ion batteries, lead-acid batteries, flywheels, and pumped hydro storage. This section highlights the results of data collected on charging efficiency, response rates to power fluctuations, energy retention, and depth of discharge.

1. Charging Efficiency

The charging efficiency, defined as the percentage of input energy stored successfully for later use, varied significantly among the ESS types:

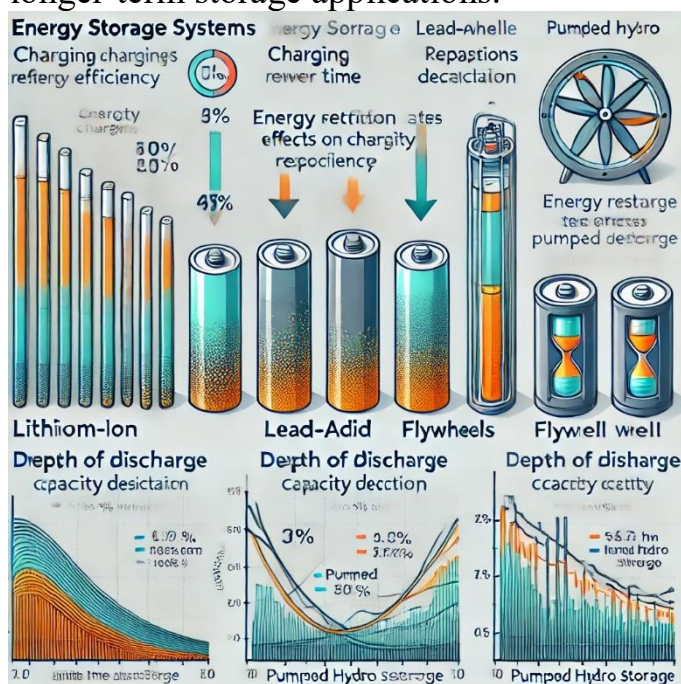
- **Lithium-Ion Batteries:** Achieved an average charging efficiency of 94%, outperforming other ESS options. Their high efficiency makes them suitable for quick energy storage applications.
- **Lead-Acid Batteries:** Showed an average efficiency of 75%, largely due to higher internal resistance, which causes energy losses during charging.
- **Flywheels:** Reached a charging efficiency of approximately 85%, though their efficiency depends on the flywheel speed and energy transfer mechanism.

- **Pumped Hydro Storage:** Achieved an average efficiency of around 80%, reflecting some energy loss during the mechanical pumping and generation cycles.

2. Response to Power Fluctuations

Different ESS types responded uniquely to fluctuations in renewable energy production, especially during peak generation periods and low-demand times:

- **Lithium-Ion Batteries:** Demonstrated rapid response times, easily adapting to fluctuating energy inputs typical of solar and wind power. They were able to store excess energy during short peak times and discharge when energy was needed quickly.
- **Flywheels:** Also responded well to sudden power fluctuations due to their fast charging and discharging abilities. However, their energy storage capacity is relatively limited.
- **Pumped Hydro Storage:** Had slower response times due to the time required for water pumping and release processes, which limits its ability to react to sudden changes in energy production but provides stability in longer-term storage applications.



3. Energy Retention

Energy retention, or the ability of an ESS to maintain stored energy over time, was also tested:

- **Lithium-Ion Batteries:** Retained energy well over short periods but showed a gradual decline in storage capacity over extended durations due to natural discharge and cycle degradation.
- **Flywheels:** Showed a significant drop in retained energy over longer periods, suitable mainly for applications requiring immediate or short-term energy storage.

- **Pumped Hydro Storage:** Exhibited excellent energy retention, maintaining stable storage for weeks to months, making it ideal for long-term, large-scale energy storage needs.

4. Depth of Discharge and System Longevity

The depth of discharge (DoD) impacts the longevity and performance of each ESS:

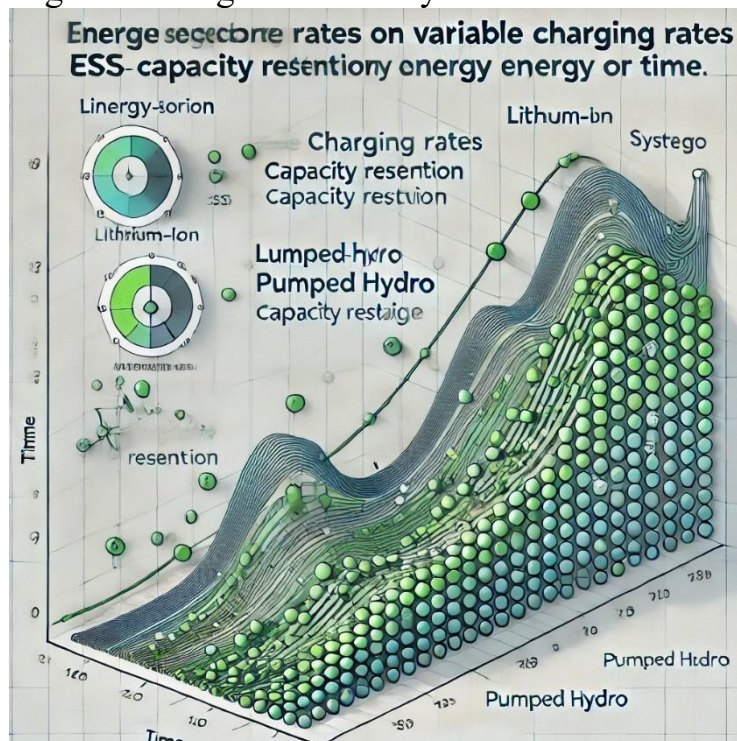
- **Lithium-Ion Batteries:** Performed well up to an 80% depth of discharge, beyond which they showed accelerated capacity degradation, thus impacting long-term viability.

- **Flywheels:** Had a high DoD capacity with minimal impact on operational lifespan, which is beneficial in situations requiring high-frequency charge and discharge cycles.

- **Pumped Hydro Storage:** Displayed no significant degradation in capacity even at high DoD levels, suitable for consistent, large-scale energy releases.

Discussion

The findings highlight that lithium-ion batteries are favorable for short-term energy storage due to their high efficiency and fast charging rates. However, for large-scale applications, especially in wind or solar plants, flywheels and pumped hydro systems are more advantageous due to their higher energy retention and larger capacity. The study suggests integrating ESS types in hybrid configurations to leverage the strengths of each system.



Line graph showing the effect of variable charging rates on ESS capacity retention over time, comparing lithium-ion and pumped hydro performance under fluctuating renewable energy inputs.

Conclusion

The study underscores the importance of selecting appropriate ESS based on the specific characteristics of renewable power generation at each site. Lithium-ion batteries excel in scenarios requiring quick charging and high efficiency, while pumped hydro and flywheels offer robust solutions for large-scale storage demands. Future work should explore hybrid systems to optimize charging and retention characteristics further.

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ISHLAB CHIQRISH SANITARIYASI VA GIGIYENASI

Annotatsiya. Ishlab chiqarish sanitariyasi va gigiyenasining asosiy vazifasi, insonga bevosita yoki bilvosita havo muhitida va ishlab chiqarish omillari orqali salbiy ta'sir etadigan xavfli va zararli omillariga qaratiladi.

Kalit so'zlar: Mikroiklim, zararli, gazlar, changlar, sanitariya, gigiyena, shovqin, inson, texnik, harorat.

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INDUSTRIAL SANITATION AND HYGIENE

Annotation. The main task of industrial sanitation and hygiene is focused on dangerous and harmful factors that have a negative impact on humans directly or indirectly in the air environment and through production factors.

Key words: Microclimate, harmful, gases, dusts, sanitation, hygiene, noise, human, technical, temperature.

Ishlab chiqarish sanitariyasi - ishchilarga zararli ishlab chiqarish omillarining ta'sirini oldini oluvchi vositalar, sanitar-texnik, gigiyenik va tashkiliy tadbirlar tizimidir.

Ishlab chiqarish gigiyenasi - ishlab chiqarishdagi zararli gazlar, changlar, bug' va bug' tumanlari ta'siri natijasida vujudga keladigan kasb kasaliklarining oldini olishdan iborat.

Ishlab chiqarish sanitariyasi va gigiyenasining asosiy vazifasi, insonga bevosita yoki bilvosita havo muhitida va ishlab chiqarish omillari orqali salbiy ta'sir etadigan xavfli va zararli omillariga qaratiladi.

Insonga havo orqali - noqulay mikroiklim, changlar, gazlar, shovqinlar, infra va ultratovushlar ta'sir etsa, ish joyida - yoritilganlik, titrash, elektromagnit

to'liqlar, infraqizil, ultrabinafsha, radioaktiv va boshqa nurlanishlar bevosita ta'sir etadi.

Ishlab chiqarish sanitariya va gigiyenasi maqsadi - inson organizmiga xavfli va zararli moddalarning tushishini kamaytirishdan iborat.

Ishlab chiqarishdagi mutaxassislarning vazifasi esa ish sharoitini xavfsizlik standartlari va sanitariya meyorlari talablari bo'yicha ta'minlashdan iborat.

Zararli ishlab chiqarish omili - ishlab chiqarish omili bo'lib, uning ma'lum sharoitlarda ishchiga ta'siri kasallikka yoki mehnat qobiliyatining pasayishiga olib keladi.

Ishlab chiqarish zonolari (texnosfera)da mikroiklim muhiti havo harorati, ($^{\circ}\text{C}$), havoning nisbiy namligi (%), havo bosimi, mm. simob ust. yoki Pa, havo harorati yo'nalishi, issiqlik nurlari kabi omillar orqali belgilanadi.

Mikroiklim omillari insonning mehnat faoliyatiga va uning sog'lig'iga juda katta ta'sir ko'rsatadi. Chunki, mikroiklim omillarining bir vaqtda hammasi deyarli ta'sir qiladi. Masalan, havoda nisbiy namlik va haroratning ortib ketishi inson uchun og'ir sharoitlarni vujudga keltiradi. Bundan ko'rinadiki, ishlab chiqarishning ob-havo omillari inson organizmidagi issiqlik almashuvi (termoruglyatsiya) buzilishiga sabab bo'ladi. Organizmda issiqlikni boshqarilishi fiziologik va kimyoviy jarayonlar asosida tana harorati bir xil chegarada ($36-36,6^{\circ}\text{C}$) saqlab turish demakdir.

Ilmiy manbalardan ma'lumki, havo harorati $+30^{\circ}\text{S}$ dan yuqori bo'lgan muhitda, jismoniy ish bajarish jarayonida, inson tanasidan soatiga 1-1,5 litr suv ter bilan ajralib chiqadi va birgalikda 5-10 gramm miqdorida har xil tuzlar va S va V vitaminlar eritma holatida chikib ketadi. Bunda albatta, tananing salqin haroratli suyuqliklarga bo'lgan ehtiyoji oshadi. Agar ushbu talab o'z vaqtida qondirilmasa, mushaklardan chiqayotgan issiqlik quvvati ma'lum miqdori tanada yig'ilib qoladi va borgan sari ko'payib, natijada haroratning almashinuv jarayoni buziladi, kishi o'zini holsiz seza boshlaydi, chunki bunday hollarda tomirlarda qon quyushadi va yuraking qon haydash qobiliyati ancha susayadi.

Insonning tashqi muhit bilan harorat almashuv balansi quyidagi formula bilan aniqlanadi.

$$Q=Q_t+Q_k+Q_{izl}+Q_{isp}+Q_v, \quad (3.1)$$

bunda: Q_t - inson kiyib yurgan kiyimi orqali tashqi muhitga berayotgan harorat; Q_k - inson konvensiya tufayli tashqi muhitga chiqarayotgan harorat; Q_{izl} - inson nurlanish orqali tashqi muhitga chiqarayotgan harorat Q_{isp} - inson tanasidan chiqan namning bug'lanish orqali tashqi muhitga chiqarayotgan harorat; Q_v -nafas olgan havoni qizdirishga (sovutishga) sarflangan harorat.

Tashqi muhitga moslashuv ikki xil: fizik va kimyoviy holatda bo'ladi.

Kimyoviy tashqi muhitga moslashuv - organizmning issiqlash davrida modda almashinuvini kamaytirishi va sovushida esa modda almashinuvini oshirishi mumkin.

An'anaviy sharoitda kuchsiz havo harorati bo'lgan holda harakatsiz inson organizmi infraqizil nurlanishi orqali organizm ishlab chiqargan 45% issiqlikning

30% konveksiya (issiq havo bilan sovuq havo almashish jarayoni) orqali, 15% terlash orqali yo‘qotishi mumkin. Masalan, 1 gramm terning bug‘lanishi uchun 2,5 kJ (0,6 kkal) issiqlik sarflanishi mumkin. Organizmdan ter bilan chiqadigan suv miqdori tashqi muhit haroratiga va bajarilayotgan ish turiga bog‘liq bo‘ladi.

Ter bilan chiqqan suv bug‘lanishi, havo harakatiga va nisbiy namlikka va kiygan kiyim materialiga bog‘liq. Agar issiqlik yo‘qotilishi faqat terlash orqali amalga oshirilayotgan sharoitda havoning nisbiy namligi 75-80% dan ortiq bo‘lsa, suv bug‘lanishi qiyinlashadi va organizm tashqi muhitga moslashuvi buzilib, organizmda issiqlik ko‘tariladi. Kuchsiz issiqlikda, tana harorati meyorida bo‘lishi, sovuq xaroratda esa, nafas olishning tezlashishi va qon tomirlari tizimida o‘zgarishlar sodir bo‘lishi bilan tavsiflanadi.

Agar kuchli issiqlash yuz bersa, unda nafas olish qiyinlashadi, kuchli bosh og‘rig‘i kuzatiladi, bosh aylanadi, nutq qiyinlashadi. Inson tanasida issiqlik ko‘tarilishi oqibatida terlash jarayoni sodir bo‘ladi, natijada ter bilan ko‘p miqdorda kerakli tuzlar chiqib ketadi. Bunday holatda teri ho‘jayralaridagi tuz miqdorining kamayishi sababli, tanadagi namlikni (suvini) ushlab turish xususiyati susayadi. Natijada inson tinmay iste‘mol qilayotgan suvni organizm chiqarib yuboradi, organizm suvga bo‘lgan ehtiyojini keltirib chiqaradi. Oqibatda, organizm suv bilan zaharlanishiga sabab bo‘ladi.

Havo namligi, havodagi suv bug‘lari miqdori bilan aniqlanadi. Havoning nisbiy namligini (V) deb - havoning «absolyut» namligining (A), «maksimal» namligiga (M) bo‘lgan nisbatining foizdagi ifodasi bo‘lib, quyidagicha aniqlanadi:

$$B = \frac{A}{M} 100\% \quad (1)$$

bunda, A - havoning «absolyut» namligi, gr/m; M - havoning «maksimal» namligi, gr/m.

Inson tanasi 0,1 m/s tezlik bilan harakatlayotgan havo harakatini sezishi mumkin. Oddiy havo haroratida yengil esayotgan havo harakati insonga yoqimli bo‘lsa, kuchli havo harakati ayniqsa, past haroratda inson tanasiga yoqimsiz bo‘lib, tana haroratining pasayishi kuzatiladi. Asosiy mikroiklim omillaridan yana biri, havo bosimidir. Havo bosimi, havoning tarkibidagi asosiy komponentlaridan biri bo‘lgan kislorod va azotning bosimiga ta’sir ko‘rsatadi. Ushbu holat esa, insonning batafsil nafas olishiga o‘z ta’sirini o‘tkazadi.

Bundan tashqari, ishlab chiqarish korxonalaridagi har xil qurilma-uskunalar va ishlov berilayotgan materiallar, moddalardan tarqaladigan issiqlik nurlari va quyoshdan kelayotgan infraqizil va ultrabinafsha nurlaridir. Bu nurlarning inson oraganizmiga ta’siri uning ta’sir vaqti, joyi, to‘lqin uzunligi, energiya oqimi va qalinligiga bog‘liqdir.

Inson uzoq vaqt ushbu nurlar ta’sirida yoki yuqori haroratda bo‘lishi, uning organizmda issiqlik balansining buzilishi, tana harora-tining ko‘tarilishi, yurak -

qon tomirlari va nafas olish tizimlarida salbiy o'zgarishlar sodir bo'lishi mumkin. Natijada issiqlik kasalligi (gipertoniya) bilan kasallanib qolishi mumkin.

Qizigan uskunalarda ishlayotgan ishchilar doimiy yoki doimiy bo'lmagan ish joylari issiqlik energiyasi - 35 Vt/m^2 bo'lganda, tananing nurlanish faolligi 50%, issiqlik energiyasi 70 Vt/m^2 bo'lganda, tana nurlanish faolligi 25-50%, issiqlik energiyasi 100 Vt/m^2 bo'lganda, tana nurlanish faolligi 25 % dan oshmasligi lozim.

Havo harorati, nisbiy namlik, havo harakati tezligini o'tirgan holda poldan balandligi 1,0 m yoki turgan holda 1,5 m bo'lgan masofada o'lchanadi.

Havo haroratini aniqlash - ish joyi havosining haroratini aniqlash uchun simobli va spirtli termometrlar ishlatiladi. Bundan tashqari, ma'lum vaqt oralig'ida havoning o'zgarishini hisobga olib, yozib borish uchun M-16C, M-16H – rusumli termografdan ham foydalaniladi.

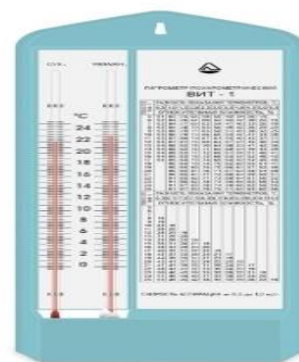


1- rasm. TM-1 - rusumli meteorologik termometr

Havoning nisbiy namligini aniqlash uchun psixrometr gigrometr va gigrograflardan foydalaniladi.



2- rasm. Masofadan ulchash psixrometri.



3 -rasm. Gigrometr.

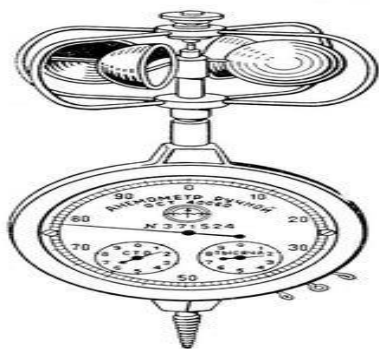
Aspiratsion psixrometri (asman) - eng ishonchli hisoblagichlardan biri hisoblanadi, chunki undagi termometrlar ularni nafaqat shikastlanishdan, balki to'g'ridan-to'g'ri quyosh nurlaridan ham himoya qiluvchi maxsus himoya ramkada joylashgan. Bunday qurilmadagi sinov havosining oqimi doimiy tezligi taxminan 2 mm/s bo'lishi kerak.

Nisbiy namlik psixrometrik formula bilan aniqlanadi:

$$e = E \cdot A \cdot P(t - t_c) \quad (2)$$

bunda: YE - nam «termometr» bilan ko'rsatilgan haroratdagi maksimal bug' bosimining ko'rsatkichi; A - koeffitsent. Uning qiymati termometrning moslamasiga, shuningdek termometrning rezervuariga yaqin joylashgan havo oqimining tezligiga bog'liq; t- an'anaviy termometr tomonidan aniqlanadigan havo harorati; R - havo bosimi.

Zamonaviy anemometrlar havo massalarining tezlik xususiyatlaridan tashqari, havo haroratini ham o'lchash imkoniyatiga ega. Mexanik anemometrlar chashkali, ultratovushli va qanotli turlarga bo'linadi.



4 –rasm. Chashkali anemometr anemometr



5 rasm. Xabar beruvchi anemometr

U qanot va himoyalangan halqa bilan o'ralgan holda, to'g'ridan-to'g'ri yoki o'lchash moslamasiga qattiq sim bilan ulangan. Ushbu konstruktsiya kirish qiyin bo'lgan joylarda havo tezligini qayd etish uchun foydalanishga imkon beradi.

Xabar beruvchi anemometrlar inson faoliyatining ko'plab sohalarida - metrologiyada turli xonalarda havo oqimining tezligini nazorat qilishda, shamollatish tizimlarida va ishlab chiqarishning sanitariya meyorlariga mos kelishini tekshirish uchun ishlatiladi (3.5-rasm).

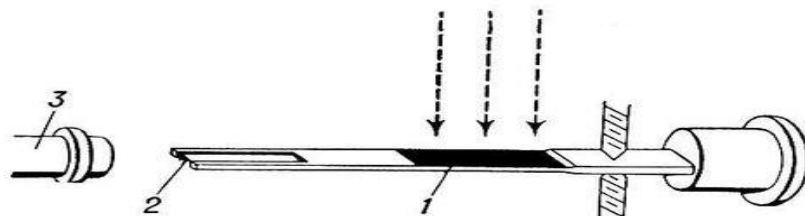
Anemometrlar yordamida havodagi shamol tezligi qo'yidagi formula orqali aniqlanadi:

$$n = \frac{n_2 - n_1}{t} \quad (3)$$

bunda, n_1 va n_2 – anemometrning boshlang'ich va oxirgi o'lchagandagi ko'rsatkichi, t - o'lchangan vaqti.

Issiklik energiyasi nurlanishi aktinometr yordamida o'lchanadi. Aktinometr - to'g'ridan-to'g'ri quyosh radiatsiyasi intensivligini o'lchaydigan asbob. Uning ishlash prinsipi tushayotgan radiatsiyani qoraygan sirtga singdirish va energiyasini issiqlikka aylantirishga asoslangan.

Mixelson aktinometrining ishlash prinsipi temir va invar bilan zichlangan bimetalik plastinkaning (1) qoraygan joyini quyosh nurlari qizdirishga asoslangan. Temir qiziganda cho‘ziladi, invar esa o‘zgarmaydi, shuning uchun plastinka egiladi. Bukilish kattaligi quyosh radiatsiyasi intensivligini o‘lchash imkonini beradi. Bu xolatni mikroskop (3) yordamida plastinka (1) oxirida joylashgan kvarts (2) ipining harakatini kuzatish orqali aniqlash mumkin.



6- rasm Mixelson aktinometri

Mikroiqlim sanitar meyor ko‘rsatkichlari (SanQvaN) 0324-16. “Ishlab chiqarish xonalarida mikroiqlim holati sanitar-gigiyenik meyorlari” va GOST 12.1.005-88 “MXST. Ishchi hudud havosi. Ishchi hudud havosiga bo‘lgan umumiy sanitar-gigiyenik talablari asosida belgilanadi. Ishlab chiqarish xonalaridagi mikroiqlim ko‘rsatkichlarining optimal va ruxsat etilgan meyorlarini belgilash bajarilayotgan ish toifasiga va yil fasliga bog‘liq ravishda bo‘ladi.

Yilning sovuq mavsumida tashqaridagi o‘rtacha havo harorati $+10^{\circ}\text{C}$ ga teng va undan past, issiq mavsumda esa $+10^{\circ}\text{C}$ va undan yuqoriligi bilan tavsifladi.

Ishlab chiqarish xonalarida va boshqa asab-his to‘yg‘u yuklamasi sarflanadigan ish joylarida miqroiqlim ko‘rsatkichi optimal ta‘min-langani bo‘lishi lozim. Bu ko‘rsatkichlar quyidagicha: havo harorati $22\dots 24^{\circ}\text{S}$, nisbiy namlik $40\dots 60\%$, havoning harakat tezligi $0,1\dots 0,2$ m/s. Boshqa ishlab chiqarish xonalaridagi miqroiqlim ko‘rsatkichlari sanitar nazorat organlari tomonidan belgilanadi.

Ishlab chiqarish xonalaridagi mikroiqlim sharoitini meyorlashtirish ishning yuklanishiga ham bog‘liq.

Yengil jismoniy ishlar (I toifa) - o‘tirib, tik turib yoki yurish bilan bog‘liq holda bajariladigan, biroq muntazam jismoniy zo‘riqish yoki yuk ko‘tarishni talab qilmaydigan ishlar (energiya sarfi soatiga 150 kkal (172 J)) ni tashkil etadi.

O‘rtacha og‘irlikdagi jismoniy ishlar (II toifa) - soatiga (150...250 kkal) yoki (172...293 J) energiya talab etiladigan faoliyat turlari kiradi. Bunga doimiy yurish va og‘ir bo‘lmagan (10 kg gacha) yuklarni tashish bilan bog‘liq bo‘lgan ishlari kiradi.

Og‘ir jismoniy ishlar (III toifa) – muntazam jismoniy zo‘riqish, xususan, og‘ir yuklarni (10 kg dan ortiq) muntazam ravishda bir joydan ikkinchi joyga ko‘chirish va ko‘tarish bilan bog‘liq bo‘lgan ishlar kiradi. Bunda energiya sarfi soatiga 250 kkal (293 J) dan yuqori bo‘ladi.

Optimal mikroiklim ko'rsatkichi - inson uzoq vaqt va doimiy ta'sir qilgan tashqi muhitga moslashishi buzilmasdan, organizmning meyoriy faoliyati va issiqlik haroratini saqlaydigan mikroiklim ko'rsatkichlari yig'indisi tushuniladi.

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HUDUDLARNING IQTISODIY RIVOJLANISHINI TA'MINLASHDA TABIIY RESURLARDAN SAMARALI FOYDALANISH USULLARI

***Annotatsiya.** Ushbu maqola hududlarning iqtisodiy rivojlanishini ta'minlashda tabiiy resurslardan samarali foydalanishning zamonaviy usullarini o'rganadi. Mamlakat iqtisodiy barqarorligini saqlash uchun global miqyosda qo'llaniladigan turli strategiyalarni o'rganadi.*

***Kalit so'zlar:** tabiiy resurslar, atrof muhit, muhofaza qilish, barqaror iqtisodiy rivojlanish, tabiiy resurslardan samarali foydalanish, qayta tiklanadigan energiya, resurstejamkor.*

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METHODS OF EFFECTIVE USE OF NATURAL RESOURCES IN PROVIDING THE ECONOMIC DEVELOPMENT OF THE REGIONS

***Abstract:** This article examines modern methods of effective use of natural resources to ensure the economic development of regions. Explores various strategies used globally to maintain the country's economic stability. The study emphasizes the importance of creating and maintaining natural conditions favorable for human life on earth, harmonizing the development of nature and society, and solving the economic and ecological problems of modern society.*

***Keywords:** natural resources, environment, protection, sustainable economic development, effective use of natural resources, renewable energy, resource efficiency.*

Kirish. O'zbekiston Respublikasida olib borilayotgan siyosiy, iqtisodiy va ijtimoiy islohotlarning samarasi ko'p jihatdan hududlarni rivojlantish va mavjud homashyo resurslaridan samarali foydalanish darajasiga bog'liq. Hozirgi kunda sanoat ishlab chiqarish faoliyati kengayishda va dunyo aholi soni ortib borishda davom etar ekan, tabiiy resurslarga bo'lgan talab kuchayib, ular mavjud zahiralardan samarali foydalanish muammosini keltirib chiqaradi. Atmosferaning ifloslanishi natijasida iqlimning o'zgarishi, minglab gektar o'rmonlarning kesilishi oqibatida bioxilma-xillikning yo'qolishi, cheklangan resurslar sharoitida qazilma boyliklaridan ko'p miqdorda foydalanish e'tibor talab qiladigan dolzarb

masalalardir. Hududlarni iqtisodiy rivojlanishini ta'minlash, atrof-muhitni muhofaza qilishning zamonaviy usullari ushbu muammolarni resurslardan barqaror foydalanishga yordam beradigan innovatsion yechimlar va amaliyotlar orqali hal qilishga yordam beradi. Ushbu tadqiqot mintaqa iqtisodiyotini rivojlantirishda tabiiy resurslardan oqilona foydalanish uchun butun dunyo bo'ylab qo'llaniladigan yangi strategiya va texnologiyalarni ko'rib chiqadi.

Ko'p yillar iqtisodiy geografiya sohasida ilmiy tadqiqot ishi olib borgan Yu.G.Saushkinning fikriga ko'ra "elektr energiya olish, oziq-ovqat mahsulotlari ishlab-chiqarish uchun foydalanishi mumkin bo'lgan tabiiy komponentlarni va sanoat uchun xomashyolarni" tabiiy resurslar deb ta'riflaydi va asosiy e'tiborni iqtisodiyot tarmoqlarini rivojlantirishda xomashyo sifatida ishlatilayotgan tabiiy resurslar zahirasi va undan samarali foydalanishga qaratgan [3].

L.D. Badriyevaning e'tirof etishicha, "hududiy resurs salohiyatidan samarali foydalanish deganda hududning resurslarni jalb etish darajasi va mazkur resurslarni qo'llash natijasida amalga oshiriladigan texnologik jarayonlarning samaradorligi" tushuniladi [4].

Ushbu tadqiqot ishida iqtisodiy rivojlanishning zamonaviy usullarini muvaffaqiyatli amalga oshirgan turli mintaqalardagi amaliy tadqiqotlarni tahlil qilib, sifatli tadqiqot metodologiyasidan foydalanildi. Ma'lumotlar hududiy statistika hisobotlaridan akademik jurnallardan, va ushbu soha bo'yicha mutaxassislar bilan suhbatlardan to'plandi. Bugungi kunda tabiiy resurslardan oqilona foydalanish uchun bir qancha zamonaviy usullar mavjud. (1-rasm)



1-rasm. Tabiiy resurslardan oqilona foydalanishning zamonaviy usullari.⁴⁹

⁴⁹ Muallif tadqiqotlari asosida ishlab chiqilgan

Tasvirda ifodalangan usullar hududlar iqtisodiy rivojlanishini ta'minlashda tabiiy resurslardan samarali foydalanishga qaratilgan zamonaviy yondashuvlardir. Har bir inson bu jarayonda o'z hissasini qo'shishi mumkin:

- qayta tiklanadigan energiya manbalari bo'lgan quyosh, shamol va gidroenergoyadan foydalanish natijasida tabiiy resurslarni tejab, neft, gaz yoki ko'mir kabi tugaydigan resurslarga bo'lgan talabni kamaytirish;

- plastmassalar, qog'ozlar va metallarni qayta ishlash orqali chiqindilarni kamaytirish va tabiiy resurslarni tejash;

- atrof-muhitga bo'layotgan zararli ta'sirlar holatini doimiy nazorat qilib, ekologik muammolarni erta bosqichida hal qilish;

- qishloq xo'jaligida hosildorlikni oshirish uchun sun'iy o'g'itlar o'rniga tabiiy o'g'itlarni qo'llash, dronlar, aqlli sensorlar va sun'iy intellektdan foydalanish;

- tabiiy resurslardan oqilona foydalanishga oid ilmlarni o'rganib, atrof-muhitga bo'lgan munosabatni o'zgartirish;

- yomg'ir suvlarini yig'ish va qayta ishlash, tomchilab sug'orish texnologiyalaridan foydalanib, suv resurslarini tejash;

- zavod va fabrikalardan chiqayotgan zaharli gazlarni kamaytiradigan yangi texnologiyalarni, masalan, filtrlash va tozalash tizimlarini joriy etish;

- sun'iy yo'ldosh monitoring tizimlari, raqamli kartografiya va IoT (Internet of Things) orqali ayni vaqtida tabiiy resurslardan foydalanish miqdori, sifati va iste'molini tahlil qilish va boshqarish;

- arxitekturasida va qurilish jarayonida energiyani tejaydigan, izolyatsiya texnologiyalari orqali energiya sarfini kamaytiradigan yashil binolarni barpo etish;

- gidrogen dvigatellar, elektromobil vositalari, yurish yoki velosipedga asoslangan harakatlanuvchi transport tizimlaridan foydalanib, atrof-muhitga zarar keltirmaslik va yoqilg'i resurslarini tejash;

- ekologik, iqtisodiy va ijtimoiy omillarni o'zida birlashtirgan, hududlarni iqtisodiy rivojlanishiga ta'sir etuvchi, tabiiy resurslardan samarali foydalanishni nazorat qilish va ularni qayta tiklashga qaratilgan strategiyalarni amalga oshirishga ko'maklashish.

Mintaqa hududlarining iqtisodiy rivojlanish darajasiga tabiiy resurslar salohiyati, inson omili, moliyaviy, ekologik va institutsional o'zgarishlar ta'sir o'tkazadi. Raqobatbardoshlik darajasiga hududning geografik joylashuvi, iqlim sharoitlari, yer-suv, mineral xomashyo va mehnat resurslarini o'zida jamlovchi tabiiy resurslar salohiyati asosiy rol o'ynaydi. Qashqadaryo viloyati manbalardan olinayotgan suv miqdorining iqtisodiy tarmoqlari bo'yicha taqsimlanishi quyidagi jadvalda (1-jadval) aks ettirilgan.

1-jadval
Manbalardan olinayotgan suv miqdorining iqtisodiy tarmoqlari
bo'yicha taqsimlanishi (mln m³)[7]

| T/r | Ko'rsatkichlar | O'lchov birligi | Yillar | | | | | |
|-----|--------------------------|--------------------|--------|--------|--------|--------|--------|--------|
| | | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| 1 | Manbalardan olingan jami | mln m ³ | 5100,0 | 5447,6 | 5641,2 | 4602,8 | 4508,6 | 4526,4 |
| | salmog'i | % | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |
| 2 | Sug'orishga | mln m ³ | 4722,0 | 5087,1 | 5400,0 | 4361,3 | 4228,7 | 4185,9 |
| | salmog'i | % | 92,6 | 93,4 | 95,7 | 94,8 | 93,8 | 92,5 |
| 3 | Sanooat | mln m ³ | 78,0 | 13,3 | 201,0 | 19,0 | 17,4 | 14,1 |
| | salmog'i | % | 1,5 | 0,2 | 3,6 | 0,4 | 0,4 | 0,3 |
| 4 | Kommunal xo'jaligiga | mln m ³ | 233,0 | 207,7 | 121,3 | 91,0 | 107,7 | 143,2 |
| | salmog'i | % | 4,6 | 3,8 | 2,2 | 2,0 | 2,4 | 3,2 |
| 5 | Energetika | mln m ³ | 986,3 | 903,7 | 800,0 | 834,6 | 551,2 | 442,8 |
| | salmog'i | % | 19,3 | 16,6 | 14,2 | 18,1 | 12,2 | 9,8 |
| 6 | Baliqchilik | mln m ³ | 12,0 | 9,8 | 5,2 | 6,6 | 2,8 | 6,1 |
| | salmog'i | % | 0,2 | 0,2 | 0,1 | 0,1 | 0,1 | 0,1 |

Biz ushbu jadval ma'lumotlaridan 2018-2023-yillar davomida Qashqadaryo viloyatida manbalardan olinayotgan suv miqdorining iqtisodiy tarmoqlari bo'yicha taqsimlanishi ko'rishimiz mumkin. Taqsimlanayotgan suv miqdorining katta qismi sug'orish ishlari uchun sarflangan bo'lib, 2023-yilda 92,5%ni tashkil etgan. Energetika sohasiga yo'naltirilgan suv miqdori 2018-yilda 19,3% bo'lgan bo'lsa, 2023-yilga kelib 9,8% ya'ni 9,5%ga kamayganligini guvohi bo'lamiz. Muqobil energiya manbalaridan foydalanish evaziga suv resurslarini tejashimiz va samarali foydalanishimiz mumkin ekan.

Xulosa. Tez o'zgaruvchan dunyoda hududlarni barqaror iqtisodiy rivojlanishini ta'minlashda tabiiy resurslardan samarali foydalanishning zamonaviy usullari juda muhim hisoblanadi. Bu boradagi harakatlar samaradorligini oshirish uchun quyidagi tavsiyalar taklif etiladi:

Mintaqada tabiiy resurslardan samarali foydalanish borasidagi huquqiy asosni shakllantirish, qonunchilikni mustahkamlash va qat'iy bajarilishini nazorat qilish;

Tabiiy resurslardan foydalanish samaradorligini oshirish, resurstejamkor texnologiyalarni joriy qilish. Olib borilayotgan tadqiqot va ishlanmalarga sarmoya kiritib, barqaror texnologiyalar va amaliyotdagi innovatsiyalarni qo'llab-quvvatlash;

Qish mavsumida kuzatiladigan energetika inqirozi kabi muammolarning yechimi sifatida mamlakat hududlarida muqobil energiya manbalarini oshirish, mavjud energiya quvvatlarini modernizatsiyalash zarur;

Suv resurslarini tejash uchun zamonaviy sug'orish texnologiyalari, qayta ishlangan suv yoki yomg'ir suvini yig'ish tizimlari orqali tabiiy suv resurslaridan yana foydalanish imkoniyatini yaratish;

Qishloq xo'jaligida foydalanilayotgan texnologiyalarini modernizatsiyalash, ishlab chiqarish quvvatlarini zamonaviylashtirish;

Shaxsiy va jamoat transport tizimi sohasini atmosfera havosiga kam zarar keltiradigan va energiya iste'moli tejamkorligiga erishilgan yashil yoqilg'i resurslariga o'tkazish;

Jamiyatimizning yashil iqtisodiy barqarorlikka erishishini ta'minlash maqsadida ekologik ta'lim berish samarasi to'g'risida targ'ibotlarni kuchaytirish orqali ekologik madaniyatni shakllantirish lozim.

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**ELEKTR ENERGETIKA TARMOG'IDAGI ENERGIYA
YO'QOTISHLAR TAHLILI (ANDIJON VILOYATI IZBOSKAN
TUMAN MISOLIDA)**

***Annotatsiya:** Ushbu maqolada Andijon viloyati Izboskan tumani hududiy elektr energetika tarmog'ining 10/04 Kv liniyalarida bo'layotgan energiya yo'qotilishlari taxlili keltirilgan. Elektr tarmoqlarida, asosan, uzatish va taqsimlash (T&D) jarayonida yuzaga keladigan energiya yo'qotishlari ham samaradorlikka, ham iqtisodiy samaradorlikka sezilarli ta'sir ko'rsatadi. Ushbu yo'qotishlar qarshilikli isitish, reaktiv quvvat nomutanosibligi va tarmoq samarasizligi kabi bir qator omillardan kelib chiqadi va ular birgalikda energiya tizimining ishonchliligiga ta'sir qiluvchi energiya isrofgarligiga hissa qo'shadi. Ushbu tadqiqot elektr energiyasi tarmoqlarida energiya yo'qotishlarining turlari va sabablarini chuqur tahlil qilib, rezistiv va reaktiv quvvat yo'qotishlari kabi texnik yo'qotishlarga, o'g'irlik va hisoblagichlarning noaniqliklari kabi texnik bo'lmagan yo'qotishlarga urg'u beradi. Tarmoq bo'ylab aqlli hisoblagichlar va sensorlardan to'plangan nazariy hisoblar va ma'lumotlarning kombinatsiyasidan foydalanib, biz ushbu yo'qotishlarning miqdorini aniqlaymiz va yuk talabi va tarmoq dizayniga nisbatan naqshlarni ajratib ko'rsatamiz.*

Bizning topilmalarimiz shuni ko'rsatadiki, texnik yo'qotishlar tarmoq uzunligi va kichikroq o'tkazgichlar tufayli taqsimlash tarmoqlarida ayniqsa muhim bo'lib, texnik bo'lmagan yo'qotishlar ma'lum shaharlarda umumiy energiya yo'qotilishining qo'shimcha 5-10% ni tashkil qiladi. Tadqiqot shuningdek, kuchlanishni tartibga solish, tarmoqni qayta konfiguratsiya qilish va ilg'or o'lchash infratuzilmasining integratsiyasini o'z ichiga olgan ushbu yo'qotishlarni yumshatish uchun potentsial echimlarni muhokama qiladi. Ushbu strategiyalarni amalga oshirish orqali elektr ta'minoti korxonalarida tarmoq samaradorligini oshirishi, energiya isrofgarligini kamaytirishi va barqaror energiya yetkazib berishni rag'batlantirishi mumkin. Natijalar ortib borayotgan energiya talabi va ekologik barqarorlik maqsadlarini qondirish uchun tarmoq monitoringi va infratuzilmani optimallashtirishni davom ettirish muhimligini ta'kidlaydi.

***Kalit so'zlar:** Elektr energetika tarmog'i, iste'molchilar, transformatorlar, kabellar diametri, tashqi ta'sirlar, transformator ishchi qismlari, avtomatlar, rubilniklar, tok transformatorlari, saqlagichlar va boshqalar.*

ANALYSIS OF ENERGY LOSSES IN THE ELECTRIC POWER NETWORK (ON THE EXAMPLE OF IZBOSKAN DISTRICT OF ANDIJAN REGION)

***Abstract:** This article presents the analysis of energy losses occurring in the 10/04 Kv lines of the regional electric power network of the Izboskan district of the Andijan region. Energy losses in electric power networks, occurring primarily during transmission and distribution (T&D), significantly impact both efficiency and cost-effectiveness. These losses stem from a range of factors, including resistive heating, reactive power imbalances, and network inefficiencies, and they collectively contribute to energy wastage that affects power system reliability. This study provides an in-depth analysis of the types and causes of energy losses within electric power networks, with an emphasis on technical losses such as resistive and reactive power losses, and non-technical losses like theft and metering inaccuracies. Using a combination of theoretical calculations and data collected from smart meters and sensors across the network, we quantify the magnitude of these losses and highlight patterns relative to load demand and network design.*

Our findings reveal that technical losses are particularly significant in distribution networks due to longer line lengths and smaller conductors, while non-technical losses account for an additional 5-10% of total energy loss in specific urban areas. The study also discusses potential solutions for mitigating these losses, including voltage regulation, network reconfiguration, and the integration of advanced metering infrastructure. By implementing these strategies, power utilities can enhance network efficiency, reduce energy wastage, and promote more sustainable power delivery. The results underscore the importance of continued improvements in network monitoring and infrastructure optimization to meet the rising energy demand and environmental sustainability goals.

***Key words:** Electric power network, consumers, transformers, cable diameter, external influences, transformer working parts, automata, switches, current transformers, savers, etc.*

Elektr stansiyalarida ishlab chiqarilgan elektr energiya iste'molchilarga transformatorlar orqali taqsimlanganda energiya yo'qotishlari sodir bo'ladi. Ushbu yo'qotishlar energiya tizimining umumiy samaradorligiga sezilarli darajada ta'sir ko'rsatadi.

Elektr tarmoqlarida energiya yo'qotishlarni quyidagicha 2 yo'nalishda tahlil qilib ko'raylik:

1. O'tkazgichlardagi yo'qotishlar(similar,kabellarda). Asosan havo liniyalaridagi o'tkazgichlarning qarshilik hisobiga Joule-Lenz qonuni bo'yicha elektr energiyasi issiqlik energiyasiga aylanadi. Havo o'tkazgich tarmog'imiz qanchalik uzun bo'lsa shunchalik tarmoqdagi elektr energiya yo'qotishlarimiz ko'p bo'ladi. Bundan tashqari o'tkazgich turiga ham bog'liqligi (mis yoki alyuminiy o'tkazgich) ni alohida ta'kidlashimiz zarur. Havo tarmog'ida alyuminiy kabellardan foydalaniladi.

2. Elektrotexnologik qurilmalar va dielektrik yo'qotishlar. Elektrotexnologik qurilmalari sifatida elektr stansiyalaridan kelayotgan kuchlanish taqsimlab beruvchi transformatorlarni keltirib undagi kamchilik va energetik tahlillarni keltiramiz. Biz bilamizki, tarmoqda kuchlanishni 500/220/110/35/10/6/0.4 kv li bo'ladi. Izboskan tumanida asosan aholi iste'molida 10/0.4 kVli transformatorlaridan foydalaniladi. Chulg'amlardagi yo'qotishlar, o'zaklardagi yo'qotishlar, transformatorni va undagi qurilmalarni to'g'ri loyihalanganligi uchun paydo bo'ladigan isroflar va boshqalarni keltiramiz. Buni Izboskan tumanidagi yuklamalari mutonosib bo'lgan biron bir transformator punkt misolida ko'rib chiqamiz. Transformator punkt parametrlari:

1. Transformator punkt(TP) -36.
2. Quvvati-250 kVA $\frac{U_1}{U_2} = \frac{10}{0.4}$
3. O'rtacha yillik texnologik yo'qotishlar – 16906.5 kVatt*soat
4. TP-36 dan chiquvchi fidrlar soni 4 ta bo'lib, parametrlarini o'lchab

chiqamiz:

- 1 – *fidr.* $I_{1a} = 9 A$; $I_{1b} = 11 A$; $I_{1c} = 39 A$; kabel tur: AS
 $U_{1a} = 243.4 V$; $U_{1b} = 242 V$; $U_{1c} = 243 V$;
- 2 – *fidr.* $I_{2a} = 7 A$; $I_{2b} = 8 A$; $I_{2c} = 0 A$; kabel turi: AS
 $U_{2a} = 245 V$; $U_{2b} = 236 V$; $U_{1c} = 0 V$;
- 3 – *fidr.* $I_{3a} = 14.8 A$; $I_{3b} = 25.6 A$; $I_{3c} = 15 A$; kabel turi:

AS

- 4 – *fidr.* $U_{3a} = 245.7 V$; $U_{3b} = 243.8 V$; $U_{3c} = 243.2 V$;
 $I_{4a} = 1 A$; $I_{4b} = 3 A$; $I_{4c} = 2 A$; kabel turi:

SIP

$$U_{4a} = 243.2 V; U_{4b} = 242.9 V; U_{4c} = 243.2 V;$$

5. TP-36 transformatorini mustahkamlik darajasini, dielektriklik va parametrlari bo'yicha o'rganishlar olib borilib quyidagi kamchiliklar aniqlandi:

1. Moy bakidagi moy sath ko'rsatkichi belgilangan sath meyorga nisbatan kamligi;

2. Rubilnik va tok transformator yo'qligi;

3. TP dan chiquvchi 2-fidr avtomati kirish va chiqish qismlari to'g'ridan-to'g'ri ulanganligi;

4. Avtomatlarni me'yoriy ko'rsatkichlar bo'yicha qo'yilmaganligi;

5. TP ichidagi kabellar tartibsiz ulanganligi;
6. 10 kVli havo tarmoq predoxranitel kontaklar nosozligi;
7. Tp chiquvchi liniyalar uzunligi me'yordan ortiqligi va tashqi muhit ta'siri (daraxtlar va boshqalar).





Yuqoridagi TP-36 o'rganish natijasi olingan parametrlarni tahlil qilib chiqadigan bo'lsak quyidagi xulosaga kelishimiz mumkin.

Transformatorlarni fiderlari bo'yicha tahlil qiladigan bo'lsak, 1-fider iste'mol qilayotgan toklar nosimmetrik holatda ekanligini ko'rishimiz mumkin. Bunda iste'molchilarni nosimmetriklikdan simmetriklikka olib o'tish zarur shunda TP dagi energiya isrofi nisbatan kamayadi. Qolgan fiderlarda esa toklar qiymati bir-biriga nisbatan yaqin va simmetrik xolatda ishlayotganini ko'rishimiz mumkin.

Yuklamalar nosimmetrikligi chulg'am qizishiga olib keladi. Transformator moyi chulg'amlarni qizishini oldini olib sovitish vazifasini bajarib beradi. Transformator moy baki (germetiklanganligi) nosozligi, moy sathi me'yorga nisbatan kamligi hisobiga transformatorning mustahkamlik darajasi

pasayadi va transformatorlarda elektr energiyasining texnologik yo'qotilishlariga olib keladi. Transformatorning moyini laboratoriyadan o'tkazilib meyoriy sath bo'yicha qo'shimcha quyilib, germetikligi tekshirilsa qisman texnologik yo'qotilishlar va salbiy oqibatlar (elektrotexnologik qurilmalar kuyishi) oldi olinadi.

Transformatorlarda rubilnik va tok transformatorlari, avtomatlar va 10 kV li predoxranitel kontaktlar asosan himoylash vazifalarini bajarib, transformatorni salbiy oqibatlardan saqlab qoladi. Bular orqali transformatorni mustahkamlik darajasini oshirishimiz mumkin. Bu qurilmalar orqali energiya yo'qitishlarni oldini oladi desak hato bo'ladi.

TP dan chiquvchi liniyalar uzunligi va tashqi salbiy omillar(daraxtlarni liniylarga tegishi oqibatida yerga elektr energiyasini o'tkazish) natijasida kuchlanishlar tushuvi xosil bo'ladi. Bu esa tramoqdagi texnologik energiya yo'qotilishlarga olib keladi. Liniya uzunligini PUE tizimidagi meyoriy qoidalar bo'yicha o'rnatilishi va liniyani daraxtlar hamda boshqa ta'sirlardan tozalansa, elektr energiyaning texnologik yo'qotishlarining qisman oldi olinadi.

Yuqoridagi kamchiliklar bartaraf etilishi natijasi transformator me'yoriy ko'rsatkichlar bo'yicha ishlaydi va energiyaning texnologik yo'qotilishlari oldingi texnologik yo'qotishlarga nisbatan sezilarli darajada kamayadi.

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TRANSPLANTOLOGIYA VA BIOSUN'IY ORGAN ISHLAB CHIQRISH TEXNOLOGIYASI

***Annotatsiya:** Transplantologiya va sun'iy organlar ishlab chiqarish texnologiyalari so'nggi yillarda tibbiyotning eng ilg'or yo'nalishlaridan biriga aylandi. Dunyo bo'ylab organ yetishmovchiligi muammosi kundan-kunga jiddiylashib bormoqda. Tibbiy ma'lumotlarga ko'ra, har yili minglab bemorlar zaruriy donor organlar yetishmasligi sababli hayotdan ko'z yumadi. Shu sababli, biosun'iy organlar ishlab chiqarish texnologiyalari nafaqat hayotiy muhim, balki tibbiyotning kelajakdagi muhim rivojlanish sohalaridan biri bo'lib qolmoqda.*

Biosun'iy organlar yaratishda 3D bioprinting, ildiz hujayralar texnologiyalari va bionik yondashuvlar kabi ilg'or texnologiyalar ishlatiladi. Ushbu texnologiyalar nafaqat zarur bo'lgan organlarni yaratish imkonini beradi, balki ularni inson organizmiga muvofiq ravishda moslashtirish imkonini ham yaratadi. Shu orqali transplantatsiya jarayonida yuzaga keladigan immunitet tizimi rad etish muammolari kamayadi va bemorlarning hayot sifatini yaxshilash imkoniyati tug'iladi.

Maqolada biosun'iy organlar ishlab chiqarish texnologiyalari, ularning afzalliklari va amaliyotdagi qo'llanilishi, hamda O'zbekistonda ushbu sohaning rivojlanishi to'g'risidagi ma'lumotlar yoritiladi. O'zbekistonda organ transplantatsiyasi va sun'iy organlar ishlab chiqarish hali rivojlanish jarayonida bo'lib, jahon tajribalaridan foydalanish orqali milliy salohiyatni oshirish mumkin. Ushbu maqola biosun'iy organlar texnologiyasining dolzarbligini, mamlakatimizda ushbu sohani rivojlantirishning ahamiyatini hamda uni yo'lga qo'yishdagi asosiy qiyinchiliklarni tahlil qiladi.

***Kalit so'zlar:** Biosun'iy, transplantatsiya, 3D bioprinting, ildiz hujayralar, to'qima, muhandisli, bionik, O'zbekiston tibbiyoti, immunologik moslik, innovatsion texnologiyalar, sun'iy organ transplantatsiyasi, biologik materiallar, organ donorlari, transplantologiya.*

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TRANSPLANTOLOGY AND BIOSYNTHETIC ORGAN PRODUCTION TECHNOLOGY

***Annotation:** In recent years, transplantation and artificial organ production technologies have become one of the most advanced fields in medicine. The problem of organ shortages is becoming more serious globally with each passing day. According to medical data, thousands of patients die every year due to the lack of necessary donor organs. Therefore, the technologies for producing bio-artificial organs are not only vital but also remain one of the key areas for future medical advancement.*

Advanced technologies such as 3D bioprinting, stem cell technologies, and bionic approaches are used in the creation of bio-artificial organs. These technologies not only allow for the creation of necessary organs but also enable their adaptation to fit the human body. This reduces the problem of immune system rejection during transplantation and offers an opportunity to improve the quality of life for patients.

This article discusses the technologies for bio-artificial organ production, their advantages and practical applications, as well as the development of this field in Uzbekistan. Organ transplantation and artificial organ production in Uzbekistan are still in the process of development, but the national potential can be enhanced by using international experiences. This article analyzes the relevance of bio-artificial organ technology, the importance of developing this field in our country, and the main challenges in implementing it.

***Keywords:** Biosynthetic, transplantation, 3D bioprinting, stem cells, tissue, engineering, bionic, Uzbek medicine, immunological compatibility, innovative technologies, artificial organ transplantation, biological materials, organ donors, transplantation.*

Biosun'iy organ ishlab chiqarish texnologiyalari.

Organlarni biosun'iy ishlab chiqarish texnologiyalari bionik prinsplar asosida inson organlarini ishlab chiqarish uchun ishlatilishlatilishi mumkin bo'lgan bir qator qo'llab-quvvatlovchi usullardir. So'ngi o'n yil ichida turli

organlar ishlab chiqarish texnologiyalarini rivojlantirishda sezilarli yutiqlarga erishildi.

Organ ishlab chiqarishning ta'rifi.

Butun tarix davomida "ishlab chiqarish" juda qadimiy va keng tarqalgan tushuncha bo'lib, u millat, mamlakat yoki hatto davrning yuksalishi va tanazzulini aks ettirishi mumkin. Ishlab chiqarish kontseptsiyasi "materiallar, moddalar yoki komponentlarning kimyoviy, mexanik yoki fizik o'zgarishini amalga oshirish yoki tabiiy jarayonlarni, odatda qayta-qayta va keng miqyosda taqlid qilish orqali asboblardan yoki mashinalar bilan mahsulot ishlab chiqarish" deb ta'riflanadi.

Shunday qilib, ishlab chiqarish tushunchasi "mehnat, mashinalar, asboblardan yoki kimyoviy va biologik o'zgarishlardan foydalangan holda foydalanish yoki sotish uchun mahsulot ishlab chiqarish" dir. Bu muhandislik, sanoat dizayni va moddiy xususiyatlarning o'zgarishi bilan chambarchas bog'liq. Boshlang'ich materiallarning fizik, kimyoviy yoki biologik xossalari o'zgarmagan jarayonlarni faqat ishlab chiqarish yoki ishlov berish deb atash mumkin. Ishlab chiqarish barcha turdagi iqtisodiy tizimlar ostida sodir bo'ladi va ishlab chiqarilgan mahsulotlar ma'lum bir tovar nomi ostida bir yoki bir nechta jihatlari bo'yicha boshqa o'xshash tovarlardan farq qiladi. Zamonaviy ishlab chiqarish, xususan, mahsulot tarkibiy qismlarini ishlab chiqarish va birlashtirish uchun zarur bo'lgan turli xil oraliq jarayonlarni o'z ichiga oladi.

Keng ma'noda organ ishlab chiqarish - bu polimerlar, hujayralar, metallar va boshqalar kabi mavjud bo'lgan har qanday materiallardan foydalangan holda organ o'rnini bosuvchi moddalarni (ya'ni sun'iy organlar) ishlab chiqaradigan har qanday protseduradir. Tor ma'noda organ ishlab chiqarish biosun'iy ishlab chiqarishi mumkin bo'lgan har qanday organ protsedurasidir. Haqiqiy organlarining tuzilishi, tarkibiy qismlari va funktsiyalarini taqlid qiluvchi organlar. Shunday qilib, organ ishlab chiqarishni "boshqa biomateriallar (polimerlar, o'sish omillari, bioaktiv moddalar yoki biokimyoviy signallar) kabi tirik hujayralar (masalan, bir nechta ildiz hujayralari)) va ba'zi ilg'or qayta ishlashdan foydalangan holda biosun'iy organlar ishlab chiqarish deb ta'riflanishi mumkin. Atom elektr stantsiyasini qurishda bo'lgani kabi, organlar ishlab chiqarish ham hayotning asosiy xususiyatlariga ega bo'lgan, hujayra asosidagi biomateriallarning bir qator fizik, kimyoviy va biologik o'zgarishlari bilan dinamik transformatsiya jarayonidir. Shunga mos ravishda, organ ishlab chiqarish texnologiyalari bionik printsiplarga asoslangan biosun'iy organlarni ishlab chiqarishga imkon beruvchi bir qator usullardir. Ular bir nechta biomateriallarning fizik, kimyoviy, biologik va hatto fiziologik, patologik klinik o'zgarishlarini, jumladan hujayralar, hujayralar bilan to'ldirilgan polimer gidrogellari va bioaktiv moddalarni qamrab oladi. Organ ishlab chiqarish texnologiyalarining asosiy maqsadlaridan biri nuqsonli mahalliy organlarni qisman yoki to'liq tiklash uchun biosun'iy organlarni ishlab chiqarishdir. Organ ishlab chiqarishning o'ziga xos xususiyatlaridan biri shundaki, uning mahsulotlari

kamida ikkita geterogen hujayrali to'qimalar turini o'z ichiga olgan tirik mavjudotlardir.

Organ ishlab chiqarish kontseptsiyasi birinchi marta 2003 yilda Tsinghua universitetining Mashinasozlik bo'limida Organ ishlab chiqarish markazining tashkil etilishi bilan ilgari surilgan. O'shandan beri ko'proq va ko'proq tadqiqot maqolalari, taklif qilingan sharhlar bilan birga nashr etildi. Shu bilan birga, organ ishlab chiqarish uchun juda ko'p noyob ilg'or texnologiyalar, nazariyalar va amaliy protokollar ishlab chiqildi. Vaskulyarizatsiyalangan yog to'qimalari, innervatsiyalangan jigar to'qimalari va ko'p funktsiyali suyak to'qimalari kabi turli organ prekursorlari muvaffaqiyatli yaratilgan. To'qimachilik muhandisligidan farqli o'laroq, organlar ishlab chiqarish o'ziga xos ma'noga ega.

Tsinghua universiteti professori Vang laboratoriyasida ishlab chiqarilgan bir nechta kashshof 3D bioprinterlarining sxematik tavsifi: jelatin asosidagi gidrogellardagi gepatotsitlar va yog'dan olingan ildiz hujayralari bilan dastlab katta hajmdagi to'qimalarda chop etilgan ...

Organ ishlab chiqarish an'anaviy ishlab chiqarishning to'g'ridan-to'g'ri inson organlari bilan bog'liq bo'lgan tarmog'i ekanligi ko'pchilik tomonidan qabul qilinadi. Bu biologiya (ayniqsa ildiz hujayralari), materiallar, kimyo, fizika, informatika, mexanika, hisoblash texnikasi, jarrohlik va tibbiyot kabi bir qator ilmiy texnologiyalardan tashkil topgan fanlararo sohadir. Geterogen hujayradan tashqari matritsa, o'sish omillarini yig'ish uchun ilg'or qayta ishlash texnologiyalari organlarni muvaffaqiyatli ishlab chiqarish uchun hal qiluvchi ahamiyatga ega. Geterogen hujayralar, o'sish omillari yig'ilishi uchun organ ishlab chiqarishning ilg'or texnologiyalari ildiz hujayra fani va nazorati, materialshunoslik va qayta ishlash, to'qima fanlari va muhandislik, nano fan va manipulyatsiya kabi ko'plab zamonaviy fanlar va texnologiyalar bilan yaqin o'zaro bog'liqlikka ega. Fanlar doirasida; skrining, metabolizm fani, qayta shakllantirish, organ ilmi va qurilishi (masalan, individual yoki moslashtirilgan organ qurilishi).

Organ ishlab chiqarishga eng oddiy va eng to'g'ridan-to'g'ri yondashuv - bu struktura (shu jumladan arxitektura), komponent va funktsiya bo'yicha tabiiy analogni taqlid qilish ekanligi tushuniladi. Shunga qaramay, haqiqiy biosun'iy organlarni yaratish nafaqat bir nechta Geterogen hujayra turlari va moddiy komponentlarini aniq nazorat qilishni, balki inson tanasining barcha atrof-muhit omillariga asosiy murakkab reaksiyasini batafsil tushunishni talab qiladi. Ba'zida fiziologik funktsiyalar turli mavjud materiallar orqali amalga oshirilishi mumkin.

Hujayra ishlab chiqarish.

Dunyodagi barcha murakkab tirik hodisalar, shu jumladan organlar ham fizik, va biokimyoviy o'zgarishlarning natijasidir. Kichik organik va noorganik molekulalar polimerlanadi yoki katta polimerlar yoki birikmalar hosil qilish uchun birlashadi. Keyinchalik yirik polimerlar va birikmalar hujayra membranasi ichida organellalari bo'lgan hujayralarni hosil qilish uchun birlashadi. Hujayra

hayotning asosiy birligidir. Shuningdek, u inson tanasining asosiy tarkibiy va funktsional birligidir. To'qimalar bir hil hujayralarlardan, organlar esa geterogen hujayralar turlaridan iborat. Hujayralar, to'qimalar va organlar inson tanasida mavjud bo'lgan turli xil materiallardir.

Misol uchun, arteriyani maxsus organ sifatida ko'rish mumkin, chunki u odatda uchta asosiy to'qimalar turiga ega bo'lgan uchta qatlamdan iborat:

(1) Endotelial hujayralardan tashkil topgan eng ichki ingichka qatlami, ya'ni endoteliy va qonning antikoagulyantining asosiy funktsiyalari va atrofdagi to'qimalarning yallig'lanishga qarshi asosiy funktsiyalari bilan asosan IV turdagi kollagen va laminindan tashkil topgan bazal lamina

(2) Tomir atrofida aylana bo'ylab joylashgan silliq muskul hujayralaridan (ya'ni, muskul qatlami) tashkil topgan o'rta qalin medial qatlam (ya'ni, tomir devori), I, III turdagi kollagen, elastin va proteoglikan, mexanik ta'minotning asosiy funktsiyasi, masalan, pulsga qarshi yoki stressga qarshi

(3) Fibroblastlar, uzunlamasına kollagenlar va elastik tolalardan tashkil topgan eng tashqi bo'shashgan adventitsial (yoki tashqi) qatlam, asosiy vazifasi qon tomirini atrofdagi to'qimalarga bog'lash va qo'shimcha mexanik ta'minotni ta'minlash. Ushbu qatlamlarning har biri ozuqa moddalari, kislorod va metabolik chiqindilarni tashishda va gomeostazni saqlashda muhim rol o'ynaydi

Arteriya diagrammasi. To'qimachilik muhandisligidan farqli o'laroq, organlar ishlab chiqarish o'ziga xos ma'noga ega.

Organlarni transplantatsiyasida donor bemorning o'zi bo'lishi mumkin. Buning uchun kerakli organning zaralanmagan hujayralarini olib ularning irsiy materiallariga ishlov berilib mitoz yo'li orqali bolinib ko'payishini taminlash va embryonal rivojlanish yo'li bilan o'stirish.

2011-yil iyun oyida Britaniyalik bir erkak saraton kasalligiga chalingan bronx bilan operatsiya xonasiga kirdi, ammo yangisini olib chiqib ketdi. Odamlar oldin bronx transplantatsiyasini qabul qilishgan, ammo Andemariam Teklesenbet Beyene boshqacha edi. Uning organi bemorning o'z hujayralaridan foydalangan holda laboratoriyada to'liq o'stirilgan birinchi turdagi organ edi.

Ikki kundan so'ng, Makchiarini 12 soatlik operatsiya davomida bronxini ko'chirib o'tkazdi va bir oy o'tgach, Beyene saraton kasalligidan xoli kasalxonadan chiqdi. Bir necha oy o'tgach, jamoa yana bir saraton kasalligiga chalingan amerikalik Kristofer Laylz bilan bu hiylani takrorladi.

Sun'iy organlar yurak, o'pka, buyrak, jigar, oshqozon osti bezi yoki neyrosensor organlar kabi faol mexanik yoki biokimyoviy funktsiyalarga ega murakkab tibbiy jarayolarni o'z ichiga oladi. Sun'iy organlar jarrohlik yo'li bilan yoki qo'shimcha tana (qon bemorning tanasidan tashqarida vaqtincha qayta ishlanadi) bo'lishi mumkin.

Nanomateriallarni to'qima muhandisligida qo'llash.

Sun'iy to'qimalar yoki organ transplantatsiyasidan foydalanish - saraton, tug'ma nogironlik yoki travma tufayli jiddiy shikastlangan yoki yo'qolgan va an'anaviy dori vositalari foydalanilmaydigan bo'lsa, shikastlangan to'qimalar va

organlarni tiklash uchun birinchi tanlovdir. Biroq, organ transplantatsiyasi amaliyoti hozirda bir qancha muammolarga duch kelmoqda. Taxminan o'ttiz yil oldin to'qimalar muhandisligi yangi nazariya sifatida to'qimalar va organlarni qayta tiklashning muqobil usuli sifatida paydo bo'ldi. To'qimalar muhandisligi to'qimalar va organlar transplantatsiyasiga bo'lgan katta talabga yechim sifatida katta va'da beradi.

Xulosa va kelajak yo'nalishlari

Organ transplantatsiyasi tajribasiga qaramay, tirik hujayralarni o'z ichiga olgan to'qimalarni ishlab chiqarish mahsulotlarini transplantatsiya qilish immunitetni rad etish uchun klinik dalillarni ko'rsatmadi. Rad etishning o'ziga xos mexanizmlari bo'yicha cheklangan sinovlar implantlarga gumoral yoki hujayra vositachiligida reaksiyalar mavjudligini ko'rsatmadi. Immunogenlikning yo'qligining asosiy sababi implantlarda antigen taqdim etuvchi hujayralarning yo'qligidir va bunday hujayralarning kiritilishi rad etilishini ta'minlash uchun eksperimental ravishda topilgan. Transplantatsiya qilingan organda endotelial hujayralar antigen taqdim qiluvchi hujayralarning asosiy manbai bo'lib, o'tkir rad etish boshqa hujayralarga tez tarqaladigan qon tomir tizimiga hujum sifatida ko'rinishi mumkin.

Hayotlar ushbu tadqiqotga bog'liq.

AQSh Sog'liqni saqlash va inson xizmatlari departamentining Transplantatsiya bo'limi ma'lumotlariga ko'ra, hozirda dunyo bo'yicha o'lim soninig 1/3 qismi donir yetishmasligi oqibatida sodir bo'lmoqda. Ayni paytda, birgina Qo'shma Shtatlarda 122 000 dan ortiq odam organlarni kutmoqda va 18 kishi har kuni organ olishdan oldin vafot etadi.

O'zbekistonda sun'iy organ ishlab chiqarish bo'yicha islohatlar.

O'zbekistonda bu soha bo'yicha hali biror izlanishlar o'tkazilmagan va natijaga erishilmagan.

Transplantologiya bu- kelajak fani, kelajak sohasi, tibbiyot rivojining cho'qqisi deb hisoblaymiz. O'zbekistonga kelsak, bu "tesha tegmagan" sohadagi izlanishlarni yaqin kelajakda natijasini ko'ramiz degan umiddamiz

Sababi shuki, yurtimizda bu sohaga oid loyihalari, mutahassislar va infrotuzilma hali yo'q. Kuni kecha Andijon viloyatida ilk bor buyrak ko'chirib o'tqazish amaliyoti bo'lib o'tdi. Amaliyotda uka o'z akasiga buyragini bergan. Agarda izlanishlar bundanda samarali natija berib sun'iy buyrak ishlab chiqarila boshlaganda, mana shu protseduraga rozi bo'lib uka o'zining sog'lom buyragini bermasdi. Aka esa qolgan umrini bir dona buyrak bilan yashamas edi. Shifokorlar esa keyinchalik "bu buyrakni tana qabul qiladimi-yo'qmi", deb havotirlanmas edi. Bu amaliyot ancha arzon, kam vaqt ichida o'tkazilar, organizm tiklanishi yanada tezroq bo'lar edi. Yurtimizda soha rivojlashi uchun tibbiyotda xususiy sektorlarni rivojlanishiga keng imkoniyat berish kerak. Chunki bu bir biznes hisoblanadi. Undagi daromat o'z-o'zini qoplay oladi.

Yuqorida aytib o'tilganidek soha rivojlanishi qanchadan-qancha hayotlarini saqlab qolish imkoniyati paydo bo'ladi.

Yoki o'tkir va surunkali leykoz kasalligida ko'mik ilik yetishmasligi tufayli donordan ma'lum miqdorda komik ilik olinib kasal odamga ko'chirib o'tkaziladi. Bunda bemorning yaqinlari tekshiruvdan otadilar, tekshiruv natijalari qoniqarli bo'lsa, undan ilik olinadi va ko'chirib o'tkaziladi. Natijalar qoniqarli chiqmasa bemor noiloj donor kutadi. Agar, oddiygina ko'mik o'zak hujayralarini lobaratoriyada ko'paytirilib bemorga ko'chirilsachi yoki hujayra regeneratsiyasini kuchaytirish orqali kasallikdan butunlay halos bo'lish mumkin.

Demak yaqin kelajakda manashu transplantologiya fanining rivoji tibbiyotda jarrohlikning barcha tarmoqlarida muhim rol o'ynaydi. Bularning provardida hali ko'p izlanishlar, qiyinchiliklar, tajribalar va mehnat yotibdi. Biz bularga tayyormizmi?

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**RESEARCH ON THE COUPLING COORDINATION MECHANISM
AND SPATIAL-TEMPORAL DIFFERENTIATION PATTERN
BETWEEN TOURISM AND NEW-TYPE URBANIZATION: A CASE
STUDY OF INNER MONGOLIA, CHINA**

***Abstract :** Based on the systematic co-evolution of tourism and new-type urbanization, the coupled coordination model is used to analyze the coupled coordination mechanism and spatio-temporal differentiation patterns of tourism and new-type urbanization in Inner Mongolia during the period 2000-2022. The results show that: (1) The comprehensive development index of tourism and new-type urbanization shows a simultaneous upward trend, and there is a strong two-way synergistic interaction effect between tourism and new-type urbanization; (2) In terms of timing characteristics, coupling degree is always in the high-quality coupling stage, and coupling coordination degree shows an evolution trend of "rising and falling", and lags behind coupling degree; (3) Spatial pattern: From the obvious differences, it gradually realizes the trend of collaborative evolution, and presents the pattern characteristics of "strong in the middle, weak in the west, and concentrated in the east"; (4) It is proposed to accelerate the construction of tourism urbanization in Inner Mongolia and comprehensively promote the coordinated development path of all-region tourism and new-type urbanization in Inner Mongolia.*

Key words: *Tourism ; New-type Urbanization ; Coupling Coordination Model ; Spatial-temporal evolution; Global tourism*

1. Introduction

With the rapid development of China's economy, tourism revenue and urbanization have achieved rapid growth. The promotion of new-type urbanization is an important requirement for the high-quality development of Inner Mongolia, and it is also the internal driving force for the sustainable and balanced growth of the regional economy in the future. Tourism is a new driving force for the development of new-type urbanization and an important engine for the high-quality development of regional economy. It plays an important role in promoting the transformation and upgrading of regional economy, functional diversification, social change, cultural reconstruction, labor employment, and driving the expansion of urban areas. As an important engine for economic growth, new-type urbanization can provide sound ecological space support for the promotion of tourism through economic development, infrastructure improvement, social civilization progress, and ecological environment improvement, and promote the high-quality development of tourism. Inner Mongolia has the advantages of rich tourism resources, prominent tourism brand effect, complete tourism industry system and broad tourism market demand. As an important strategic pillar industry for regional economic and social development and a basic supporting industry for accelerating the process of urbanization, how to achieve positive interactive development of the two is of great significance for promoting high-quality development of Inner Mongolia.

Relevant literature at home and abroad [1-4] provides important theoretical support for this study. It mainly focuses on tourism urbanization, the driving mechanism of tourism urbanization, the development model of tourism urbanization, the influencing factors of tourism urbanization and other aspects, and shifts from one-way relationship research to two-way relationship interactive relationship research, but there are also shortcomings: Most of the research methods are based on regression model and coupling model, ignoring the endogenous problem, and it is difficult to fully explain the realistic path of interactive development between tourism and new-type urbanization from the perspective of time and space. The research scale is mostly based on the whole country or economically developed provinces, and the relationship between tourism and new-type urbanization development is not discussed from the level of important strategic regions of the country. Therefore, this paper takes Inner Mongolia as the research object, based on the panel data from 2000 to 2022, and uses the coupling degree and coupling coordination degree model to conduct an in-depth study on the coupling coordination mechanism and spatial and temporal differentiation pattern between tourism and new-type urbanization in Inner Mongolia.

2. Research methods

2.1 Index system construction

Based on the interaction mechanism between tourism development and new-type urbanization, the research results of the academic circle on the coupling and coordinated development of tourism and new-type urbanization, based on the principles of comprehensiveness, scientificity and operability, construct two indicator systems of Inner Mongolia tourism system and new-type urbanization system, and select a total of 28 specific indicator factors (Table 1).

Table 1. Comprehensive evaluation index system of tourism and new-type urbanization

| System Layer | Subsystem Layer | Index |
|-----------------------|-------------------------|---|
| Tourism | Tourism Market | Total number of tourists, Inbound tourists, Domestic tourists |
| | Tourism Economy | Total tourism revenue, International tourism revenue, Domestic tourism revenue, Tourism revenue as a percentage of GDP |
| | Tourism Industry | Number of employees in the tertiary industry, Number of interstellar hotels, Total number of travel agencies |
| | Tourism Support | Highway route mileage, Passenger turnover, Public transport vehicles per 10,000 people, Public toilets per 10,000 people |
| New-type urbanization | Economic Urbanization | Regional GDP, Per capita regional GDP, Proportion of secondary and tertiary industry GDP, Per capita disposable income of permanent urban residents |
| | Population Urbanization | The number of employed persons at the end of the year, Urbanization rate, Proportion of employees in the secondary and tertiary industries |
| | Social Urbanization | Registered urban unemployment rate, Number of health technicians, Per capita expenditure on education, Number of full-time teachers in ordinary secondary schools |
| | Land Urbanization | Per capita park green area, Per capita urban road area, Green coverage rate of built-up areas |

2.2 Research Methods

Based on the analysis and identification of the co-evolution relationship between tourism and new-type urbanization, this paper draws on existing literature [5] and comprehensively uses coupling degree and coupling coordination degree models to study the coupling coordination mechanism and spatio-temporal differentiation pattern between tourism and new-type urbanization in Inner Mongolia from 2000 to 2022 years. The index data of tourism industry and new-type urbanization are all from Inner Mongolia Statistical Yearbook (2001-2023), and individual missing data are supplemented by interpolation method of adjacent years. In order to eliminate the impact of different dimensions and physical meanings among indicators on the results, the

extreme value method is first used to conduct dimensionless processing on the original data, and then the entropy method is used to objectively assign weights to the subsystems and indicators. On this basis, the comprehensive linear weighting method is used to calculate the comprehensive development level of tourism and new-type urbanization. By using coupling degree and coupling coordination degree model, we can distinguish the spatio-temporal process, interaction mechanism and spatio-temporal differentiation pattern of tourism and urbanization co-evolution.

3. Result analysis

3.1 Comprehensive evaluation of tourism and new-type urbanization

The comprehensive index of tourism and new-type urbanization in Inner Mongolia showed a synchronous and continuous upward trend from 2000 to 2022, rising from 0.0774 in 2000 to 0.7202 in 2016. Although there was a short downward trend in 2017, it showed an upward trend again in 2018, reaching 0.8573 in 2022. The evolution process is comprehensively manifested in two important development periods. 2000-2016 was a period of rapid and continuous rise. In 2017, regional economic structure adjustment occurred, and after a short adjustment, 2018 showed a relatively continuous rise. On the whole, despite the impact of the novel coronavirus epidemic for three years, the tourism demand of urban residents is still strong, and tourism and new-type urbanization have achieved coordinated development.

3.2 Spatio-temporal comprehensive analysis of coupling degree

The time evolution trend of coupling degree showed a change trend of slow rising, stable and decreasing fluctuation, the coupling degree increased slowly from 0.9310 in 2000 to 0.9904 in 2004, and remained near 1 for a long time from 2005 to 2019. From 2020 to 2022, due to the impact of the novel coronavirus epidemic, tourism activities stopped completely. Resulting in a small decrease in coupling degree. Coupling degree has experienced a high quality coupling evolution stage for a long time. The spatial evolution trend of coupling degree showed a co-evolution trend at the same time. Since 2022, 6 cities including Hulunbuir, Xingan, Tongliao, Ulanqab, Bayannur and Wuhai have always maintained high-quality coupling characteristics, while the other cities have experienced excessively high level coupling stage. In 2022, 5 cities such as Hohhot, Baotou, Xilingol, Ordos and Alashan will have high level coupling, and 7 cities such as Hulunbuir, Xingan, Tongliao, Chifeng, Ulanqab, Bayannur and Wuhai will have high quality coupling.

3.3 Spatio-temporal comprehensive analysis of coupling coordination degree

The time variation trend of the coupling coordination degree showed a rapid upward evolution trend, and the coupling coordination degree rapidly increased from 0.2689 in 2000 to 0.8891 in 2019, and continued to decline to 0.7472 in 2020-2022. It can be divided into two stages: the period of rapid growth from 2000 to 20019, and the period of continuous decline from 2020 to 2022. The type

of coupling coordination degree experience: four coupling coordination degree evolution processes, including Severe disorder (2000), Mild disorder (2001-2005), moderate coordination (2006-2011), and good coordination (2012-2022), the tourism system and the new-type urbanization system have initially realized coordinated development, and the coupling coordination degree still has a large room for improvement. The spatial variation trend of coupling coordination degree shows a synchronous co-evolution trend, among which Hohhot and Baotou are located in the middle of Inner Mongolia, with outstanding economic and transportation advantages, coupling coordination degree achieved high quality coupling in 2017-2019. Hulunbuir, Tongliao and Xilingol grasslands have advantages in tourism resources and strong tourism attraction, and the coupling coordination degree reached high quality coupling in 2019. The coupling coordination degree of all cities affected by the epidemic in 2020-2022 showed a downward trend, and there is still a large space for development in the future.

4. Conclusions and Suggestions

4. Conclusion

By constructing a comprehensive evaluation index system for tourism and new-type urbanization, this paper empirically analyzes the spatio-temporal evolution characteristics of coupling coordination between tourism and new-type urbanization system in 12 cities of Inner Mongolia from 2000 to 2022 with the help of coupling degree and coupling coordination degree models, and draws the following conclusions: Both tourism and new-type urbanization in Inner Mongolia have maintained a continuous upward trend, and a continuous and stable synergistic positive influence has been formed between tourism and new-type urbanization. The coupling degree experienced the evolution process of first rising and then declining, and was in the high-quality coupling stage for a long time, and all cities showed a co-evolution trend at the same time. The experience of coupling coordination degree is as follows: four evolution stages, namely, severe disorder, mild disorder, moderate coordination and good coordination. The location traffic advantage of central cities and the tourism resource advantage of eastern cities are the prerequisite and basis for achieving high-quality coupling. The spatio-temporal evolution of the coupling coordination degree showed obvious differences, and gradually realized a cooperative evolution trend, and presented an evolutionary pattern of "strong in the middle, weak in the west, concentrated in the east".

4.2 Suggestions

Strengthen the core driving role of central cities, accelerate the construction of tourism urbanization in Inner Mongolia, tourism development planning in the process of urbanization, and enhance the function of urban reception services. Efficient use of the comprehensive benefits of the tourism industry, the adoption of "tourism + real estate", "tourism + technology", "tourism + transportation", "tourism + poverty alleviation" and other means to promote urbanization. Vigorously promote the process of all-region tourism, tap regional tourism

resources, build well-known tourism brands, actively cultivate diversified tourism products, and upgrade the quality of the tourism industry.

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MOLIYA SIYOSATINING DAVLAT RIVOJLANISHDAGI ROLI VA VAZIFALARI TAHLILI

***Annotatsiya.** Mazkur maqolada moliyaviy siyosatning davlat rivojlanishidagi o'rni va vazifalari tahlil qilinadi. Moliyaviy siyosat orqali davlat iqtisodiy barqarorlikka erishish, ijtimoiy barqarorlikni ta'minlash va tarmoqlar o'rtasidagi iqtisodiy aloqalarni rivojlantirishda muhim rol o'ynaydi. Maqolada moliyaviy siyosatning boshqaruv mexanizmlari, uning qonunchilik va iqtisodiy dasturlar bilan bog'liq vazifalari hamda bu sohadagi muammolar tahlil qilinadi.*

***Kalit so'zlar:** moliyaviy siyosatning tarkibiy qismlari (yo'nalishlari), moliyaviy siyosat, moliyaviy munosabatlar, iqtisodiy siyosat, moliya mexanizmi, moliyadan foydalanishning metodlari.*

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ANALYSIS OF THE ROLE AND RESPONSIBILITIES OF FINANCIAL POLICY IN THE DEVELOPMENT OF THE STATE

***Abstract:** This article analyzes the role and responsibilities of financial policy in state development. Financial policy plays a crucial role in achieving economic stability, ensuring social welfare, and fostering economic relations between sectors. The article examines financial policy management mechanisms, its tasks in the context of legislation and economic programs, and the challenges associated with its implementation.*

***Keywords:** financial policy, economic policy, financial mechanism, methods of using finance, components (directions) of financial policy, financial relations.*

Kirish. Moliyaviy siyosatni faqat iqtisodiy siyosatga bog'lab qo'yish maqsadga muvofiq emas; chunki ijtimoiy rivojlanish deyilganda faqatgina maorif, madaniyat, sog'liqni saqlash va boshqa ijtimoiy ehtiyojlarning rivojlanishi tushunilibgina qolmasdan jamiyatning ijtimoiy tuzilmasi ham tushuniladi.

Siyosat davlat faoliyatining barcha yoʻnalishlarini qamrab oladi. Siyosiy taʼsir obʼekti hisoblangan ijtimoiy munosabatlar sohasiga bogʻliq ravishda iqtisodiy yoki ijtimoiy, madaniy yoki texnikaviy, byudjet yoki kredit, ichki yoki tashqi siyosat toʻgʻrisida gapiriladi.

Moliyaviy siyosat oʻz-oʻzini bosib turuvchi mustaqil ahamiyatga ega boʻlib, bir vaqtning oʻzida ijtimoiy faoliyatning har qanday sohasida davlat siyosatini amalga oshirishning muhim vositasi hisoblanadi. Bu yerda uning iqtisodiyot, ijtimoiy soha, harbiy islohotlar yoki xalqaro munosabatlar boʻlishi jiddiy ahamiyatga ega emas.

Siyosat, siyosiy taʼsir va siyosiy rahbarlik quyidagi uch elementlardan tarkib topadi:

- bosh maqsadni aniqlash va qoʻyish hamda jamiyat hayotining maʼlum bir davriga xos qoʻyiigan maqsadlarga erishish uchun yechi-lishi zarur boʻlgan istiqboldagi va yaqin kunlardagi vazifalarni aniqlashtirish;
- qoʻyilgan maqsadlarga qisqa muddatlarda erishiladigan, yaqin kunlardagi va istiqboldagi vazifalar esa oqilona tartibda hal qilinadigan munosabatlarning metodlari, vositalari va aniq shakllarini ishlab chiqish;
- qoʻyilgan vazifalarni yechishga qodir boʻlgan kadrlarni tanlash va joy-joyiga qoʻyish, ularning bajarilishini tashkil etish.

Demak, takror ishlab chiqarishning alohida ehtiyojlarini qondirish va uzluksiz takror ishlab chiqarish jarayonini moliyaviy resurslar bilan taʼminlash uchun ijtimoiy boylikni shakllantirish, taqsimlash va qayta taqsimlash jarayonlariga yoʻnaltiriladigan maqsad va vazifalarning yechilishini aniqlashga moliyaviy siyosat deyiladi.

Moliyaviy boshqaruvning barcha tizimi davlat moliyaviy siyosatiga asoslanadi. Shuning uchun ham moliyaviy siyosat moliyaviy boshqaruv tizimida eng asosiy element hisoblanadi. Moliyaviy siyosat davlatning moliyaviy munosabatlar sohasidagi mustaqil faoliyatidir. Bu faoliyat davlatning u yoki bu iqtisodiy va ijtimoiy rivojlanish dasturini amalga oshirish uchun tegishli moliyaviy resurslar bilan taʼminlashga qaratilgan.

Har qanday jamiyatda ham davlat moliyadan oʻzining funktsiya va vazifalarini bajarishda hamda maʼlum maqsadlarga erishishda foydalanadi. Moliyaviy munosabatlarning ijtimoiy-iqtisodiy mohiyati “Davlat kimning hisobidan moliyaviy resurslarni oladi va kimlarning manfaatlari uchun bu mablagʻlardan foydalanadi?” degan savolning tadqiq qilinishi orqali namoyon boʻladi [2]. Qoʻyilgan maqsadlarni amalga oshirilishida moliya siyosati muhim oʻrinni egallaydi. Uni ishlab chiqish va hayotga tadbiiq etish jarayonida jamiyat oldida turgan masalalarni xalq etilish sharoitlari taʼminlanadi. U iqtisodiy manfaatlarga taʼsir etuvchi faol dastak sifatida namoyon boʻladi. Iqtisodiy siyosat - xoʻjalik yuritishning tamoyillari va shakllari, iqtisodiyotni rivojlantirish vazifalarini yechishdagi usullar, chora-tadbirlar va faoliyatlar yigʻindisidir. Iqtisodiy siyosat jamiyat rivojlanishining turli bosqichlarida turlicha boʻlishi, iqtisodiy rivojlanish darajasiga qarab oʻzgarib turishi mumkin. Iqtisodiy siyosat

o‘z ichiga baho siyosati, pul-kredit siyosati, amortizasiya siyosati va moliya siyosati kabilarni mujassamlashtiradi. Moliya siyosati - bu davlatning iqtisodiy siyosatini tarkibiy qismi bo‘lib, moliyaviy resurslarni (manbalarni) jalb etish, ularni taqsimlash, ishga solish va foydalanishga davlat orqali yo‘naltirilgan barcha chora-tadbirlar yig‘indisidir. Moliya siyosatining muhim vazifasi - u yoki bu iqtisodiy va ijtimoiy rivojlanishning davlat rejasini yoki chora-tadbirlarini amalga oshirish uchun tegishli moliyaviy resurslar bilan ta‘minlashdir. Lekin moliya siyosatini faqat iqtisodiy siyosatga bog‘lash mumkin emas. Moliya siyosati - bu moliyaviy munosabatlar sohasida davlatning mustaqil faoliyat ko‘rsatadigan sohasi. Moliya siyosati mustaqil xususiyatga ega bo‘lish bilan bir vaqtda davlatning har qanday istalgan ijtimoiy faoliyatni amalga oshirishi uchun xoh ijtimoiy, xoh iqtisodiy xoh halqaro munosabatlar olib borishida muhim vosita. Ayrim hollarda moliyaviy siyosat davlatning o‘z funksiyalarini bajarishi uchun moliyaviy munosabatlardan foydalanish bilan bog‘liq bo‘lgan davlat organlarining ma‘lum bir faoliyati sifatida talqin qilinadi. Bunday talqin o‘zida bir necha xavfni mujassam etadi. Buning boisi shundaki, milliy xo‘jalik taraqqiyotida davlatning roli to‘g‘risidagi jamiyatda hukmron tasavurlarga muvofiq ravishda davlatning vazifalari va funksiyalari ham o‘zgaradi, transformatsiyalanadi. Masalan, mamlakat iqtisodiyotiga davlatning aralashuvi, aholi turmush darajasi ijtimoiy-iqtisodiy sharoitlarini tenglashtirish va shunga o‘xshash davlatning funksiyalari va vazifalarini aniqlaydigan boshqa bir qancha masalalar hamon munozaraligicha qolmoqda. Buning ustiga, moliyaviy siyosatdan faqat davlatning funksiyalarini bajarish vositasi sifatida foydalanish davlat hokimiyat organlari, mahalliy o‘z-o‘zini boshqarish organlari bilan moliya tizimining boshqa subyektlari, ya‘ni aynan mamlakatning aholisi va xo‘jalik yurituvchi subyektlari manfaatlarini o‘rtasida qarama-qarshiliklarni keltirib chiqadi.

Misol uchun, ko‘plab mutaxassislar, shu jumladan, davlat hokimiyat organlarining vakillari tomonidan amaldagi soliq mexanizmining samarasiz ekanligi, biznesning ayrim sohalari uchun esa uning oqibati juda yomon natijalarga olib kelishi mumkinligi ilmiy va amaliy jihatdan asoslansa-yu, moliyaviy siyosat uzoq vaqt davomida o‘zgarmasdan qolaversa, amalga oshiriladigan soliq islohotlari uning mohiyatini o‘zgartirmasa, bunday holda davlatning moliyaviy siyosati davlat hokimiyatining tegishli organlari tomonidan faol ravishda hayotga tadbiiq etilayotgan alohida shaxslar guruhining moliyaviy siyosatiga aylanib qoladi.

Yuqoridagilardan quyidagi uchta mantiqiy xulosa kelib chiqadi:

- birinchidan, moliyaviy siyosat faqat o‘z manfaatlarini ko‘zda tutadigan hokimiyat organlarining u yoki bu maqsadlarga erishishi vositasi emas, balki jamiyatning ijtimoiy-iqtisodiy vazifalarini yechish vositasi bo‘lishi kerak;
- ikkinchidan, davlatning moliyaviy siyosati faqat davlat hokimiyat organlarining emas, balki moliya tizimi barcha subyektlarining manfaatlarini hisobga olishi lozim;

- uchinchidan, davlat moliyaviy siyosati va davlat hokimiyat organlarining moliyaviy siyosatini farqlash zarur.

Shunday qilib, davlat moliyaviy siyosatini mamlakat moliya tizimining barcha bo'g'inlarida moliyaviy resurslar o'sishini mutanosiblashtirilgan holda ta'minlash bo'yicha davlat ijtimoiy-iqtisodiy siyosatining bir qismi sifatida qarash kerak. Xorijiy tajribalarning ko'rsatishicha, moliyaviy resurslarning mutanosiblashtirilgan holda o'sishi zarurligini inkor etish mamlakat moliya tizimining degradatsiyalashuviga, iqtisodiyotning yemirilishi va vayron bo'lishiga olib keladi.

Moliyaviy siyosatning o'ziga xos bo'lgan eng asosiy xususiyati shundan iboratki, bu siyosat mamlakat ishlab chiqaruvchi kuchlarining rivojlanishiga va iqtisodiy muvaffaqiyatlarga uzluksiz ravishda ta'sir ko'rsatib turishga yo'naltirilgan bo'lishi kerak. Bunday siyosat aholining turmush farovonligini ta'minlab va davlat daromadlari manbaini ko'paytirib, moliyaviy xo'jalikka nisbatan eng yuqori natijalarni berishi mumkin. Moliyaviy siyosat ana shunga yo'naltirilganligi orqali uning quyidagi eng asosiy maqsadini aniqlash mumkin: jamiyatning ijtimoiy-iqtisodiy taraqqiyoti, aholi turmushi darajasi va sifatini oshirish uchun moliyaviy sharoitlarni yaratish moliyaviy siyosatning asosiy maqsadidir.

Moliyaviy siyosat dasturlarini (uzoq, o'rta va qisqa muddatli) bajarish uchun moliyaviy resurslarni jalb qilish, ularni taqsimlash va qayta taqsimlashga yo'naltirilgan davlat tadbirlari majmui ta'minlaydi. Bu tadbirlar orasida moliyaviy munosabatlarning shakllari va normalarini huquqiy tartibga solish muhim o'rin egallaydi.

O'z-o'zidan moliyaviy siyosat yaxshi yoki yomon bo'lishi mumkin emas. Uning yaxshi yoki yomon ekanligi jamiyat (yoki uning ma'lum bir qismi) manfaatlariga qanchalik muvofiqligi va quyilgan maqsadlarga erishish hamda aniq vazifalarning yechilishiga qay darajada ta'sir ko'rsatganligi bilan belgilanadi.

Hukumatning moliyaviy siyosatiga baho berish uchun va uni o'zgartirish bo'yicha tavsiya berish uchun, birinchi navbatda, butun jamiyat manfaatlari va aholining alohida guruhlari manfaatlarini ajratgan holda jamiyat taraqqiyotining aniq dasturiga, yechilishi lozim bo'lgan masalalarning muddatlari va metodlarini aniqlagan holda istiqboldagi va yaqin yillardagi vazifalarning tavsifiga ega bo'lmoq lozim. Faqat ana shunday sharoitdagina moliyaviy siyosatni amalga oshirishning konkret mexanizmini ishlab chiqish va unga xolisona baho berish mumkin.

Agar moliyaviy siyosat ijtimoiy taraqqiyot ehtiyojlarini, jamiyatdagi barcha qatlamlar va alohida guruhlarning manfaatlarini, ma'lum tarixiy sharoitni va hayotning o'ziga xos xususiyatlarini yuqori darajada hisobga oladigan bo'lsa, uning natijalari shuncha samarali bo'ladi.

Bir vaqtning o'zida, moliyaviy siyosatning muvaffaqiyati muvofiqlashtirish mexanizmining sifatli ishlab chiqarilishiga va jamiyatdagi turli

qatlamlar manfaatlarini amalga oshirilishiga hamda davlat ixtiyorida bo'lgan ob'ektiv imkoniyatlarning mavjudligiga, ya'ni jamiyat ijtimoiy tizimidagi hamda ijtimoiy ong va psixologiya holatidagi o'zgarishlarni hisobga olgan holda moliyaviy siyosatni amalga oshirilishiga, ayrim hollarda, bir-biriga qarama-qarshi ta'sir ko'rsatuvchi omillarning ta'siridan har tomonlama foydalanish mexanizmini ishlab chiqishga bevosita bog'liq.

Moliyaviy siyosat, eng avvalo, moliyaviy resurslarning maksimal hajmini shakllantirishga yo'naltirilgan bo'lishi kerak. Chunki aynan moliyaviy resurslar har qanday o'zgarishlarning moddiy asosini tashkil etadi. Shunga muvofiq ravishda moliyaviy siyosatni aniqlash va uni shakllantirish uchun davlatning moliyaviy ahvoli to'g'risida ishonchli ma'lumotlar zarurdir. Huquqiy demokratik davlatda moliyaviy statistika ko'rsatkichlari keng jamoatchilikka ham tegishli bo'lishi kerak. Moliyaviy hisobotlar esa doimiy, o'z vaqtida beriladigan, hamma olishi mumkin bo'lgan va eng asosiysi ishonchli bo'lmog'i lozim.

Moliyaviy siyosatning mazmuni u qamrab oladigan moliyaviy munosabatlar rivojlanishi yo'nalishlarining umumiy ko'lami bilan belgilanadi. Ularning tarkibiga quyidagilar kirishi mumkin:

- moliyaviy siyosatning umumiy konsepsiyasini (maqsadlari, prinsiplarini, vazifalarini, amalga oshirish bosqichlari va eng samarali metodlarini) ishlab chiqish;
- makrodaraja va bozor iqtisodiyoti subyektlari darajasida iqtisodiy o'sishni rag'batlantiradigan bozor iqtisodiyotining rivojlanishiga mos bo'lgan dinamik holdagi moliya mexanizmini shakllantirish;
- markazlashtirilgan va markazlashtirilmagan resurslar va moliyaviy oqimlarning samarali boshqarilishini oshirish bo'yicha choralar tizimini ishlab chiqish va amalga oshirish;
- ijtimoiy takror ishlab chiqarish va iqtisodiyotni istiqbolli restrukturizatsiya qishlashdagi rolga muvofiq ravishda ijtimoiy iqtisodiy tizimning barcha darajalari va sohalari bo'yicha moliyaviy resurslarni oqilona taqsimlashni tashkil qilish;
- iqtisodiy o'sishning joriy va istiqboldagi moliyaviy salohiyatini shakllantirish.

Davlatning iqtisodiyotga aralashuvi Davlat byudjeti xarajatlari oshishiga olib keladi va shunga muvofiq ravishda bir vaqtning o'zida davlat daromadlari oshirilishini ta'minlashga qaratilgan moliyaviy choralar ko'riladi. Daromad solig'i davlat daromadlarini oshirishdagi asosiy manbaga aylandi. Uni hisoblashda soliqqa tortishning progressiv stavkalari qo'llanildi. Soliqlarning bunday tizimi MDni taqsimlashda davlatning rolini oshirishga olib keldi.

Moliyaviy yo'nalishda har ikkala nazariy konsepsiyalar o'rtasidagi farq mohiyatan byudjet defitsitini turli xilda baholanishi bilan belgilanadi. Agar birinchi konsepsiya defitsitsiz byudjetni shakllantirish va undan foydalanish zarurligidan kelib chiqqan bo'lsa, ikkinchi konsepsiya esa byudjet defitsitining

bo'lishi mumkinligiga yo'l qo'ygan va ayni zamonda iqtisodiy o'sishni rag'batlantirishda byudjet defitsitiga faol rol ajratgan.

Haqiqatdan ham XX asrning 30-60-yillarida keynscha moliyaviy siyosat deb nom olgan siyosat g'arb mamlakatlarida o'z samaradorligini isbotladi. Davlatning iqtisodiyotga aralashuvi kengayishi va tartibga soluvchi funksiyasining kuchayishi oqibatida moliyaviy munosabatlarni tashkil qilish murakkablashdi. Davlat xarajatlarini defitsitli moliyalashtirish siyosati davlat krediti rivojlanishini belgilab berdi. Uzoq va o'rta muddatli qarzlarni jalb etish ssuda kapitallari bozorining rivojlanishiga olib keldi va o'z ahamiyati bo'yicha davlat moliyaviy resurslarini shakllantirishdagi ikkinchi manbaga aylandi. Natijada MDni qayta taqsimlashda moliyaning roli yanada kuchaydi.

Davlatning ixtiyorida moliyaviy resurslarning katta qismi to'planishinigina emas, balki moliyaviy munosabatlarni tashkil etishda davlatning yakka hokimligini ko'zda tutuvchi moliyaviy markazlashtirish zaruriyatga aylandi. Chunki davlatning funksiyalari shu qadar kengaytirildiki, ularning eng asosiylari xo'jalik-tashkilotchilik va madaniy-tarbiyaviy funksiyalar bo'lib qoldi.

Moliyaviy markazlashtirish yana shunda namoyon bo'ldiki, davlat bevosita va monopol ravishda baholarni shakllantirish, pul muomalasi, hisob-kitoblar tizimi va kredit munosabatlarini ham tartibga soldi. Shunday qilib, boshqaruv tizimini barcha qiymat elementlari butun ishlab chiqarish jarayonlarini boshqarib turuvchi yagona ma'muriy-buyruqbozlik tizimiga amalda birlashtirildi.

Bunaqangi moliyaviy siyosat bir ijtimoiy munosabatlar tizimidan insoniyat tarixi uchun mutlaqo yangi bo'lgan ikkinchi ijtimoiy munosabatlar tizimiga o'tilishini, sovet davlati oldida turgan va faoliyatining turli bosqichlarida vujudga kelgan ijtimoiy-iqtisodiy muammolarning yechilishini kafolatladi. Bu moliyaviy siyosatni yetarli darajada samarali bo'lgan moliyaviy siyosat deyish mumkin.

Bir vaqtning o'zida ijtimoiyistik lager mamlakatlariga juda katta miqdorda moliyaviy yordamlar ko'rsatildi:

- ularning taraqqiyotida ijtimoiyistik yo'nalishni ta'minlash uchun;
- ijtimoiyistik mamlakatlarni sanoati rivojlangan mamlakatlarga aylantirish uchun;
- kuchli harbiy ittifoqchilarni shakllantirish va umuman mudofa qobiliyatini mustahkamlash uchun.

Bu maqsadlarga erishish uchun xom-ashyo bazasini va eng awalo, neft va gaz qazib chiqarishni yuqori tezlashtirilgan sur'atlarda rivojlantirish talab etildi. Yangi qazilma boyliklarini o'zlashtirish (ularning geografiyasi shimoli-sharq tomonga qarab kengaya boshladi) juda katta miqdordagi moliya resurslarning bo'lishini taqozo etdi. Bu vazifalarni bajarish uchun yangi hududlarni o'zlashtirish, o'sha tumanlarga ko'plab ishchi kuchlarini migratsiya qilish, mehnatga haq to'lashning oshirilgan normalarini joriy etish zarur bo'ldi. Neft va gaz quvurlarini qurish hajmi muttasil oshib bordi. Xalqaro bozorda neft va gazning bahosi yuqori bo'lib turgan paytlarda ularni eksport qilish xarajatlarni ma'lum darajada qoplagan edi. Shunga qaramasdan, bunday moliyaviy siyosat

MDni tegishii tarzda qayta taqsimlashni talab qildi. Natijada mamlakatda harbiy-sanoat kompleksi taraqqiy etgan bir tomonlama iqtisodiyot yaratildi.

Moliyaviy siyosatni ishlab chiqishda moliyaviy resurslarni taqsimlash va qayta taqsimlash negizida quyidagilarni yotishi muhim ahamiyatga egadir:

- taqsimlash munosabatlarining subyektlarini aniqlash, ya'ni moliyaviy resurslarning egalari va taqsimlovchilarini ajratish;
- yuridik shaxslar va aholining o'z ehtiyojlarini qondirishdagi mustaqillik darajasi va davlatning funksiyalariga bog'liq ravishda davlat ixtiyorida moliyaviy resurslarning markazlashtirilish darajasini aniqlash;
- birinchi darajali ijtimoiy ehtiyojlar va ularni qondirish choralarini tanlash va shularga mos ravishda moliyaviy resurslardan foydalanishning ustuvor yo'nalishlarini belgilash;
- moliyaviy resurslarni shakllantirishning manbalari va metodlarini tanlash.

Moliyaviy siyosat ko'p o'lchamli tushuncha hisoblanadi. Agar umumiy holda uning sohasi jamiyat taraqqiyotining alohida bosqichlarida hukmronlik qilgan nazariy konsepsiyalardan kelib chiqqan holda iqtisodiy va ijtimoiy sohalarni boshqarishda davlatning ishtirok etish parametrlari bilan aniqlansa, uning qiymat munosabatlari elementlari bo'yicha tabaqalanishi moliya tizimining rivojlanganligiga va uning ayrim bo'g'inlari mustaqilligiga bog'liq bo'ladi.

Demokratik davlatda byudjet qonun tarzida tasdiqlanadigan hujjat hisoblanadi. Unda davlatning o'z funksiyalarini bajarish maqsadida davlat qo'lida to'plangan pul mablag'lari harakati o'z ifodasini topadi. Davlat siyosati aniqlab beradigan maqsadlarga erishish uchun pul resurslarini yo'naltirish byudjet siyosati ustuvorligini tashkil etadi. Agar maqsadga erishish milliy iqtisodiyot ta'minlaydigan mablag'lardan ko'p mablag' talab etsa, davlat qo'shimcha daromadlarni shakllantirishning quyidagi favqulodda usullarini qo'llashga majbur bo'ladi: ichki va tashqi kreditlar, milliy boylikni sotish, boylik, mullukni ijaraga berish va konsessiyalar. Byudjetning daromadlar qismini to'ldirishga doir favqulodda choralar iqtisodiy mustaqillikning yo'qolishiga olib kelishi mumkin. Buni hisobga olgan holda hokimiyat qonunchilik organlari qarz olish chegarasini oldindan belgilaydi.

Bozor iqtisodiyoti sharoitida shaxsiy tashabbusiz va jamiyatdagi barcha a'zolarining samarali mehnatisiz iqtisodiyotni tiklash murakkab bo'lib qolaveradi. Soliqlar bozor iqtisodiyotida mehnatning asosiy rag'batlantirishni (motivatsiya qilinishini) olib qo'yadi, xolbuki mehnat daromad keltirishi lozim. Mamlakat iqtisodiyotiga soliq siyosatining ta'siri bevosita namoyon bo'ladi.

Moliyaviy siyosatning tarkibiy qismlaridan (yo'nalishlaridan) yana biri pul siyosatidir. Agar muomaladagi pul miqdori tovarlar massasi miqdoriga (pulning aylanish tezligini hisobga olgan holda) mos kelmasa, pul massasining yetmagan qismi qog'oz pullar (pullarning surrogati) hisobidan yoki xorijiy valyuta hisobidan toldiriladi. Va aksincha, agar pul massasi unga bo'lgan talabdan ortiq bo'lsa, yo pul massasining mamlakatdan chetga chiqishi (oqishi) yoki milliy

valyutaning qadrsizlanishi sodir bo‘ladi. Tabiiy ravishda, bu holatlarning barchasi mamlakat qonunchiligiga ham bevosita bog‘liq mamlakatda xorijiy valyutaning muomalada bolishiga ruxsat beriladimi yoki yo‘qmi, milliy valyuta konvertatsiya qilinadimi yoki yo‘qmi? va h.k.

Tovarlar massasi cheklanganda pul emissiyasi boshqa mamlakatlarning pul birligiga nisbatan milliy pul birligi qadrsizlanishiga olib keladi.

Emissiya siyosati va milliy valyuta barqarorligi pul siyosatining tarkibiy qismlaridir (yo‘nalishlaridir). Emissiya siyosati muomala uchun zarur bo‘lan pulning miqdorini aniqlashdan tashqari yana boshqa bir yo‘nalishga ega. Bu yo‘nalish byudjet daromadlarini ko‘paytirishdir. Ana shu yo‘nalish alohida ehtiyotkorlikni talab etadi. Chunki ma‘lum bir miqdoriy chegaradan o‘tilganidan so‘ng pul tizimi inflyasiyaga moyil (ta‘sirchan) bo‘lib qoladi, ya‘ni byudjet daromadlarining real qadrsizlanishi sodir bo‘lishi mumkin. Agar qandaydir bir sabablarga ko‘ra davlat o‘z pul tizimini tartibga solishga qodir bo‘lmasa, mamlakatning iqtisodiy xavfsizligiga putur yetadi. Chunki bunday sharoitda mamlakatning milliy valyutasi boshqa kuchli valyutalarning ekspansiyasiga qarshi turaolmaydi va milliy boylikdan mahrum bo‘lib qolish mumkin .

Kredit siyosati ham moliyaviy siyosatning tarkibiy qismi (yo‘nalishi) bo‘lib, uning namoyon bo‘lishi mamlakatning krediti tizimi orqali amalga oshiriladi. Kredit tizimi ssuda kapitalining faoliyatko‘rsatishini ta‘minlaydi. o‘z navbatida, ssuda kapitali takror ishlab chiqarish jarayonini amalga oshirishdgi muhim shart hisoblanib, aylanma mablag‘larni to‘ldirish va investitsiyalar uchun mablag‘larning qarzga olinishini ta‘minlaydi. Iqtisodiyotning kredit sektori o‘rtacha foyda normasini tenglashtirish uchun ham xizmat qiladi. Foiz stavkasi darajasi jamiyatdagi iqtisodiy faollikka salbiy ta‘sir ko‘rsatishi mumkin. U asossiz darajada yuqori bo‘lsa, quyidagi salbiy oqibatlariga olib keladi:

- kreditlarning qaytarilmasligi;
- ishlab chiqarish sohasi va xizmatlar sohasida mahsulotlar narxining o‘shishi;
- qarzga oluvchilar rentabellik darajasining pasayishi va buning oqibatda soliqqa tortiladigan bazaning qisqarishi;
- ishlab chiqarishning qisqarishi;
- takror ishlab chiqarish jarayoni subyektlari daromadlari pasayishi natijasida ichki iste‘mol bozorining torayishi.

Kreditning arzonlashuvi ishlab chiqarishning sog‘lomlashuviga, tovarlar massasi ortishiga, tovarlar va xizmatlar bahosi pasayishiga va ana shularning natijasida esa, takror ishlab chiqarish jarayoni subyektlari daromadlarining oshishiga, soliqqa tortish bazasi kengayishiga va byudjet daromadlari ko‘payishiga olib keladi.

Moliyaviy siyosatning tarkibiy qismi (yo‘nalishi) sifatida davlatning baho siyosati monopol tovar va xizmatlar bahosi va tarifining o‘zgartirilishi orqali ifodalanadi. Yer osti boyliklari, suv havzalari, temir yo‘llar, elektr uzatish tarmoqlari, neft va gaz quvurlari davlatning monopol egaligidadir. Bu tarmoqlar

tovarlari va xizmatlari bahosi o'sishi (ortishi) milliy xo'jalikning barcha boshqa sektorlarida baholar o'sishiga olib keladi. Bu yerda bog'lanish shunchalik ayonki, hech qanday izohga hojat yo'q. Shuning uchun ham baho siyosati iqtisodiyotni tartibga solishning muhim omili bo'lib hisoblanadi.

Investitsiya siyosati ham moliyaviy siyosatning tarkibiy qismlaridan (yo'nalishlaridan) biri bo'lib, u eng awalo, mamlakat iqtisodiyotining real sektoriga o'z va xorijiy investitsiyalarni jalb qilish uchun sharoitlar yaratish bo'yicha tadbirlar kompleksidan iborat. Bu siyosat davlat boshqaruvi va xo'jalik yurituvchi subyektlar moliyasini boshqarishga bog'liq turli darajalarda amalga oshiriladi. Investitsion siyosatning asosiy vazifasi mamlakat iqtisodiyotiga investorlar tomonidan moliyaviy resurslarni kiritish, mamlakatdan kapitalning «chiqib» ketmasligi va aksincha, mamlakatga xorijiy kapitallaroqimining kirib kelishi uchun sharoitlarni yaratish orqali ifodalanadi.

Ijtimoiy moliyaviy siyosat Konstitutsiyaga muvofiq mamlakat aholisining huquqlarini moliyaviy jihatdan ta'minlash bilan bog'liq. Hozirgi paytda bu siyosat, o'z navbatida, nafaqa siyosati, immigratsiya siyosati, aholining ayrim ijtimoiy guruhlariga moliyaviy yordam ko'rsatish siyosati singari sohalarni o'z ichiga oladi.

Boj siyosatini moliyaviy siyosatning tarkibiy qismi (yo'nalishi) sifatida qarash bilan birgalikda uni soliq va baho siyosatlarining ham bir qismi sifatida e'tiborga olish kerak. Chunki soliqlar va boj yig'implari tovar va xizmatlarning bahosiga bevosita ta'sir ko'rsatadi. Bir vaqtning o'zida boj siyosati mamlakat iqtisodiyotiga ta'sir ko'rsatishning o'ziga xos usuliga ham ega bo'ladi. Usulning o'ziga xosligi shundaki, bu siyosat bir tomondan, mamlakat ichki bozoriga import qilinayotgan tovarlar va xizmatlarni kengaytirishi yoki cheklashi, ikkinchi tomondan esa, mamlakatdan tovarlar va xizmatlar eksportini rag'batlantirishi yoki unga to'sqinlik qilishi mumkin. Masalan, mamlakatda mavjud bo'lmagan texnologik asbob-uskunani import qilishga 20% li boj yig'imi o'rnatilsa, bu narsa mamlakatdagi ishlab chiqaruvchilarning investitsion imkoniyatlarini kamaytiradi, ichki ishlab chiqarish o'sish sur'atlarini pasaytiradi, import mahsulotlari salmog'ini oshiradi.

Har qanday mamlakatning boj siyosati bumerang harakatiga egadir. Chunki boj undirishning cheklovchi yoki rag'batlantiruvchi hajmlarining joriy qilinishi xuddi shunday javob choraiari qo'llanilishini taqozo etadi. Boj siyosati yo'nalishi tanlanishi mamlakat iqtisodiy ahvoriga mos kelishi kerak. Agar biz bugun oziq-ovqat va kundalik ehtiyoj tovarlarining import qilinishiga bog'lanib qolsak, bu boj stavkalarida o'z aksini topmog'i lozim. Ammo boj stavkalari rag'batlantiruvchi bo'lsa, u holda mamlakatdagi tovar ishlab chiqaruvchilar xorijiy tovarlar bilan raqobat qila olmay qoladi.

Umuman olganda, aksari hollarda mamlakatning boj siyosati bojxona bojlari va to'lovlarini oshirishga yo'naltirilgan byudjet siyosatiga bog'liq bo'ladi.

Xullas, moliyaviy siyosat va uning tarkibiy qismlari (yo'nalishlari) iimiy jihatdan asoslangan, ma'lum bir maqsadlarga erishishga yo'naltirilgan,

muvoqlashtirilgan, takror ishlab chiqarish subyektlarining manfaatlariga zid kelmaydigan bo‘lishi kerak. Uning muvaffaqiyatli amalga oshirilishi davlat ichki va tashqi qarzlari kamayishiga, davlatning oltin-valyuta zaxiralari ortishiga, inflyasiyani jilovlashga, byudjet defitsitining kamayishiga, YalM ko‘payishiga, mamlakat tovarlarining raqobatbardoshligi kuchayishiga olib kelmog‘i lozim.

Moliyaviy siyosat real moliyaviy imkoniyatlarni hisobga olgan holda ishlab chiqilishi va tatbiq etilishi zarur. Xarajatlar moliya resurslarining ko‘paygandagina o‘shishi mumkin. Bu, eng awalo, ishlab chiqarishni moliyalashtirishni bildiradi. Iqtisodiy va moliyaviy siyosatning hamma tadbirlari, bir tomondan, aholiga o‘z daromadlarini oshirish imkoniyatini berish, ikkinchi tomondan esa tadbirkorlik faoliyatini rivojlantirish uchun maqbul sharoitlarni yaratishga qaratilishi kerak.

Moliyaviy siyosatning tubdan o‘zgarishiga mos ravishda moliya mexanizmi ham qayta qurilmog‘i lozim. Moliya mexanizmini qayta qurishdan asosiy maqsad bozor munosabatlari zamirida ijtimoiy ishlab chiqarish samaradorligiga uning ta’sirini kuchaytirish, moliya resurslaridan foydalanish samaradorligini oshirishni ta’minlashdir. Moliya mexanizmini qayta qurish negizida korxonalar, tashkilotlar ishining yakuniy natijalarini yaxshilash uchun xo‘jalik tashabbuskorligi va mas’uliyatini butun choralar bilan kuchaytirish talab qilinadi.

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**TAQIR O'TLOQI TUPROQLAR SHAROITIDA POMIDORNING
BO'RON NAVIDAN YUQORI HOSIL YETISHTIRISHDA AZOTLI
O'G'ITLAR ME'YORI (ISSIQXONA MUHITIDA)**

***Annotatsiya:** Termiz tumanida tarqalgan sug'oriladigan taqirli-o'tloqi tuproqlar sharoitida pomidorning bo'ron navidan yuqori hosil yetishtirishda mineral o'g'itlarning $N_{300}P_{120}K_{100}$ maqbul me'yor va azotli o'g'itlarni muddatlarini ishlab chiqilishi, yillik azotli mineral o'g'itlarning 20 foizini ko'chat ekilgandan keyin, 30 foizini gullash davrida, 50 foizini yoppasiga meva tugish davrida qo'llash lozimligi, mineral o'g'itlarni maqbul me'yorda qo'llash tuproqlarning agrokimyoviy xossalariiga ijobiy ta'sir etishi, pomidor hosildorligi 75 t/ga, rentabellik darajasi 53 foizga oshishiga xizmat qiladi.*

***Kalit so'zlar:** Tuproq oziq moddasi, mineral azot, nitrat, ammoniy, azotli o'g'it, issiqxona, pomidor, o'sish, rivojlanish.*

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**THE RATE OF NITROGEN FERTILIZERS IN GROWING HIGH
YIELD OF TOMATOES IN THE CONDITIONS OF BARREN MEADOW
SOILS (IN GREENHOUSE ENVIRONMENT)**

***Annotation:** lies in the fact that under the conditions of irrigated barren meadow soils common in the Termez region, with the development of the optimal norm of mineral fertilizers ($N_{300}P_{120}K_{100}$) and the duration of the use of nitrogen fertilizers when cultivating a high yield of a thunderstorm tomato variety, it is necessary to apply 20% of annual nitrogen mineral fertilizers after planting seedlings, 30% during the flowering period and 50% during the fruiting period. The use of mineral fertilizers in an acceptable amount has a positive effect. on the agrochemical properties of the soil will increase tomato yield by 75 t/h and profitability by 53%.*

Keywords: *Soil nutrition, mineral nitrogen, saltpeter, ammonium, nitrogen fertilizer, greenhouse, tomato, growth, development.*

Mavzuning dolzarbligi. Hozirgi kunga kelib pomidorning 1000 dan ortiq turli xil navlari ochiq va issiqxona muhitida yetishtirilib kelinmoqda. Keyingi yillarda respublikamizda sabzavot ekinlari ichida sevib iste'mol qilinadigan pomidor yetishtirishni keng joriy etish va aholini ushbu mahsulot bilan uzluksiz ravishda ta'minlash maqsadida keng qamrovli chora tadbirlar amalga oshirilmoqda. Buning natijasida issiqxona va ochiq muhitda pomidor yetishtirish texnologiyasi takomillashtirilib, sifatli pomidor va yuqori pomidor hosili olishga erishildi. O'zbekiston Respublikasi Prezidentining qarori, 26.02.2021 yildagi PQ-5009 sonli O'zbekiston respublikasi qishloq xo'jaligini rivojlantirishning 2020-2030 yillarga mo'ljallangan strategiyasida " tuproqning unumdorligi va qishloq xo'jaligi ekinlari hosildorligini oshirish, sug'oriladigan yerlarning meliorativ xolatini yanada yaxshilash, ekologik toza mahsulotlar ishlab chiqarishni kengaytirish, yer resurslaridan samarali va oqilona foydalanish" bo'yicha muhim vazifalar belgilab berilgan.

Hozirda dunyo bo'yicha pomidor ekilgan maydonda ekilgan turlarida hosildorligi yiliga 80-100 t/ga, issiqxonalarda 180-200 t/ga, gidroponika sharoitida esa 250-350 t/ga yetmoqda. Issiqxonada ekiladigan sabzavot ekinlari ichida pomidor asosiy yetishtiriladigan ekin turi hisoblanadi. Mamlakatimiz issiqxona sabzavotchiligidagi mavjud muammolarni va kamchiliklarni bartaraf etish, zamonaviy texnologiyalarni ishlab chiqarishga joriy etish, hosildorlikni oshirish omillarini izlash muhim ahamiyatga ega. Buning uchun pomidorning biologik xususiyatlari, issiqxonalarda uni turli davrlarda yetishtirishda ta'minlanadigan tuproq shart-sharoitlarni, navlarni to'g'ri tanlash, o'simliklarni parvarishlash va o'g'itlash kabi barcha texnologik elementlarni chuqur o'rganish va ularni ishlab chiqarish sharoitida qo'llay olib yuqori hosil olishga erishish eng dolzarb masaladan biridir. So'ngi yillarda davlatimiz chiqarayotgan qarorlar va normativ hujjatlar qishloq xo'jaligida yetishtirilayotgan oziq ovqat mahsulotlarini axolining ehtiyojidan kelib chiqqan holda yetishtirish, doimiy ichki bozor talabini bajarishga qaratilgandir.

Tadqiqotning ob'ekti. Issiqxonaning sug'oriladigan taqir-o'tloqi tuproqlari, pomidorning Bo'ron navi, mineral o'g'it karbamid.

Tadqiqotning predmeti. Tuproqlarning agrokimyoviy pomidorning o'sishi va rivojlanishi, hosili, uning sifati hisoblanadi. xossalari,

Tadqiqotning maqsadi. Taqirli o'tloqi tuproqlar sharoitida pomidorning Boron navidan yuqori hosil yetishtirishda azotli o'g'itlar me'yori ishlab chiqish (issiqxona muhitida).

Tadqiqotning vazifalari.

Azotli o'g'itlarning sug'oriladigan taqir o'tloqi tuproqlarning agrokimyoviy xossalriga ta'sirini aniqlash;

taqir o'tloqi tuproqlarda pomidor o'simligini o'sishi va rivojlanishiga azotli mineral o'g'itlarni ta'sirini aniqlash; taqir o'tloqi tuproqlarda pomidordan yuqori hosil yetishtirish uchun azotli mineral o'g'itlarning maqbul me'yorini qo'llash va muddatlarini aniqlash;

Mineral o'g'itlar pomidorning sifati va hosildorligini oshirishda muhim ahamiyat kasb etadi. Tuproqning tabiiy iqlim sharoitidan kelib chiqib pomidorga o'g'itlarni qaysi muddatda va maqbul me'yorda berish bu yuqori hosilning garovidir, O'g'itlarni noto'g'ri vaqtda va noaniq miqdorda qo'llash u umumiy hosil dorlikni sezilarli darajada tushirib yuboradi. Ilmiy manbalarga asosan ekinlar hosildorligi va hosil sifati mineral o'g'itlar ta'sirida o'simlik tanasida ro'y beradigan fiziologik jarayonlar xususiyatlariga bog'liqdir. Xar-hil me'yordagi azotli o'g'itlarning pomidor hosildorligiga ta'sirini aniqlash maqsadida (issiqxona muhitida) pomidorning bo'ron navi ekilib ularga har-xil me'yordagi azotli o'g'it berib sinaldi. Umuman, pomidordan yuqori va sifatli hosil olish bugungi kunda shu sohaning dolzarb masalalaridan biri hisoblanadi. O'simliklar xususan pomidorni oziq moddalarga bo'lgan talabi, gullash, shonalash, va hosil to'plash davrlarida ortadi. Ushbu davrda kelib ba'zi poliz va sabzavot ekinlari ular tomonidan oson o'zlashtiriladigan, oson singuvchi mineral o'g'itlarga ko'proq zarurat sezadi. Bu kabi o'g'itlar jumlasiga karbomid, qo'shsuperfosfat xlorsiz kaliylar kiradi. Ammo shuni yodda tutish kerakki, bu bilan xuddi shu o'g'itlar bilan cheklanib qolish kerak degan xulosaga kelib qolmaslik lozim. Tajribada bir xil ko'chatlar sonida turli me'yordagi mineral o'g'itlar ta'sirida hosil to'plashi va bir dona pomidorning vazniga ta'siri o'ziga hos bo'ldi. O'g'it qo'llanilmagan nazorat variantida bir dona pomidor ko'chatda 10 dona pomidor shakillangan bo'lib, uning vazni 50 grammdan oshmagan holda o'rtacha 1 tupda 0,500 gr hosil to'plandi. $N_{300}P_{300}K_{150}$ fonidagi variantda bir dona o'simlikdagi mevalar soni 18-20 dona, bir dona pomidor mevasining o'rtacha og'irligi 150-170 grammni tashkil etib 1 tupda hosildorlik o'rtacha 3kg ni tashkil etganligi aniqlandi. $N_{250}P_{250}K_{125}$ fonidagi variantda bir dona o'simlikdagi mevalar soni 16-18 dona, bir dona pomidor mevasining og'irligi 140-160 grammni tashkil etib 1 tupda hosildorlik o'rtacha 2,700 kg ni tashkil etganligi aniqlandi. Hosildorlik bo'yicha eng past ko'rsatkich $N_{350}P_{350}K_{175}$ fonidagi variantda kuzatildi Bunda pomidor o'simligida vegetativ o'suvchi novdalarning kuchli o'sib taraqiy etishi, meva tugishi kamayib ketib 1 tup ko'chatda hosildorlik 1,500 kg ni tashkil etdi.

Xulosa qiladigan bo'lsak issiqxona muhitida o'stirilgan pomidor ekinining o'sish va rivojlanishi bo'yicha olib borgan kuzatuvlar natijasida ob-havoning va ayniqsa azotli mineral o'g'itlarning hissasi katta ekanligi aniqlanadi. Vaholanki azotli mineral o'g'itlar pomidor ekinining o'sishi jarayonlariga, shuningdek gullar va mevalarning shakllanishi uchun eng kerakli bo'lgan mineral o'g'itdir.

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THE ESSENCE OF TEACHING FOLK INSTRUMENTS

***Abstract.** This article describes the history and improvement of folk instruments, the President's attention to art, decisions, the importance of music culture today, the place of Uzbek folk instruments in music, the study of folk instruments, and the content of teaching.*

***Keywords:** national, music, festival, folklore, musical instrument, art, performance, culture, international.*

Without developing the sense of beauty in a person's heart, it is impossible to talk about a spiritually perfect person. Therefore, music, which has a powerful power, covers the human heart with its charm and leads it to beauty. That is why it is not for nothing that music is called "the heart of the people, the nation".

Thanks to the great attention paid by President Sh. M. Mirziyoyev to the development of the sphere of culture and art, the national art of music began a new period of its development. As a practical result of these reforms, it is worth noting the large international festivals and competitions held in different regions of our Republic. In particular, the "International Status Conference" held in Shahrisabz, the "International Art of Giving" festivals held in Surkhandarya and the Republic of Karakalpakstan, the "Great Silk Road" International Folklore Music Festival in Margilan, The organization of major cultural events, such as the "International Handicrafts" festival held in Kok, is an opportunity to present our national culture to the world community and exchange experience with them in the field of culture and art, to strengthen cultural and spiritual relations, to promote international cultural serves to expand relations and widely spread Uzbek national culture and art.

President Sh.M. According to the decision PQ-112 "On additional measures for the further development of the sphere of culture and art" signed by Mirziyoyev on February 2, 2022 - from the academic year 2022-2023 in educational institutions, a number of measures aimed at increasing the cultural knowledge and skills of pupils and students, love for national culture, identifying and supporting young talents are carried out [1]. In particular, schoolchildren are taught the skill of playing at least one of the national musical instruments, and a note about this is included in their educational document and certificate.

Music teachers have huge responsibilities. It is appropriate to use five activities when passing music culture lessons [2, 3]. These activities are: musical literacy, listening, singing as a group, performing rhythmic movements to music, and accompanying musical instruments. Music teachers must have the ability to

play at least one of the national instruments, and at least three from the 2023-2024 academic year [4,5].

They are allowed to take music lessons and conduct club activities while maintaining their salary at the main place of work. In the music classes, "instrument performance" classes are organized under the slogan "Instrument accompanies my life".

In general secondary educational institutions:

To this decision, the skill of playing tunes on at least one of the national musical instruments listed in Appendix 1 is taught, and a corresponding note is included in their educational document;

There is one study hour per week for music, and in addition, practical circles and optional lessons on playing tunes on national musical instruments are held every week.

In general secondary, secondary special, professional and higher educational institutions:

Lecture concerts will be held by the State Philharmonic of Uzbekistan and its regional departments in cooperation with other cultural institutions;

Lecture concerts are organized in educational and cultural institutions and consist of practical exercises aimed at improving the musical culture and literacy of pupils and students, expanding their aesthetic taste, worldview, and feeling music;

The head of the appropriate educational and cultural institution, district, city administration or other responsible organization and the general director of the Uzbekistan State Philharmonic draw up a certificate about the holding of lecture concerts.

General secondary educational institutions, children's music and art schools, cultural centers:

- In 2022-2024, 3 sets of national musical instruments will be provided in accordance with the plan and schedule specified in Appendix 1 to this decision;

- the costs of providing sets of national musical instruments are financed from the funds allocated in equal shares from the republican budget of the Republic of Uzbekistan and relevant local budgets;

- collections of national musical instruments are centrally purchased by the regional departments of the Ministry of Culture and the Ministry of Public Education.

At the moment, special attention is being paid to providing the schools of our Republic with music collections and special musical literature. During 2022-2024, ten thousand three hundred schools, three hundred and twenty-three children's music schools, eight hundred and twenty-six cultural centers will be provided with three sets of seven types of national musical instruments. For this purpose, a total of two hundred and five billion soums will be allocated from the republican and local budgets in equal shares.

Also, in 2022, ninety-two billion soums were allocated for the organization of practical circles for students in the fields of national musical instruments, fine and applied arts, and handicrafts.

Musical instruments, sound amplifier devices, technical equipment, lights, special clothes that are not produced in Uzbekistan will be exempted from customs duty until January 25, 2025.

As long as a person cannot feel the beauty embodied in the external world that surrounds him, in the people he communicates with in the society he lives in, and in the examples of artistic creations that were formed historically and practiced in a certain period, he will never reach the level of a spiritually perfect human being. cannot rise. Music gives a person aesthetic pleasure and allows him to feel the beauty around him. Music is one of the powerful means of forming and educating these delicate feelings. Musical instruments are a tool that glorifies the spirituality of humanity in tunes, that is, a product of human creativity, and it is one of the main tools that express the socio-cultural life processes of every nation. The melodies emitted by the instruments are created based on the spirit of the people. The Uzbek people have a rich ancient musical heritage, in which the role of musical instruments is of particular importance. Our musical instruments are considered the material and cultural wealth of our people, and they play an important role in the understanding of our cultural history and the development of our national culture, like other areas. It is known from history that at one time the Great Silk Road connecting Western and Eastern countries passed through the territory of Uzbekistan, which caused the culture of other nations to enter our land and spread our culture to the culture of other nations. This, by itself, created the ground for the rise of all fields, especially the development of music culture, like other fields, and the preservation of many musical instruments in the territory of our country. Uzbek folk instruments have been developing over centuries in a form suitable for all branches of music in their own way.

Historical manuscripts list the names of all musical instruments used in the practice of the peoples of Central Asia. Musical brochures contain information about musical instruments. Among them are Borbad string instruments - oud, rud, kobiz, gijjak, navha, nuzkha, kanon, chang rubob, tanbur, dutor; from musical instruments - ruhafza, shammoma, organun, sibizga, nayi, anbon, chagana, bulamon, trumpet, flute, koshnay, trumpet; Various levels of information about musical instruments such as tambourine, circle, drum, safoil are given.

Musical instruments have also developed in line with the passage of time and social development, and have been improved and perfected in accordance with the times. Along with modern music, family examples of folk instruments such as chang, rubob, dutor, gijjak were created. Due to the modern process, various compositions of musical instruments suitable for different directions have appeared. Various types of traditional, reworked, improved, restored, new modern musical instruments are widely used in practice. In the process of improvement, the enrichment of the musical instruments' form and singing capabilities has

gained great importance. These two criteria served as the basis for defining the spiritual and material value of the instruments.

Formation of musical instrument performance skills.

Mastering the skill of playing an instrument first of all involves sitting correctly, holding the sound of the instrument correctly, mastering the culture of making sound, forming the performance movements correctly, and fully observing the rules of collective performance:

- during the performance, the body should be held in such a way that it is comfortable for all actions of the performer and looks beautiful;

- it is customary to sit in the middle of the seat without leaning on the backrest, the left legs of the musicians are placed in front and the right legs are placed behind;

- the correct position of the right hand, freedom of executive movements is achieved;

- the left hand should not squeeze the handle, the palm should not touch the handle, it should be free;

- it is necessary for the musicians to sit carefully when starting the tune, to start together with the leading musician or the *auftaki* of the circle;

- when completing the tune, it is necessary to pay attention to the completion of the whole ensemble in one breath according to the same circle method;

- in the performance of the ensemble, it is necessary to observe the culture of collective performance, to sit carefully during the performance, not only to control the sound of one's own voice, but also the general sound of the ensemble and, accordingly, the sound of one's own voice;

- choosing a comfortable and correct position for performance, keeping hands free, properly mastering the culture of sound production are part of the content of the general requirements for the performance of each song.

There are more than 30 types of national musical instruments used in performance practice in Uzbekistan. Among them, 18 musical instruments were created after the 1940s by professor A.I. These are musical instruments developed in collaboration with a group of experts and musicians led by Petrosyans, and are intended for use as soloists on concert stages, but also mainly in orchestras and polyphonic ensembles. It was created on the basis of enlarging or reducing the shape of pre-existing national musical instruments, and it was the experiments carried out to create that family of instruments, resulting in the *nay*, *chang*, *rubob*, *dutor*, g the family of *ijjak* instruments was born. Musical instruments included in the composition of traditional folk instruments: *tanbur*, *dutor*, *sato*, *rubob*, *oud*, *flute*, *sunray*, *koshnai*, *trumpet*, *gijjak*, *chang*, *law*, *circle*, *drum*. Words used in folk art include *chanqobiz*, *sibizgi*, *safoil*. Samples of reworked musical instruments - *rubob*, *gizjak*, *dutor* and *chang* words, reworked according to the criteria of soprano, alto, tenor, bass voices of music.

The performance of traditional instruments has been formed in the practice of folk performance since ancient times, and it has been a tradition to use it based on various forms and compositions. First of all, each of the traditional instruments has a high professional level of individuality. In the practice of folk performance, corresponding performance opportunities, conditions and methods of employment have arisen.

Trumpets, sunrays, drums and a group of drum and percussion instruments formed in performance practice since ancient times and became an active participant in all public events of our nation. Ensembles of traditional musical instruments were used based on their characteristics. In order to have a large-scale and large voice in the performance, a large ensemble of instruments was formed from all instruments.

Conclusion. In conclusion, it should be said that it is our duty to convey the essence of Uzbek national music and Uzbek folk instruments to the younger generation, and we must preserve our musical heritage. We should introduce our Uzbek music to the world by learning the folk instruments that are our national musical heritage, using the possibilities of our Uzbek national songs, and playing various pieces.

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ОПРЕДЕЛЕНИЕ ОСНОВНЫХ ПАРАМЕТРОВ ВОЛОСАТОГО СЕМЯНОСОРТИРОВОЧНОГО УСТАНОВКИ МЕТОДОМ МАТЕМАТИЧЕСКОГО ПЛАНИРОВАНИЯ

Аннотация: В статье представлены результаты определения основных параметров усовершенствованной части узла сортировки удобрений на основе многофакторных экспериментов, в результате угол отклонения узла перегрузки удобрений относительно горизонтальной плоскости составляет 47 градусов; расстояние между гребнями гранулирующего гребенчатого устройства в сортировочной камере - 19 мм; Определено, что угол наклона гребенчатого устройства к стенке агрегата равен 32 градусам.

Ключевые слова: сортировочный агрегат, ЧСА, волосистое семя, желоб, масса семян, семенная фракция, техническая фракция.

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DETERMINATION OF THE BASIC PARAMETERS OF A HAIRY SEED SORING PLANT BY MATHEMATICAL PLANNING METHOD

Abstract. The article presents the results of determining the main parameters of the improved part of the fertilizer sorting unit based on multifactorial experiments, as a result, the angle of deviation of the fertilizer overload unit relative to the horizontal plane is 47 degrees; the distance between the ridges of the granulating comb device in the sorting chamber is 19 mm; It is determined that the angle of inclination of the comb device to the wall of the unit is 32 degrees.

Key words: *sorting unit, CHSA, hairy seed, gutter, seed mass, seed fraction, technical fraction.*

Актуальность. За счет повышения эффективности приемного бункера УПС при передаче семян в сортировщик увеличивается скопление ворсистых семян в куче и снижается возможность их сортировки. Таким образом, разбрасывание волосатых семян на гумне и распределение семян в сепарационную камеру порциями приводит к повышению эффективности сортировки. Поскольку семена при движении в ворсистом состоянии прилипают друг к другу, более вероятно, что семена попадут в бункер для фракций.

При изготовлении гребенчатого устройства берут толстостенную трубу диаметром 20 мм, отверстия раскрывают по линии и сажают сваи с пазом. Чтобы обосновать расстояние между сотовыми сваями, во-первых, расстояние между сваями рассчитано на проход одного семени, и на основе экспериментов можно определить расстояние между сваями, которые забиваются в канавку.

В результате первоначальных экспериментов были выбраны факторы, наиболее влияющие на эффективность сортировки агрегата ЧСА: угол отклонения системы подачи семян относительно горизонтальной плоскости X_1 ; расстояние между сотами сортировочного гребенчатого устройства в сортировочной камере X_2 ; угол наклона гребенчатого устройства относительно стенки заполнителя X_3 . В качестве критерия предела оценки качества сортировки принимали прибавку U_1 массы 1000 семян во фракции семян, поскольку выход семян или технической фракции непостоянен по показателю плодovitости [1-10].

В опытах были взяты семена селекции Бухара-102 и проведен их первичный анализ: зернистость пыльцы - 9,2 %, масса 1000 пыльцевых зерен - 118 грамм, загрязненность - 1,1 %, влажность - 8,2 %, механическое разрушение пыльцы - 3,3 %.

На основании предварительных экспериментов ступени и интервалы действия факторов, влияющих на эффективность сортировки, представлены в таблице 1.

Таблица 1

Факторы и шаг и интервал

| Нет | Факторы | Он умер. | Определение факторов | | Шаг | Диапазон факторов | | |
|-----|--|----------|----------------------|-------|-----|-------------------|----|----|
| | | | ест | Код | | -1 | 0 | 1 |
| 1 | Угол отклонения системы подачи семян относительно горизонтальной плоскости | степень | б | x_1 | 10 | 35 | 45 | 55 |

| | | | | | | | | |
|---|---|---------|---|-------|----|----|----|----|
| 2 | Расстояние между сотами сортировочного гребенчатого устройства в сортировочной камере | мм | л | x_2 | 8 | 8 | 16 | 24 |
| 3 | Угол наклона гребенчатого устройства относительно стенки заполнителя | степень | а | x_3 | 15 | 15 | 30 | 45 |

Для проведения экспериментальных испытаний использовался полностью факторизованный метод планирования PLANEXP-2 второго порядка V_3 [4, 5]. В таблице 2 представлена матрица планирования V_3 , результаты экспериментов и результаты экспериментов .

Таблица 2

Результаты экспериментов по увеличению массы U_1 на 1000 зерен

| Нет | Входные параметры | | | Выходные параметры | | | Средний балл | Дисперсия |
|-----|-------------------|-------|-------|--------------------|---------|---------|--------------|-----------|
| | x_1 | x_2 | x_3 | счет 1-1 | Это 1-2 | Это 1-3 | | |
| 1 | -1 | -1 | -1 | 1,5 | 1.1 | 1,6 | 1,400000 | 0,070000 |
| 2 | 1 | -1 | -1 | 1,8 | 1,5 | 1,6 | 1,633333 | 0,023333 |
| 3 | -1 | 1 | -1 | 1,5 | 1,7 | 1,8 | 1,666667 | 0,023333 |
| 4 | 1 | 1 | -1 | 2,8 | 3.0 | 3.1 | 2,966667 | 0,023333 |
| 5 | -1 | -1 | 1 | 1,6 | 1,8 | 1,8 | 1,733333 | 0,013333 |
| 6 | 1 | -1 | 1 | 2,8 | 2.6 | 2.6 | 2,666667 | 0,013333 |
| 7 | -1 | 1 | 1 | 1,8 | 1,6 | 1,7 | 1,700000 | 0,010000 |
| 8 | 1 | 1 | 1 | 3.0 | 2,8 | 2,8 | 2,866667 | 0,013333 |
| 9 | -1 | 0 | 0 | 2,5 | 2.2 | 2.6 | 2,433333 | 0,043333 |
| 10 | 1 | 0 | 0 | 3.2 | 3.0 | 3.4 | 3.200000 | 0,040000 |
| 11 | 0 | -1 | 0 | 3,5 | 3.3 | 3.6 | 3,466667 | 0,023333 |
| 12 | 0 | 1 | 0 | 3,8 | 4.0 | 3,9 | 3,900000 | 0,010000 |
| 13 | 0 | 0 | -1 | 3.7 | 3,5 | 3.2 | 3,466667 | 0,063333 |
| 14 | 0 | 0 | 1 | 3,8 | 3,5 | 3.7 | 3,666667 | 0,023333 |

t_2 массы 1000 семян табличный индекс критерия Стьюдента $T(28)=2,048$, табличный индекс критерия Кохрана $G(2, 14)=0,3539$, расчетный индекс критерия Кокрена равна $0,1779661$, а дисперсия повторяемости = равен $2,809524E-02$.

Было получено уравнение регрессии для U_1 от 1000 массы семян:

$$Y_1 = 3,994 + 0,440X_1 + 0,220X_2 + 0,150X_3 - 1,177X_1^2 + 0,163X_1X_2 + 0,071X_1X_3 - 0,310X_2^2 - 0,179X_2X_3 - 0,427X_3^2 \quad (1)$$

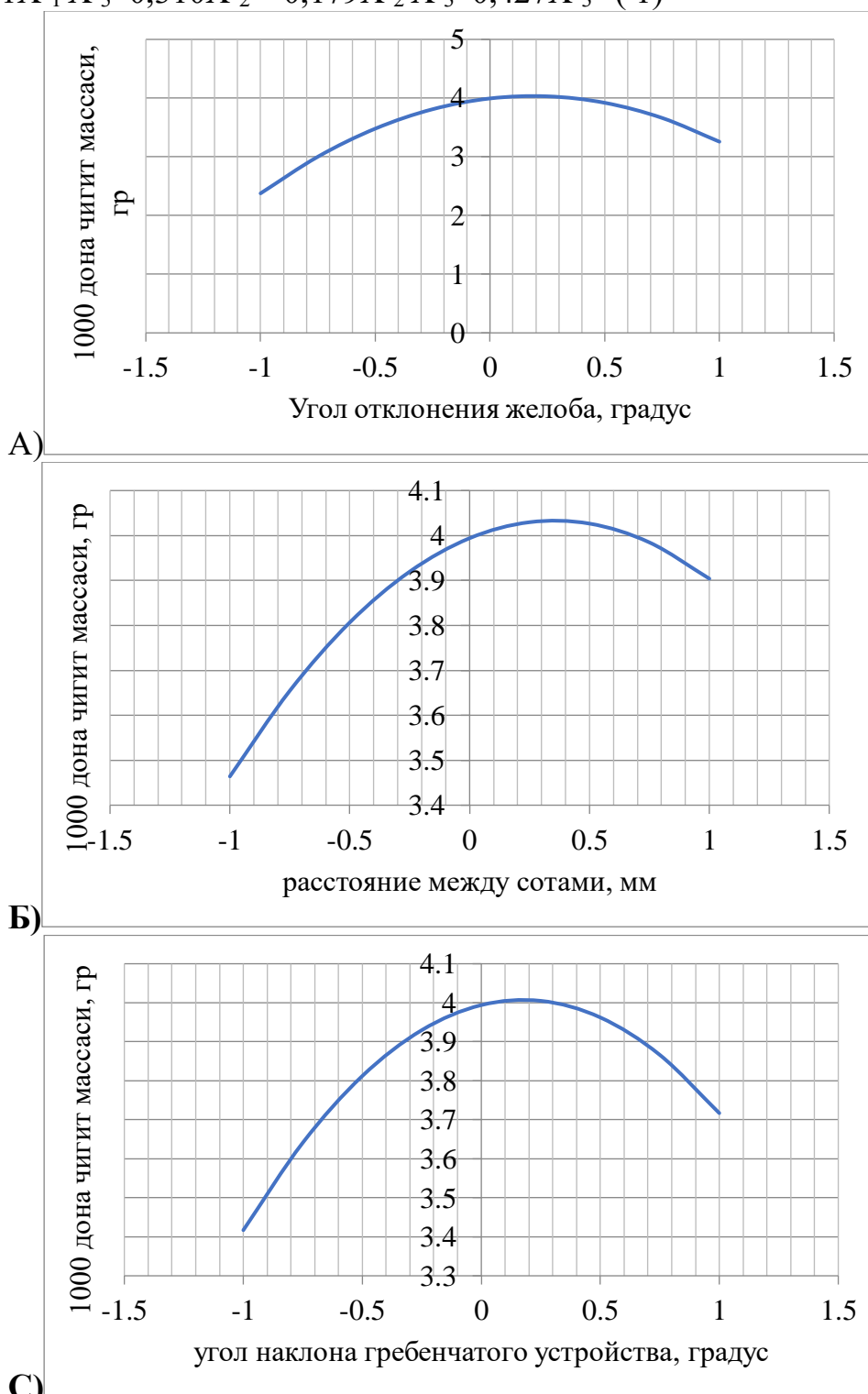


Рис. 1. Графики зависимости изменения массы 1000 семян в сортировщике от всех входных факторов

Проверка адекватности математической модели (1) показала, что: дисперсия адекватности = $2,527779E-02$, индекс критерия Фишера = равный

2,699154, табличный индекс критерия Фишера, равный $FT(4, 28) = 2,71$, показал адекватность модели.

Расчеты, полученные по результатам обработки, были представлены в виде графиков (рис. 1).

На графике А) рис. 3 видно, что масса 1000 семенных семян увеличивается при увеличении угла отклонения семяприемного бункера относительно горизонтальной плоскости до уровня основания, наоборот, дальнейшее увеличение угол бункера влияет на движение семян, и семена, которые застревают в волосатых бункерах до того, как успеют измельчиться в процессе течения, также включаются в семенную фракцию за счет вызванного увеличения мелких семян в семенной фракции. уменьшение массы 1000 семян.

Б) на графике увеличение расстояния между гребенками гребенчатого устройства, установленного в сортировочной камере оборудования, положительно влияет на массу 1000 семян семенной фракции, а при увеличении расстояния - на зернистость семян снижается, причем из графика видно отрицательное влияние на массу семян семенной фракции. Это объясняется смешением технической фракции с затравочной фракцией.

В) из графика видно, что гребенчатое устройство, установленное в сортировочной камере, оказывает положительное влияние на массу 1000 семян семенной фракции вплоть до базового значения угла наклона относительно вертикальной стенки агрегата, а за счет ее увеличение от базового значения влияет на направление полета семян и приводит к прохождению даже мелких семян в камеру семенной фракции, а также вызывает уменьшение массы семян.

Из анализа графиков мы видим справедливость уравнения регрессии.

Рассмотрен вопрос оптимизации с целью определения оптимальных значений сортировочной камеры .

Граничные условия:

$U_1 - 1000$ прибавка массы семян, макс .

Полученная оптимизационная задача была рассчитана с использованием метода случайного поиска и современных компьютерных программ и были получены следующие приемлемые решения (табл. 3):

Таблица 3

Результаты оптимизации математической модели

| Факторы | x_1 | x_2 | x_3 |
|----------------|----------|----------|----------|
| Закодированный | 0,216591 | 0,378795 | 0,114255 |
| Естественный | 47 166 | 19 030 | 31714 |
| Интеграция | 47 | 19 | 32 |

Таким образом, по результатам проведенных экспериментов угол отклонения системы подачи семян относительно горизонтальной плоскости

составляет $X_1 = 47$ градусов; расстояние между гребнями гранулирующего гребенчатого устройства в сортировочной камере $X_2 = 19$ мм; Определено, что угол наклона гребенчатого устройства относительно стенки агрегата равен $X_3 = 32$ градуса.

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КОНЦЕПТУАЛЬНЫЕ ОСНОВЫ РАЗВИТИЯ ТВОРЧЕСТВА ДЕТЕЙ ДОШКОЛЬНИКОВ

***Аннотация:** Обеспечение эстетического воспитания детей, создание условий для проявления каждым ребенком своих творческих способностей является одной из важных задач в области образования. Чувство красоты, высокий эстетический вкус, умение понимать и ценить красоту и богатство народных промыслов должны формироваться у ребенка с раннего возраста. Оно служит формированию богатого духовного развития человека. Развитие творческих способностей у детей – сложный и длительный процесс, дети получают первые художественные впечатления, знакомятся с искусством, осваивают различные виды художественной деятельности.*

***Ключевые слова:** творчество, дошкольники, рисование, лепка, аппликация, изобразительные навыки и умения, изобразительная деятельность, качество изображения.*

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CONCEPTUAL FOUNDATIONS FOR THE DEVELOPMENT OF CREATIVITY OF PRESCHOOL CHILDREN

***Abstract:** Providing aesthetic education for children, creating conditions for each child to demonstrate their creative abilities is one of the important tasks in the field of education. A sense of beauty, high aesthetic taste, the ability to understand and appreciate the beauty and richness of folk crafts should be formed in a child from an early age. It serves to form a rich spiritual development of a person. The development of creative abilities in children is a complex and lengthy process, children get their first artistic impressions, get acquainted with art, and master various types of artistic activities.*

***Keywords:** creativity, preschoolers, drawing, modeling, application, visual skills and abilities, visual activity, image quality.*

Движущей силой человечества являются творческие личности. Сегодня существует большая потребность в таких личностях, которые отличаются нестандартным мышлением, умеют находить уникальные решения, смело выдвигают неожиданные идеи и гипотезы, умеют быстро

перестраиваться и адаптироваться в быстро меняющемся мире. В связи с этим проблема творческого развития молодого поколения является приоритетом образования, что требует активизации педагогических исследований как в науке, так и в практике школьного образования. В отечественной и зарубежной науке существует множество определений понятия «творчество». В произведении С. И. Ожегова: «Творчество – это создание новых культурных и материальных ценностей по плану». Н. Роджерс пишет: «Творчество — это способность находить новые решения проблем или открывать новые способы выражения; привести в жизнь человека что-то новое. Е.И.Яковлева понимает творчество как осознание человеком своей индивидуальности.

Изобразительная деятельность, включающая рисование, лепку, аппликацию, имеет большое значение для всестороннего развития детей дошкольного возраста.

Дети дошкольного возраста могут приобретать изобразительные навыки и способности. К шести годам он обладает достаточными навыками и может сознательно ими пользоваться, самостоятельно выбирает необходимые приемы при описании новых предметов. В научных исследованиях детского творчества отмечен ряд особенностей, характеризующих наличие творческих начал в деятельности ребенка. Это проявление активности, самостоятельности и инициативы в применении полученных методов работы к новому содержанию, в поиске новых способов решения проблем, в эмоциональном выражении своих чувств с помощью различных изобразительных средств. Первоначально познание окружающего в изобразительной деятельности ребенка не связано с творческими демонстрациями и заключается в знании свойств материала, с которым действует ребенок: карандаши и краски оставляют следы на бумаге, глина мягкая, из нее можно сделать скульптура из него. Этот период играет важную роль для дальнейшей изобразительной деятельности в развитии творческих начал, поскольку ребенок знакомится с материалом, способным отразить его идеи в образах. Когда он начинает понимать, что следы, оставленные карандашом, что-то значат, пытается нарисовать какой-либо предмет по своей просьбе или по предложению взрослых, тогда его деятельность становится изобразительной. У ребенка есть план, цель, к которой он стремится. В процессе работы ребенок заполняет и реализует этот план по содержанию. Психологическое состояние изображенных персонажей дети могут передать упрощенно, с помощью простых деталей: плач со слезами, смех с приподнятыми уголками рта, вызывание страха и т. д. Более сложные средства выражения эмоций, например, выражение лица недоступно для дошкольников. Но помимо этих основных выразительных особенностей изображения дети часто рисуют траву, самолет в воздухе, пытаюсь заполнить пробелы на бумаге. Наиболее удобным выразительным средством для ребенка дошкольного возраста является использование цвета.

В изобразительном искусстве (живопись, графика) цвет является важным средством выражения художественной цели и идеи произведения. Его использование тесно связано с содержанием произведения, так как не имеет самостоятельного значения. Цветовые контрасты используются, чтобы подчеркнуть главное в картине; Цвет указывает на настроение : темные, приглушенные тона – в картинках грустного содержания, яркие, насыщенные – в радостных тонах. Конечно, дошкольник не может использовать цвет столь разнообразно и изначально воспринимает его как самостоятельную величину, не связанную с собственно цветом предмета. Ребёнок любит всё раскрашивать карандашами, красками любого цвета. Знакомясь со многими цветами, дети часто используют их как выразительное средство, помогающее сделать изображение более красивым, нарядным, т. е. используют его декоративно. Здесь также имеет место нарушение истинного цвета, поскольку ребенка вначале привлекают яркие контрастные сочетания цветов. Эта декоративность иногда может противоречить характеру изображения. Постепенно старшие дошкольники осваивают разные оттенки и отходят от декоративной окраски. С развитием восприятия и эстетического чувства начинают использовать цвет для передачи настроения изображения.

Развитие творческих способностей педагог начинает с обучения «азбуке» изобразительной деятельности, постепенно расширяет арсенал выразительных изобразительных средств. Эти первые элементарные шаги помогают детям овладеть технологичными, рациональными приемами изображения, без которых невозможен полет детской мысли и фантазии. Поскольку роль цвета в развитии творческого потенциала детей очень велика, педагог большое внимание уделяет на уроках таким элементам, как линии, пятна, декоративные элементы и особенно цвет. Для совершенствования цветового вкуса ребенка применяют следующие приемы: 1. раскрашивая картинку, можно спросить ребенка (какие ассоциации возникают у него при выборе цвета, какой цвет пахнет, какой цвет теплый, холодный, гладкий, шероховатый или прозрачный? сравнить); 2. обратите внимание на соответствие ответов ребенка цвету нарисованного предмета, а затем снова дайте задание, но уже наоборот: нарисуйте прозрачный (или блестящий, холодный или ароматный предмет); 3. проверить устойчивость цветовой гармонии: как часто, например, гладкие вещи желтеют, шершавые – зеленеют, горячие – краснеют и т. д. На занятиях очень важно обсуждать с детьми, какие чувства и впечатления вызывает у них тот или иной цвет, ведь этот цвет вызывает у ребенка желание пользоваться карандашом, кистью, рисовать.

Дошкольное детство – это период начального формирования личности, основ самосознания и формирования индивидуальности ребенка. Творчество рождает у ребенка яркую фантазию, живое воображение. По своей сути творчество основано на стремлении сделать что-то, чего до тебя

еще никто не делал, или сделать это по-новому, оригинально, лучше, даже если это уже существовало до тебя. Иными словами, творческое начало в человеке в самом высоком и широком смысле этого понятия – это всегда стремление к прогрессу, добру, развитию, совершенству и, конечно же, красоте. Чтобы вовремя обеспечить полноценное развитие творческих способностей детей, нужно представить, что это такое. Это сложное понятие, включающее в себя несколько компонентов, на которых должны сосредоточиться родители: желание познавать; познавательные способности; активность; фантастика; инициатива; стремление к знаниям; умение находить нестандартное в знакомых событиях и вещах; умственная активность; способность изобретать и открывать; свобода воображения; интуиция; умение применять полученные знания и опыт; открытия и изобретения. Воспитание творческого отношения к работе (умение видеть красоту в повседневных вещах, чувствовать радость от трудового процесса, познавать тайны и законы мироздания, находить выход из трудной ситуации). жизненные ситуации) – одна из сложнейших и интересных задач современной педагогики. Очень важно не пропустить тот период в жизни ребенка, когда формируются основные навыки и умения, среди которых главное место занимают воображение, фантазия и интерес к новизне. Если эти качества не будут сформированы в дошкольном периоде, активность этой функции в дальнейшем резко снизится, то есть личность станет беднее, возможности творческого мышления уменьшатся, снизится интерес к искусству и творческой деятельности.

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СХОДИМОСТЬ ПОСЛЕДОВАТЕЛЬНЫХ ПРИБЛИЖЕНИЙ К ИНТЕГРОФУНКЦИОНАЛЬНЫМ УРАВНЕНИЯМ ВОЛЬТЕРРА В ПРОСТРАНСТВЕ ИНТЕГРИРУЕМЫХ ФУНКЦИЙ

***Аннотация:** В данной работе исследуется сходимость последовательных приближений для решения интегрофункционального уравнения Вольтерра в пространстве интегрируемых функций. Рассматривается уравнение вида (1), для которого строятся последовательные приближения (2). Доказывается теорема, обеспечивающая равномерную сходимость этих приближений к единственному решению уравнения при выполнении определенных условий на функции $F(t,x,y)$ и $K(t,s,x)$. Приводится доказательство неравенства (4), подтверждающего сходимость. В качестве частного случая рассматривается уравнение Вольтерра и показывается, что приближения также сходятся к единственному решению с определенной скоростью.*

***Ключевые слова:** сходимость, интегрофункциональные уравнения, уравнение Вольтерра, последовательные приближения, пространство интегрируемых функций.*

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CONVERGENCE OF CONSECUTIVE APPROXIMATIONS TO INTEGUMENTAL VOLTERRA EQUATIONS IN THE SPACE OF INTEGRABLE FUNCTIONS

Resume: This paper investigates the convergence of successive approximations for solving the Volterra integro-functional equation in the space of integrable functions. The equation of type (1) is considered, for which successive approximations (2) are constructed. A theorem is proven that ensures the uniform convergence of these approximations to the unique solution of the equation, provided certain conditions on the functions $F(t,x,y)$ and $K(t,s,x)$ are met. The inequality (4) confirming the convergence is demonstrated. As a special case, the Volterra equation is examined, showing that the approximations converge to the unique solution at a specific rate

Keywords: convergence, integro-functional equations, Volterra equation, successive approximations, space of integrable functions.

В этой работе рассматривается интегрофункциональное уравнение вида:

$$x(t) = F(t, x(t)), \int_0^t K(t, s, x(s)) ds \quad (0 \leq t \leq T) \quad (1)$$

Построим последовательные приближения для единственного решения интегрофункционального уравнения (1):

$$x_n(t) = F\left(t, x_n(t), \int_0^t k(t, s, x_{n-1}(s)) ds\right) \quad n = 1, 2, \dots \quad (2)$$

к решению интегрофункционального уравнения и анализируем на сходимость.

Теорема. Пусть, $F(t, x, y)$ ($0 \leq t \leq T$; $x, y \in \mathbb{R}^1$), $K(t, s, x)$ ($0 \leq t, s \leq T$; $x \in \mathbb{R}^1$) измеримые функции удовлетворяют условию:

$$\begin{aligned} |F(t, \bar{x}, \bar{y}) - F(t, x, y)| &\leq L_1 |\bar{x} - x| + L_2 |\bar{y} - y|, \\ |K(t, s, x) - K(t, s, y)| &\leq L_3 |x - y| \quad (3) \end{aligned}$$

где $L_i = \text{const} \geq 0$ ($i = 1, 2, 3$) причем $L_1 < 1$

Тогда последовательные приближения (2) равномерно на отрезке $[0, T]$ сходятся к единственному решению интегрофункциональному уравнению (1), при этом

$$\|x_n - x^*\| \leq \frac{\left(\frac{L_2 L_3 T}{1 - L_1}\right)^n}{n!} \|x_0 - x^*\|, \quad n = 1, 2, \dots, \quad (4)$$

где $x^*(t)$ – единственное решение уравнения (1).

Доказательство. Из условий этой теоремы единственное решение интегрофункционального уравнения (1) доказано в работе [1].

Для доказательства теоремы достаточно показать неравенство (4). Из (1) и (2) с условиями (3) получим:

$$\begin{aligned}
& |x_n(t) - x^*(t)| = \\
= & \left| \Phi \left(t, x_n(t), \int_0^t K(t, s, x_{n-1}(s)) ds \right) - \Phi \left(t, x^*(t), \int_0^t K(t, s, x^*(s)) ds \right) \right| \leq \\
& \leq L_1 |x_n(t) - x^*(t)| + L_2 \left| \int_0^t K(t, s, x_{n-1}(s)) ds - \int_0^t K(t, s, x^*(s)) ds \right| \leq \\
& \leq L_1 |x_n(t) - x^*(t)| + L_2 L_3 \int_0^t |x_{n-1}(s) - x^*(s)| ds, \\
& |x_n(t) - x^*(t)| \leq L_1 |x_n(t) - x^*(t)| + L_2 L_3 \int_0^t |x_{n-1}(s) - x^*(s)| ds.
\end{aligned}$$

Из этого неравенства получаем:

$$|x_n(t) - x^*(t)| \leq \frac{L_2 L_3}{1 - L_1} \int_0^t |x_{n-1}(s) - x^*(s)| ds, \quad n = 1, 2, \dots \quad (5)$$

При $n = 1$ из (5) получим:

$$|x_1(t) - x^*(t)| \leq \frac{L_2 L_3}{1 - L_1} \int_0^t |x_0(s) - x^*(s)| ds \leq \frac{L_2 L_3}{1 - L_1} \|x_0 - x^*\|.$$

При $n = 2$ получим:

$$|x_2(t) - x^*(t)| \leq \frac{L_2 L_3}{1 - L_1} \int_0^t |x_1(s) - x^*(s)| ds \leq \left(\frac{L_2 L_3}{1 - L_1} \right)^2 \|x_0 - x^*\| t.$$

Предположим, что при $n = k$ верно следующее неравенство:

$$|x_k(t) - x^*(t)| \leq \left(\frac{L_2 L_3}{1 - L_1} \right)^k \|x_0 - x^*\| \frac{t^{k-1}}{(k-1)!}.$$

При $n = k + 1$ из (5) следует:

$$\begin{aligned}
|x_{k+1}(t) - x^*(t)| & \leq \frac{L_2 L_3}{1 - L_1} \int_0^t |x_k(s) - x^*(s)| ds \leq \\
& \leq \left(\frac{L_2 L_3}{1 - L_1} \right)^{k+1} \frac{1}{(k-1)!} \int_0^t s^{k-1} ds = \left(\frac{L_2 L_3}{1 - L_1} \right)^{k+1} \frac{t^k}{k!}.
\end{aligned}$$

Используя метод математической индукции для любого натурального n верно неравенство:

$$|x_n(t) - x^*(t)| \leq \frac{\left(\frac{L_2 L_3}{1 - L_1} \right)^n t^{n-1}}{(n-1)!} \|x_0 - x^*\|, \quad n = 1, 2, \dots$$

Применяя в пространстве $L[0, T]$ норму $\|x\| = \int_0^t |x(t)| dt$, получим:

$$\|x_n - x^*\| = \int_0^t |x_n(s) - x^*(s)| ds \leq \frac{\left(\frac{L_2 L_3}{1 - L_1} \right)^n}{(n-1)!} \|x_0 - x^*\| \int_0^t s^{n-1} ds =$$

$$= \frac{\left(\frac{L_2 L_3 t}{1-L_1}\right)^n}{n!} \|x_0 - x^*\|.$$

Из этого неравенство следует неравенство (4).

Теперь рассмотрим частный случай уравнение (1), уравнение Вольтерра:

$$x(t) = x_0(t) + \int_0^t K(t, s, x(s)) ds \quad (6)$$

На условиях доказанной теоремы приближения:

$$x_n(t) = x_0(t) + \int_0^t K(t, s, x_{n-1}(s)) ds, n = 1, 2, \dots$$

сходятся к единственному решению уравнения Вольтерры (6) на пространстве $L[0, T]$ со скоростью:

$$\|x_n - x^*\| \leq \frac{(L_3 T)^n}{n!} \|x_0 - x^*\|$$

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ИСТОРИЯ ИЗУЧЕНИЯ ПРИРОДЫ СУРХАНДАРЬИНСКОЙ ОБЛАСТИ

Аннотация. Из исторических источников можно узнать, что Сурхандарьинская область благодаря своему географическому положению, высокогорному рельефу, заболоченности рек и ручьев, стекающих с гор, почвенно-климатическим условиям, очень давно стала заселяться людьми.

Ключевые слова: сравнительное определение, климат, географические карты, географическое районирование, агропромышленный комплекс, комплексные исследования, география туризма, география промышленности.

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THE HISTORY OF NATURE STUDY IN SURKHANDARYA REGION

Abstract. It is possible to know from historical sources that the surkhandarya region is surrounded by its geographical position, high mountains in its relief, the serfdom of rivers and streams flowing from the mountains, the soil and climatic conditions have long been inhabited by people.

Key words: comparative definition, climate, geographical cards, geographical zoning, agro-industrial complex, complex research, tourism geography, Industrial geography.

Наша область очень давно заселена. Входил в состав Бактрийского государства, возникшего в I тысячелетии до нашей эры. Географические

сведения о территории Сурхандарьинской области дошли до нас благодаря трудам таких древнегреческих ученых, как Геродот, Страбон, Птолемей. Источники о природе края приводятся как в трудах среднеазиатских туристов, так и ученых. Махмуд Кашгари в своей работе "Devonu Dukatit Turk" дал описание этого региона, как и большинства стран Средней Азии. "Бабурноме" З.М.Бабурдал сравнительное описание природы Сурхандарьинской области.

Первые сведения о географии и геологии Сурхандарьинского оазиса в период колонизации царской Россией г.Романовский (1884-1890), В.Н.Вебер (1909), Я.С.Эдельштейн (1909), И.В.Мушкетов (1915). Научное изучение природы края в постсоветский период проводилось в 30-е годы XX века. В том числе вопросы стратиграфии, магматизма, тектоники и др., которые позволили установить основные особенности геологического строения территории края С.В.Калесник (1936), А.Р.Марковский (1937), Н.Р.То Раев (1934, 1936, 1937), С.И.Клунников (1937), З.Г.Заозерский (1930), А.Р.Бурачек (1934,1939) Д.В.Наливкин, (1928-1936), П.Р.Исследовано чуйенко (1931,1937) и другими учеными.

Комплексное природно-географическое исследование края началось в 30-х годах, но было продолжено в 40-50-х годах после Второй мировой войны. В том числе исследовательские работы по стратиграфии, палеографии, магматизму и тектонике территории Н.И.Гриднева (1955), Е.А.Репман (1957), А.Т.Тарасенко (1959), Н.Р.Тураева (1964), Ф.Р.Бенш (1965), И.М.Исамухамедова (1965), О.Ю.Пославская (1966), Д.А.Отмечено в работах Рубановой (1968) и др. Климат Сурхандарьинской области Е.Н.Цитируется в работах Балашева (1962). В том числе информация о климате региона представлена в книгах и научных статьях, посвященных естественной географии Средней Азии и Узбекистана.

Данные о погоде края В.А.Присутствует в работах Джорджио (1935). Исследования атмосферной циркуляции в Средней Азии В.А.Исследовано Бугаевым (1957,1962). Исследования по гидрографии Сурхандарьинской области А. Г. Ананьев (1911, 1924), М.А.Шмидт (1933, 1937), В.Л. Шульц и Л. И.Шалатова (1961), О.Р.Щеглова (1961), Т.Шотораев (1968,1970). Гидрогеологическая характеристика Сурхандарьинской области О.Р.Щеглова, (1950), В.Л.Освещается в обобщенных исследованиях Шульца (1935,1939, 1958, 1968). Также гидрогеологические исследования О.В.Лучицкий (1935), М.А.Шмидт и М.М.Крылов (1936), А.И.Осуществлено Шевченко (1948) и др.

Почвы Сурхандарьинской области С.С.Неструев (1912,1932), А.Н.Розанов (1931), А.З.Зайчиков (1957), А.В.Бедняков, М.М.Тукеев (1960), А.З.Генусов (1961), Н.А.Буцков, Н.Г.Муравьева (1965), Ш.Исследовано Эргашевым (1968). Данные о растительности района М.Г.Попов, (1922,1934) К.З.Зокиров (1939,1951), Р.С.Верник (1961), Е.Р.Коровин (1934,1962), И.Т.Дано в работах Васильченко (1971). Природно-

географические карты Сурхандарьинской области Л.Н.Бабушкин, Н.А.Когай (1961,1965) и Ш.Эргашевы (1968, 1972) созданы в научно-исследовательской работе. А также важные данные по природно – географическому районированию области Р.А. Аболин (1929), Е.Р.Коровин, А.Н.Розанов (1938), Е. М. Мурзаев (1953) Л.Н.Бабушкина, Н.А.Когай (1961, 1970), Т. Липатова (1971), П.С.Цитируется в работах Макеева (1956) и др. Исследования растительного и животного мира края, проведенные в 70-80-е годы XX века и далее, проводились учеными кафедры зоологии и ботаники Термезского государственного университета под руководством профессоров Ш.Хуррамов, А.Хуррамов М.Омонов, от доцентов А.Гульмаматов, Х.Жумаев, К.Жумаев, Б.Холикназаров, А.Сагторов, К.Ашназаров, Г.Тангиров, С.Суллиева, М.Холмуродов, Д.Кадырова, А.Ибрагимов, Ш.Абдулазизова, А.Бекмуродов, Н.Тангирова, Б.Выполнено в научно-исследовательской работе рахматуллаевых.

Исследование рационального использования природных ресурсов и охраны окружающей среды в Сурхандарьинской области проведено учеными кафедры экологии и почвоведения Термезского государственного университета профессором х.Закиров, доценты м.Саидов, М.Освещается в научных трудах абрамамовых. Исследовательская работа, посвященная топонимам Сурхандарьинской области профессор кафедры всемирной истории Термезского государственного университета С.Турсунов и старший преподаватель кафедры географии м.Мы можем наблюдать в научных работах умаровых.

Профессор А.Рузыев был выдающимся ученым, проводившим широкомасштабные научные исследования относительно нового направления, развивавшегося с 80-х годов XX века –углубленного изучения агропромышленных комплексов в виде территориальной системы. А.Рузыев первые научно-исследовательские работы зыева были посвящены вопросам комплексного географического изучения сельского хозяйства Сурхандарьинской области. А.Рузыев на основе научно-практической идеи доказал, что сельскохозяйственное производство выходит за рамки одного хозяйства и приобретает межхозяйственное значение, а в результате его тесного сотрудничества с промышленными предприятиями технологические связи организуются на основе агропромышленной интеграции. А.Рузыев многолетние исследования, проведенные зыевым, послужили всестороннему развитию агропромышленного комплекса нашей республики. Внедрение этой научной идеи в практику послужило важным фактором достижения большой экономической эффективности в 70-80-е годы XX века.

А.Рузыев одним из первых в Узбекистане начал исследование сельскохозяйственного производства, разделив его на территориальные системы агропромышленного комплекса. А.Ро под научным руководством зыева в годы независимости х.Шосаидов-территориальные системы

выращивания и переработки винограда в Узбекистане (на примере Сурхандарьинской области), и К.Алланов территориальные системы выращивания и переработки хлопка в Сурхандарьинской области, Н.Абдуназаров-территориальная организация промышленности по переработке сельскохозяйственной продукции в Сурхандарьинской области (профессор Узгу А.Вместе с Солиевым) успешно защитили кандидатские диссертации.

Ранние географические исследования населения Сурхандарьинской области И.Сафарова-по теме народонаселение (демографо-географические проблемы) Сурхандарьинской области, М.Отражено в кандидатских диссертациях эрдонова на тему проблемы расселения населения Сурхандарьинской области. Преподаватель кафедры географии Термезского государственного университета А.Сатторовым-особенности развития и расселения сельских населенных пунктов Сурхандарьинской области, в настоящее время профессорско-преподавательский состав кафедры географии Термезского государственного университета ведет научно-исследовательскую работу в различных областях географической науки. В том числе промышленная география (учитель Х.Ниёзов), география водоемов (А.Чориев), картография и Гат (Б.Абдумоминов), география туризма (З.Холматово Q.Тураев), география городов (Н.Есанов), география транспорта (А.Амонтурдиев).

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ПРИРОДНЫЕ РЕСУРСЫ И ИСПОЛЬЗОВАНИЕ СУРХАНДАРЬИНСКОЙ ОБЛАСТИ

***Аннотация.** В последние годы в нашей стране значительно возросло внимание к глубокому изучению неисчерпаемых запасов минерального сырья в недрах родной земли и использованию их на пути развития нашего государства. Наша земля не только обладает красивой природой, но и умеренным климатом, благоприятным географическим положением, древними и историческими памятниками, но и очень богата запасами ценного минерального сырья.*

***Ключевые слова.** химическое сырье, строительные материалы, сырье, гипс, гранит, аргиллит, золото, цинк, медь, никель, вольфрам, олово, висмут, ртуть, сурьма, молибден*

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NATURAL RESOURCES AND USE OF SURKHANDARYA REGION

***Abstract.** In recent years, in our country, a deep study of the inexhaustible reserves of mineral raw materials in the bosom of the motherland and the emphasis on their use in the path of the development of our state has greatly increased. Our land is very rich not only in its beautiful nature, in addition to its temperate climate, favorable geographical location, ancient and historical monuments, but also in the reserves of valuable mineral raw materials..*

Key words. *Chemical raw materials, building materials, gypsum, granite, mudstone, gold, zinc, copper, nickel, tungsten, tin, bismuth, mercury, antimony, molybdenum.*

Охрана недр и использование минерального сырья в Сурхандарьинской области осуществляется Комитетом по охране природы и инспекцией горнодобывающих отношений Сурхандарьинской области на основании Закона Республики Узбекистан “О недрах”. Инспекцией взята под контроль деятельность 48 юридических лиц, добывающих недра и использующих минеральное сырье, ведется определенная работа. На территории Сурхандарьинской области, обладающей значительными запасами минерального сырья для развития промышленности и народного хозяйства, в настоящее время функционируют 48 месторождений по 7 видам сырья, ведутся поисковые работы и вводятся в эксплуатацию новые месторождения полезных ископаемых. Запасы поваренной и технической соли, добываемые на соляном месторождении “Ходжайкон”, составляют более 1 млрд. тонн, что является рекордом для населения Узбекистана за многие столетия.

Из разведанных подземных запасов добываются топливо-энергетическое, горно-химическое сырье, строительные материалы, уголь, нефть, газ и другое сырье. Целебные воды “Амонхона”, “Ходжаипок”, “Учкизил”, содержащие сернистые соединения и ряд других соединений, имеющих оздоровительное значение, используются не только жителями области для лечения заболеваний кожи, желудка, нервов, печени, горячий и сухой воздух, а также пески, нагретые до 70-80 градусов, для лечения астмы и других заболеваний. Принята новая редакция Закона Республики Узбекистан “О недрах”, которая устанавливает измененный порядок лицензирования деятельности по добыче полезных ископаемых. В соответствии со статьей 27 закона в новой редакции, для строительства и эксплуатации подземных сооружений, хранения и утилизации отходов Государственный комитет Республики Узбекистан по охране.

На территории Сурхандарьинской области найдено много полезных ископаемых. Из полезных ископаемых имеются месторождения нефти и газа (Ховдог, Какайды, лалмикор, Приамурская равнина), каменного угля (предгорья гор Шаргун, Гиссар, Бойсун, Кохитанг), полиметаллов (Ханжицца), поваренной соли (Ходжайкан). Здесь много строительных материалов, таких как гипс, гранит, аргиллит, родник с минеральной водой. Территория Сурхандарьинской области практически идентична стадиям геологического развития Узбекистана. Поэтому территория области богата различными полезными ископаемыми. В результате многолетних геологических исследований на территории республики выявлено наличие большого количества ценных ископаемых ресурсов, их количественный аспект и промышленное значение. Это делает важные отрасли народного

хозяйства особенно богатыми полезными ископаемыми, такими как газ, нефть, уголь, редкие и драгоценные металлы, включая золото, цинк, медь, никель, вольфрам, олово, висмут, ртуть, сурьма, молибден и черные металлы: железо, титан, марганец, хром.

В связи с этим очень масштабны работы, проводимые по эксплуатации полуметаллического рудника Ханджиза, одного из крупнейших сооружений страны, на котором, по предварительным данным геологоразведки, находится 19,0 млн тонн полуметаллических руд. -выявлены запасы металлов. В их число входят цинк (Zn) - 1,5 млн тонн, свинец (Pb) - 718 тыс тонн, медь (Cu) - 180 тыс тонн, серебро (Ag) - 3000 тонн и другие виды цветных металлов. За р лет эти руды находятся. обработано.

«ABN, AMRO BANK» (США) и наши государственные банки и частные компании вложили свои средства в разработку этих ресурсов. В настоящее время на руднике Ханджиза ведутся большие работы. В Кенгузаре построен филиал Алмалыкского горно-металлургического комбината. Была капитально отремонтирована горная дорога длиной 40-45 км от Кенгузара до Ханджизы и построено множество мостов. Были созданы 3 крупных рудника. Добытую руду перевозят грузовиками.

На разработку месторождения Ханджиза были заложены инвестиционные средства в размере 71 миллиона долларов США. В настоящее время работы ведутся масштабно. В 2017 году переработано 650 тыс. тонн руды цветных металлов. В Кенгузаре на полную мощность запущен филиал Алмалыкского горно-металлургического комбината. В результате трудоустроено 4000 человек. В настоящее время 15% стран мира обладают запасами угля. В Сурхандарьинской области имеются такие угольные шахты, как «Шаргун», «То'да», «Фангард», «Хауз Фангард», «Санджар», «Вандоб».

В нашей республике можно выделить пять основных нефтегазоносных регионов. Это: Устюртская, Бухаро-Хивинская, Юго-Западная Хисарская, Ферганская, Сурхандарьинская области. В Сурхандарьинской области месторождения нефти и нефтегазового газа расположены в подошве Шерабад-Сурхандарьинского горного хребта между верхнеюрскими и палеогеновыми отложениями. С 1950-х годов здесь интенсивно добывают нефть и газ. В 1933 году геолог Н.П. Туев ведет геологоразведку на Ховдоке. В результате 6 февраля 1934 года нефть вспыхнула с глубины 158 метров, и стали добывать 100 тонн нефти в сутки. В том же году были вырыты еще 4 нефтяные скважины, каждая из которых давала 75-100 тонн нефти в сутки.

Угольная шахта" Рой " расположена на склонах гор Бойсун, это топливо, карбид, активированный уголь , графиты, графидные электроды, изделия из карандашей, детали радиотехники, лекарства для человека. В металлургии графиты, полученные из угля, являются важным сырьем, используемым для повышения их технических характеристик, и

используются с целью повышения их прочности за счет замены кислорода углеродистым веществом в чугунных, стальных, железных изделиях. В нашей республике на обеспечение системы образования ручкой ежегодно тратится около 600 тысяч долларов США.

"Сайробский горючий сланец" - теплота сгорания 2515-2781 ккал/кг, что делает это сырье ценным из-за содержания ванадия, молибдена, вольфрама, Германия. Кроме того, на базе данных запасов можно получить сланцевый газ, смолы, исходные материалы для агропоритов.

"Шерабадские запасы селистина (стронция) также обладают уникальными характеристиками, с содержанием элемента стронция до 12,25% запасы составляют 2467 тыс. тонн, из которых 259,6 тыс. тонн-стронций. Хотя красновато-серый, желтоватый цвет гранита "габбро" Шерабад (Кампиртепа) придает зданиям неповторимую красоту, они не теряют своего состояния долгие годы. Его запасы составляют 1,77 млн. м³, из которых 357 тыс. м³-это чистый гобборо. Он полностью отвечает требованиям мировых стандартов по качеству и техническим показателям. Шерабадский известняк является важным сырьем для портландцемента (400 маракали), запасы которого составляют 123 млн. тонн, 17 млн. тонн в год.

Многие полезные ископаемые могут быть использованы в качестве строительных материалов. Красные пески сайробского района по физико-механическим свойствам полностью соответствуют требованиям ГОСТ-947976 (для декоративных покрытий), процент выхода блоков 35.11, запасы 2233.0 тыс. тонн. Орнаментальные покрытия Oqrobot, известняки Дарбанд, Кохитанг, кофрунские даломиты, сакабулакские керамзиты, строительные мелкозернистые камни Роя, гипсовые ангидриты Джияк, запасы гипсовых ангидритов "железные ворота", цветные, серовато-белые полосатые и чистые мраморы Ходжи Аспина, вандобские граниты, песчаник, лессовидные породы Бойсун, из почвы лалмикора (черепица, огнеупорный кирпич и керамики, дренажных труб, кварцевых дюбелей), Туркоксойские кварцы, запасы Бойсун-Пенджабского онекса, Агатовые породы боботау. Запасы поваренной соли ходжайкана составляют 50 млн. тонн. тонн, и достигнет 200 лет, если для населения нашей страны будет добываться 125-130 тыс. тонн поваренной соли в год.

Месторождение поваренной соли ходжайкан отличается несколькими особенностями. Во-первых, химический состав насыщен ионами NaCl до 96-97%, что является отличным показателем требований к поваренной соли. Во-вторых, состав намного чище, несмотря на наличие рядом с ним гипсовых запасов, серы, поваренная соль не содержит других примесей. В-третьих, запас еще молодой, подрастающий. В-четвертых, сырье находится близко к поверхности земли, нет необходимости использовать дополнительное оборудование. На территории соляной шахты расположен лечебный центр протяженностью 146 метров, в котором одновременно

могут лечиться 60-70 человек от нескольких заболеваний, а именно астмы, сердечно-сосудистых, генетических и ряда других.

Шаргунское угольное месторождение расположено в юго-западной ветви Гиссарского хребта. Открыт в 1941 году. Шаргунское угольное месторождение находится в пределах угольных пластов нижней и средней юры. На южном крыле антиклинали черного мачита. Ядро этой структуры состоит из докембрийских гнейсов и сланцев, а также нижнепалеозойских песчаниковых сланцев. Они покрыты терригенными и карбонатными отложениями ордовикского, силурийского, девонского и каменноугольного периодов. Месторождения нижней и средней юры богаты углем. Угольный пласт протянулся от ручья Гулаб до ручья Обизаранг — с запада на восток на 10 км. Мощность крупнейшего пласта шаргунского угольного месторождения составляет 12,5 м; средняя толщина пластов-4,6 м. Дно угольного пласта сложено из тонких аргиллитовых и алевролитовых пород. Полезные ископаемые состоят из угля различных петрографических типов, содержащего до 5% нефтяных битумов.

Строительство этой угольной шахты началось в 1943 году. От железнодорожной станции «Сариосия «до» Токчиан " (ныне Шаргун на шаргунском угольном месторождении большое количество дробленого угля встречается в результате тектонических движений по углю залегания угольного пласта. Мощность горения шаргунского угля 5690-7302 ккал/кг; самовоспламеняющийся, объем 1,35 т/м³, по твердости относится ко 2 классу. Среднее содержание золы 16,95% (от 5,3% до 23,2%). Содержание серы низкое (в среднем 0,02%). Шаргунный уголь-более мелкий и мягкий, хотя и каменный,

В начале шестидесятых годов тот факт, что 95% бурого угля было мелкофракционным (13 мм), затруднял продажу угольного продукта. С целью эксплуатации молодой организации в организации был построен брикетный завод, который был запущен в 1965 году и начал продавать брикетный (фасованный) уголь. Подвесная канатная дорога была построена в 1960 году, и вопрос о транспортировке угля был полностью решен, а в 1978 году дорога была капитально отремонтирована и снова введена в эксплуатацию. Показатель добычи угля на шахте в 1990-е годы составлял 220 тыс. тонн. Уголь, добытый из забоев, перегружается в вагонетки по гусеничным конвейерам и с помощью электровозов выгружается на внешний угольный склад.

АО "шаргункомир" в основном добывает каменный уголь марки ССШ, фракция 13 мм, калорийность 8100 ккал/кг. Годовая мощность—100 тыс. тонн, выявленные запасы угля-35,6 млн. тонн. Начиная с 2022 года, годовая добыча и реализация каменного угля будет доведена до 900 000 тонн. Создано более 450-500 дополнительных рабочих мест. Угольная продукция поставляется на Ново-Ангренские и Ангренские тепловые электростанции ГЭК" Узбекэнерго", цементные заводы, принадлежащие

АО” Узкурилишматериаллари“, предприятия” авыл Турыш Инвест " и другим потребителям. Ожидается, что он также будет экспортирован в несколько зарубежных стран.

Растительный мир Сурхандарьинской области-это прежде всего ее природный ландшафт с плодоносящими и бесплодными растениями. Здесь же следует отметить, что в результате откачки воды из нефтяных, газовых и других месторождений через глубокие пармские скважины поверхность сильно загрязняется, превращаясь в болото. В процессе добычи ископаемого сырья из недр земли на ее месте появляются крупные карьеры, вокруг которых усиливается ветровая и водная эрозия почвы, загрязняются водоемы в районах, прилегающих к месторождениям, страдает растительный и животный мир, в том числе из-за частиц соли, поднимающихся в воздух вокруг месторождения поваренной соли “Ходжайкон”, которое считается открытым карьером. сильное загрязнение вызывает засоление почвы. Открытая добыча любых подземных, надземных полезных ископаемых является негативным для природы состоянием. Независимо от того, насколько экономически ценно добываемое сырье, необходимо наладить его добычу методом закрытых карьеров.

Подводя итог, можно сказать, что природно-ресурсный потенциал нашей области значителен. Статус их использования увеличивается из года в год. Необходимо помнить, что при добыче каждого месторождения или ресурса полезных ископаемых обязательно необходимо учитывать человеческий фактор, его будущее и экологическое состояние природной среды.

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ФОРМИРОВАНИЕ ЛИНГВИСТИЧЕСКИХ КОМПЕТЕНЦИЙ

***Аннотация:** В статье рассматриваются характерные признаки лингвистической компетенции, а также способы её формирования на уроках русского языка в основной и старшей школе с помощью трех видов учебной деятельности. Излагаются мнения о том, что лингвистическая компетенция обеспечивает познавательную культуру личности школьника, способствует развитию логического мышления, памяти, воображения учащихся, овладению навыками самоанализа, самооценки.*

***Ключевые слова:** компетенция, лингвистика, фонетика, морфемика, морфология, мышление, проект.*

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FORMATION OF LINGUISTIC COMPETENCES

***Abstract:** The article discusses the characteristic features of linguistic competence, as well as ways of its formation in Russian language lessons in primary and high schools using three types of educational activities. The opinions are stated that linguistic competence provides the cognitive culture of the student's personality, promotes the development of logical thinking, memory, imagination of students, mastering the skills of self-analysis and self-esteem.*

***Keywords:** linguistic competence, Linguistics, phonetics, morphemics, morphology, group work, discursive thinking, the project*

Введение. Формирование лингвистической компетенции осуществляется с помощью трех видов учебной деятельности: рецептивной, заключающейся в восприятии материала, представленного в готовом виде; репродуктивной, связанной с запоминанием полученных знаний или выработкой умений и выражающейся в воспроизведении знаний или

учебных действий; продуктивной, или творческой, направленной на самостоятельное добывание знаний [9]. Специфика компетентностного обучения состоит в том, что усваивается не «готовое знание», кем-то предложенное к усвоению, а «прослеживаются условия происхождения данного знания».

Лингвистическая компетенция – «владение системой сведений об изучаемом языке по его уровням: фонемном, морфемном, лексическом, синтаксическом. Учащийся обладает лингвистической компетенцией, если он имеет представление о системе изучаемого языка и может пользоваться этой системой на практике» [1.] Формирование лингвистической компетенции наряду с коммуникативной – одно из требований к современной методике.

Основная часть. Использование на уроке несложных дидактических игр, в ходе которых создаются условия для приобретения коммуникативного опыта, способствует раскрепощению подростка и развивает языковые компетенции. Высокую эффективность игры как средства обучения доказал Л.С. Выготский, считавший, что игровая деятельность «создает зону ближайшего развития ребенка; в игре он всегда выше своего среднего возраста, выше своего обычного поведения, в игре он как бы выше самого себя» [5]. В своей работе, на уроках, мы используем различные лингвистические дидактические игры. Рассмотрим, например, такую игру, как решение лингвистического кроссворда.

Учащимся предлагается следующее задание: «Решите кроссворд, пользуясь собственными знаниями, в случаях затруднений обращайтесь к справочной литературе». 1. Раздел лингвистики, изучающий части речи. 2. Раздел лингвистики, изучающий правила произношения, ударения. 3. Раздел лингвистики, изучающий звуки речи. 4. Раздел лингвистики, изучающий начертания букв. 5. Раздел лингвистики, изучающий образование слов. 6. Раздел лингвистики, изучающий происхождение слов. 7. Раздел лингвистики, изучающий стили речи. 8. Раздел лингвистики, изучающий словосочетание и предложение. 9. Раздел лингвистики, изучающий части слова. 10. Раздел лингвистики, изучающий словарный состав языка. 11. Раздел лингвистики, изучающий правильное написание слов.

Знание разделов лингвистики необходимо школьникам, чтобы иметь полное представление о русском языке, научиться разграничивать схожие понятия и видеть в них общее и различное. Для формирования лингвистической компетенции, включающей в себя знания о великих ученых-лингвистах, учителю поможет метод проектов. Учащимся предлагается собрать сведения об ученых. Одному из учащихся можно поручить составить кроссворд или тест. Предполагаемый результат его деятельности будет содержать следующую информацию: 1) XIX в. Создал научную грамматику, доказал исконное родство славянских языков. (А.Х.

Востоков). 2) XIX в. Медик, биолог, языковед, 30 лет работал над созданием «Толкового словаря живого великорусского языка» (В.И. Даль). 3) XX в. главный редактор «Толкового словаря русского языка», диалектолог. (Д.Н. Ушаков). 4) XX в. Доказал, что интонация – грамматическое средство, автор монографии «Русский синтаксис в научном освещении» (А.М. Пешковский). 5) XX в. Автор школьного учебника русского языка, лексиколог (Л.В. Щерба)

Результаты и обсуждения. В начале 10 класса обучающиеся повторяют сведения из раздела «Фонетика». В связи с этим предлагается выполнить следующее задание: определите, по каким признакам объединены звуки, аргументируя свой ответ. На доске записаны звуки: [д],[л],[с],[р],[в],[ф],[х] [ч],[щ],[ц],[ж],[ш] [н],[м],[й],[л],[р] [д],[с],[в],[з],[к] [й],[ч],[щ] [ц],[ж],[ш]. На этапе поиска ответа разрешается воспользоваться любой справочной литературой, возможностями интернет-сайтов. После выполнения задания проводится групповая работа (возможна работа в парах) «Загадка слова», в ходе которой учащиеся решают достаточно сложное задание, требующее применения имеющихся знаний:

1. В каком слове все согласные звуки мягкие? 1) смех 2) циркач 3) венец 4) синий

2. В каком слове все согласные звуки твердые? 1) калач 2) ругаться 3) глупая 4) лёд

Данный вид деятельности достаточно актуален, поскольку позволяет попутно проверить и уровень орфографической компетентности в правописании слов (три орфограммы): циркач_ ; калач_ ; ругаться. При изучении морфологии учащимся может быть предложено следующее задание: определить, что общего между словами ряда.

Заключение. Выполнение такого рода заданий развивает дискурсивное мышление [1], а также представление о возможностях паронимов передавать самые тонкие смысловые оттенки. Таким образом, лингвистическая компетенция обеспечивает познавательную культуру личности школьника, развитие логического мышления, памяти, воображения учащихся, овладение навыками самоанализа, самооценки. Основное умение, формируемое в рамках данной компетенции, – создавать, передавать и воспринимать продукты речевой деятельности, без чего, несомненно, невозможно языковое общение.

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ИННОВАЦИОННОЕ РАЗВИТИЕ И ЗАНЯТОСТЬ ЖЕНЩИН: НОВЫЕ ГОРИЗОНТЫ

Аннотация: В данной статье анализируется влияние инновационных технологий на экономику страны и их роль в обеспечении занятости женщин. Рассматриваются такие ключевые аспекты, как цифровизация, искусственный интеллект и автоматизация, которые открывают новые возможности для женщин в сферах высоких технологий, стартапов и предпринимательства. Статья подчеркивает значимость образования для успешной интеграции женщин в инновационные сектора экономики и выделяет перспективные направления, способствующие их профессиональному и карьерному росту.

Ключевые слова: занятость, женщины, инновационные технологии, новые рабочие места, образование, предпринимательство.

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INNOVATIVE DEVELOPMENT AND WOMEN'S EMPLOYMENT: NEW HORIZONS

Abstract: This article analyzes the impact of innovative technologies on the country's economy and their role in ensuring women's employment. Key aspects such as digitalization, artificial intelligence and automation are considered, which open up new opportunities for women in the fields of high technology, startups and entrepreneurship. The article emphasizes the importance of education for the successful integration of women into innovative sectors of the economy and highlights promising areas that contribute to their professional and career growth.

Keywords: employment, women, innovative technologies, new jobs, education, entrepreneurship.

Занятость женщин является важной темой в современном обществе. В последние годы наблюдается увеличение доли женщин на рынке труда, что является одной из примечательных тенденций. Власти рассматривают программы поддержки для женщин, желающих заниматься

предпринимательством и трудовой деятельностью, обращая особое внимание на их занятость и социальные проблемы.

Занятость женщин в условиях инновационного развития является важным аспектом современного общества, отражающим не только экономическую, но и социальную динамику. Инновационное развитие ведёт к изменениям в структурах занятости и требует адаптации рабочих мест к новым технологиям и методам работы.

Вот несколько ключевых аспектов:

Создание новых рабочих мест: Инновации, такие как цифровизация, искусственный интеллект и автоматизация, могут создавать новые возможности для женщин в сфере высоких технологий, стартапов и предпринимательства.

Цифровые технологии трансформировали мир труда, иницируя как возможности, так и риски для гендерного равенства. Именно поэтому особенно важно учитывать гендерный аспект во всех перспективных проектах политического, социально-экономического и экологического развития⁵⁰.

Цифровизация несет с собой много новых возможностей во всех сферах жизни, в том числе изменение гендерных отношений. Однако она может также способствовать сохранению существующих форм неравенства, и в частности гендерного, создавая особые риски для молодых женщин и девушек.

Достижение гендерного равенства путем искоренения всех форм дискриминации в отношении женщин и девочек в государственной и частной сферах, обеспечивающего полноценное участие женщин и равные возможности для руководства на всех уровнях принятия решений в политической, экономической и научной областях, — все это предполагает активное использование инноваций и технологий.

Шумпетер ввел в науку термин «инновация» как новую экономическую категорию. Предприниматель, считает автор, - это новатор, а его деятельность - новаторство, поскольку он использует новшества для получения сверхприбыли⁵¹. В условиях высокотехнологичного производства и цифровой экономики возникают новые нестандартные формы занятости среди которых можно выделить: аутсорсинг (outsourcing - использование работодателем внешних услуг), аутстаффинг (outstaffing - выведение персонала за рамки штатного расписания), краудворкинг (crowdworking - выполнение многими исполнителями определенных частей

⁵⁰ Говорова Н. В. (2021). ЖЕНЩИНЫ В ЦИФРОВОЙ ЭКОНОМИКЕ ЕВРОПЕЙСКОГО СОЮЗА. Женщина в российском обществе, (2), 161-173.

⁵¹ Краснова Н.А. Инновации в экономических теориях разных школ // Экономика и менеджмент инновационных технологий. 2013. № 12 [Электронный ресурс]. - Режим доступа: <http://ekonomika.snauka.ru/2013/12/3476>

(участков) работы), фриланс (freelance - выполнение работы по запросу без привязки к конкретному работодателю), инновационная занятость.⁵²

Причинами гендерного разрыва в условиях цифровизации являются:

Во-первых, по оценкам ОЭСР⁵³ в целом, количество женщин, использующих цифровые технологии и инструменты на 327 млн. меньше, чем мужчин, такой значительный разрыв обусловлен недостаточным уровнем компьютеризации и информатизации в развивающихся странах. У женщин в среднем на 26% меньше шансов иметь смартфон, чем у мужчин. В Южной Азии и в Африке эти доли составляют соответственно 70% и 34%.

Во-вторых, относительно низкий охват женщин образованием в рамках дисциплин «цифрового мира» (STEM((наука, технологии, инженерия и математика) и информационные и коммуникационные технологии [ИКТ]). В среднем, в мире женщины составляют около 20% от общего числа выпускников в профессиональных областях, связанных со STEM и ИКТ. Среди выбирающих высшее образование в области STEM женщины составляют лишь 34%, продолжить обучение на программах постдокторального образования решает еще меньший процент - 26%.

Образование и подготовка: Важным условием для повышения занятости женщин является доступ к образованию и профессиональному обучению в новых областях, что позволяет им адаптироваться к изменяющимся требованиям рынка труда.

“У нас остались кадры, не обращающие внимания на слова менеджмента или маркетинга, кадры, которые не видят внутренних возможностей. Это ошибки наших учителей высшего образования. Признание этого необходимо, чтобы мы начали исправлять свои ошибки.”⁵⁴

В Республике Узбекистан в настоящее время действуют 56 моноцентров, обучающие лиц, не имеющих постоянного места работы, различным профессиям. Среди них, конечно, есть и женщины. В стратегии «Узбекистан – 2030» цель и задачи направлены для улучшения социально-экономической жизни граждан, особенно женщин, улучшения их возможностей в обеспечении занятости и обеспечения их благоприятной жизнедеятельности. Активность женщин в экономической жизни страны, поддержка их предпринимательской деятельности, развитие предпринимательского опыта, все это яркий пример большого внимания обеспечения занятости женщин в стране.

Постановление Президента страны от 7 марта 2024 года “О дополнительных мерах по поддержке становления и развития женского предпринимательства” учитывает разработку в 2024-2025 годах программы поддержки женщин, выразивших желание заниматься

⁵² Илларионова Э. О. Новые формы занятости в контексте цифровизации рынка труда// Наука. Культура. Общество. 2021. Том 27, № 1. С. 21-32. 001: 10.19181/пко.2021.27.1.2

⁵³ Организация экономического сотрудничества и развития

⁵⁴ Умаров О.К., & Балтабаева М.О. (2023). СОВРЕМЕННЫЕ ПОДХОДЫ УПРАВЛЕНИЯ МЕСТНЫМИ КАДРАМИ. Экономика и социум, (10 (113)-1), 713-716.

предпринимательством, определенной трудовой деятельностью, направленной на получение дохода, и расширить сферу деятельности. Инновации способствуют развитию гибких форм работы, таких как удалённая работа и гибкий график, что может помочь женщинам, совмещающим карьеру с семейными обязанностями.

Важно создавать условия для равного доступа женщин к ресурсам и возможностям в сфере труда, что включает поддержку предпринимательства и навыков в STEM (наука, технологии, инженерия, математика). Таким образом, занятость женщин в условиях инновационного развития требует комплексного подхода, учитывающего различные факторы — от образования и тренингов до государственной политики и поддержки со стороны бизнеса.

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МАРМАРАК (САЛВИА) ЎСИМЛИГИНИНГ ДОРИВОР ХУСУСИЯТЛАРИ ВА ИНТРОДУКЦИОН БАҲОЛАШ

***Аннотация:** Мармарак ўсимлиги иссиқсевар, ёруғликни яхши кўрадиган, қурғоқчиликка чидамли ҳисобланади. Дориворлик хусусияти билан табобатда ўсимликлар орасида олдинги ўринда туради.*

***Калим сўзлар:** мармарак(*shalfey*), доривор мармарак(*Salvia officinalis*), эфиопия мармарак (*prjevalisky*), хушбўй мармарак (*bulleyana*).*

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MEDICINAL PROPERTIES AND INTRODUCTORY EVALUATION OF MARMARAK (SALVIA) PLANT

***Abstract:** Marmarak plant is heat-loving, light-loving, drought-resistant. With its medicinal properties, it ranks first among plants in medicine.*

***Key words:** marmarak (*shalfey*), medicinal marmarak (*Salvia officinalis*), Ethiopian marmarak (*prjevalisky*), aromatic marmarak (*bulleyana*).*

Тупроқлари. Қуйида Сурхондарё вилоятининг тупроқлари бўйича маълумотлар берилган. Воҳанинг тупроғи нейтрал, яъни рН 6,5-7,5 га тенг. Тупроқ Сурхон табиатнинг энг муҳим таркибий қисми бўлиб, у ўзида жонли ва жонсиз табиий бойликни мужассамлаштирган ҳосилладир. Вилоят ҳудудининг мураккаб орографик хусусиятлари унда тупроқ она жинсининг ҳар хиллигини келтириб чиқарган. Бу ерда чўл зонасига хос тупроқлар тарқалган бўлсада, улар бир бутун яхлит майдонлар ҳосил қилмайди, балки жойнинг рельеф хусусиятлари, цизот сувларининг кимёвий таркиби, чуқурлиги ва бошқа табиий омилларга биноан тупроқ типлари алмашиб туради. Сурхондарёда бўз тупроқ кенг тарқалган. Унинг уч типи учрайди: тақирли бўз тупроқ, типик бўз тупроқ ва тўқ тусли бўз тупроқ.

Тақирли бўз тупроқ. Тақир тупроқ билан бўз тупроқнинг ўткинчи зонасида кенг тарқалган. Бу тупроқлар гранулометриқ таркибининг оғирлиги, текис юзали рельеф кўринишига эга бўлганлиги билан ажралиб туради. Тақирнинг юза қатлами одатда зич бўлади, сув ўтказмайдиган

қатлам ҳосил бўлади. Бу нарса эса ўсимликнинг ривожланишига таъсир этади. Шўрланган бу тупроқларда чиринди кам (0,40-1,03% атрофида). Тақирли бўз тупроқ оч тусли бўз тупроқ билан алмашади. Оч тусли бўз тупроқ эса вилоятнинг текислик зонасида кенг тарқалган. Унинг тарқалиш географияси денгиз сатҳидан 300 метр баландликдан токи 500-700 метргача боради. Чириндининг асосий қисми ҳайдалма қатламда бўлиб, пастга томон кескин камайиб кетади. Типик бўз тупроқ ясси тоғлар ва уларнинг ёнбағирлари, лалмикор ерлар билан суғорма деҳқончилик қилинадиган ҳудудларнинг бир қисмида тарқалган. Бу тупроқ денгиз сатҳидан 700 м дан токи 1100-1200 метргача бўлган баландликларда кенг тарқалган. Тупроқнинг ишчи қатлами анча унумдор. Вилоятда бўз тупроқ эгаллаган ерлар 300-340 минг га атрофидадир. Унинг бир қисмида суғорма, қолган қисмида лалмикор деҳқончилик қилинади. Тўқ тусли бўз тупроқ умумий қонуниятга кўра, вилоятнинг тоғли ва баланд тоғли зоналарида денгиз сатҳидан 1100-1200 м дан баландликда жойлашган. Уларнинг таркиби оч тусли тупроқларга қараганда 2,5 марта, типик бўз тупроқга нисбатан эса 1,5 марта чириндига камбағал. Тўртламчи даврга оид лесс ва лессимон (созтупроқ) ғовак ётқизиқ жинсларининг 20-60 м (баъзан бундан ҳам кўп) қалинликдаги қатламларида таркиб топганлиги, аксари жойларда қияликнинг 15-20 даражага бориши, иқлимнинг қуруқ ва илиқлиги, ёғин-сочиннинг камлиги ва нотекис тақсимланганлиги маҳаллий шамолларнинг тез-тез юз бериши, ўсимлик қопламнинг сийраклиги ва ер юзасининг тез (ўсимлик қовжираб қуриши билан) очилиб қолиши, яъни Марказий Осиёга хос бўлган «яланғоч тоғлик» шароити ва бошқа географик омиллар тупроқ эрозиясининг кенг ривожланишига олиб келган.

Интродукцион баҳолаш. Интродукцион баҳолаш интродуцентни мазкур экологик шароитда ўсиши, ривожланиши, ҳосилдорлиги ва чидамлилиги каби кўрсаткичларининг таққосланиши асосида амалга оширилади ва муайян шароитда интродукцион баҳолаш билан тугалланади [9].

Интродукция натижаларини баҳолаш бир йиллик ўсимликларда Г.Н. Андреев (1975) ва Р.А.Карписоновалар (1978), кўп йиллик ўт ўсимликларда Б.А. Головкин (1973) томонидан таклиф этилди [3]. Кейинчалик Г.Н. Андреев томонидан ўт ўсимликлар интродукцияси натижаларининг баҳоланиши, уларнинг ҳаётий шаклига асосланиб амалга оширилди [6]. Н.А. Базилевская (1964) ўт ўсимликларининг интродукцияси ва иқлимлаштирилиши натижаларини 6-балли шкала асосида баҳолади.

Республикаимиз шароитида Ўзбекистон Республикаси Фанлар Академияси Ботаника боғида И.В.Белолипов (1971-1983) томонидан тавсия этилган ўсимликлар интродукциясининг натижаларини баҳолаш экоинтродукцион усул асосида ўсимликларни интродукцион баҳолаш шкаласи ишлаб чиқилди [3]. Унга асосан, ўсимликларни интродукция

шароитида 0 дан 5 баллгача баҳоланди ва 5 баллга эга бўлган ўсимликлар интродукция жараёнида муваффақиятли ўсимлик сифатида танланди.

Ю.М. Мурдахоев (1992), доривор ўсимликларни республикамиз шароитида интродукцияси, ўсиш ва ривожланиш хусусиятларини, мослашиш жараёнини уларнинг флористик ареаллари, ҳаётий шакли ва экогеографик тарқалиш хусусиятларига боғлаб ўрганган [5].

Кейинчалик эса Б.Ё. Тухтаев (2009) томонидан “Ўзбекистоннинг шўр ерларида доривор ўсимликларнинг интродукцияси” мавзусида амалга оширилган илмий тадқиқот ишларида шўр тупроқларда доривор ўсимликлар интродукцияси натижаларини баҳолаш шкаласи ишлаб чиқилди ва унга асосан ўсимликларнинг интродукцион чидамлилиги, намликка, юқори ҳароратга, паст ҳароратга нисбатан ҳолати ва табиий ҳолда кўпайишига асосий эътибор қаратилди

Илмий ишларимизда *Crocus* туркуми турларини интродукцион баҳолаш учун И.В.Белолопов услубига амал қилдик Шунингдек, *Crocus* туркуми турларини кенг масштабдаги плантацияларини ташкил этиш мақсадида асосий кўрсаткичларни ўсимликларнинг майдондаги чидамlilik кўрсаткичига қаратдик. Унга асосан, *Crocus* туркуми турларини интродукцион баҳолаш қуйидаги 3.2-жадвалда келтирдик.

3.2-жадвал

Crocus sativus L. турининг интродукцион тавсифи

| № | ИНТРОДУКЦИОН КЎРСАТКИЧЛАР | Тур <i>C. sativus</i> |
|---|--|-----------------------------|
| 1 | Ҳаётий шакли | Кўп йиллик, ўт |
| 2 | Тажрибада кузатилиши | 2 йил |
| 3 | Олиб келиниши | Туганакпиёздан |
| 4 | Генератив даврга кириши | Биринчи йилдан |
| 5 | Суғоришга муносабати | 3 балл |
| 6 | Совуқдан шикастланиши | Кузатилмади – 5 балл |
| 7 | Касаллик ва зараркунандалардан зарарланиши | Қисман зарарланади – 3 балл |
| 8 | Рақобатдошлиги | 2 балл |
| 9 | Интродукцион баҳолаш | 3 балл |

ХУЛОСА. В. Маҳмудов 2014-2017 йилларда Фарғона ва Тошкент шароитида олиб борган илмий тадқиқот ишлари билан солиштирадиган бўлсак, Термиз шароитида генерация фазаси бироз кечроқ

бошланганлигини кўриш мумкин. Фарғона водийси шароитидаги ўсимликларнинг вегетация йилларида генератив даврга кириши 14-октябрда, Тошкент шароитида 9-октябрда бошланган бўлса, Термиз шароитида нисбатан кечроқ 29-октябрда бошланди. Бунда албатта йиллик об-ҳавонинг ўзгариши аҳамиятли ҳисобланади. Биринчи йилда Тошкент шароитида гуллаган ўсимликлар сони 56% ни, Фарғона шароитида 79 % ни ташкил этган бўлса, бу кўрсаткич Термиз шароитида 89 % ни ташкил этди.

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**ПАВЛОНИЯ (*PAULOWNIA SIEBOLD*) ДАРАХТИНИНГ МАВСУМИЙ
РИВОЖЛАНИШ МАРОМИ ВА ЭКОЛОГИК ОМИЛЛАРГА
МУНОСАБАТИ**

Аннотация: Павлония дарахтининг биоэкологик хусусиятлари ва унинг юртимизда тарқалган турлари, халқ хўжалигидаги аҳамияти ҳақида.

Калит сўзлар: Павлония саталпифолия, Паулоўния элонгате, Шан Тонг павлонияси, декоратив дарахт, плантация, гербарий намуна.

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**SEASONAL GROWTH PATTERN OF PAULOWNIA
(PAULOWNIA SIEBOLD) TREE AND ITS RESPONSE TO
ENVIRONMENTAL FACTORS**

Abstract: About the bioecological features of the Paulownia tree and its species common in our country, their importance in the national economy

Key words: Pavlonia catalpifolia, Paulownia elongate, Shan Tong paulownia, decorative tree, plantation, herbarium specimen.

Интродукция қилинган ўсимликларнинг қийматини ёғочининг сифати, манзаралилик даражаси, санитар-гигиеник, биологик хусусиятлари билан бирга иссиқ ва совуққа бардошлилигини ҳам белгилайди. Шу сабабли турли иқлим шароитларида ўсимликларнинг экологик омиларга муносабати кенг тадқиқ қилинган. Илмий манбаларда келтирилишича, ўсимликларнинг совуққа бардоши турнинг генетик белгилари билан мустаҳкамланган хусусиятидир. Ўсимликнинг совуққа ёки иссиққа бардоши одатда экстремал шароитда аниқроқ намоён бўлади. Қатор тадқиқотлар ўсимликларнинг совуқ ёки иссиққа бардоши унинг ёшига ҳам боғлиқ эканлигини кўрсатади. Совуққа бардошлилик ўсимликларнинг географик келиб чиқиши билан боғлиқ. Шунингдек, табиий ареали кенг бўлган ўсимликлар ҳам экологик омилларга тез мослашувчан ва чидамли бўлади. Термиз шароитида тез-тез такрорланиб турадиган қишки илиқлик ва баҳордаги кечки совуқ ўсимликларни иқлимлаштиришда жиддий тўсиқ бўлади.

Фаслий ўзгаришларнинг қонуниятларини билиш Павлония дарахтни қандай иқлим шароитларида экиш, ўстириш, ареални кенгайтириш ва улардан тўғри фойдаланиш имкониятларини аниқлашда ёрдам беради. Айниқса халқ хўжалиги учун қимматли бўлган муҳим дарахт ўсимликларининг худудлаштиришда бу кузатишлар катта рол ўйнайди.

Экологик омилларига муносабати ва интродукциявий баҳолаш. Ўсимликлар интродукциясининг муваффақияти ундаги белгилар йиғиндиси билан баҳоланиб, улардан энг муҳими ўсимликнинг катта (онтогенетик) ва кичик (мавсумий) ҳаёт цикллариининг ўтишини тўлиқлиги бўлиб ҳисобланади. Интродукциянинг муваффақиятли эканлигини баҳолашда генератив ривожланиш, вегетатив кўпайиши, касаллик ва зараркунандалар билан зарарланиши, йилнинг ноқулай даврларидаги ўсимликларнинг яшовчанлиги ҳисобга олинади. Павловниянинг интродукция натижаларини таҳлил қилиш учун 6 кўрсаткичли баҳолашдан фойдаланилди. Турни баҳолаш 100 балли шкала орқали амалга оширилди. 20- 39 - гача бўлган баллар йиғиндиси истиқболсиз, 40-59- кам истиқболли, 60-79 – истиқболли ва 80-100 – жуда истиқболли деб ҳисобланди. Павловнияни интродукция шароитида мўл ёғоч массасини ҳосил қила олиш қобилияти уни хўжалик баҳосининг асосий кўрсаткичларидан бири бўлиб ҳисобланади. Павловния дарахти интродукция шароитида касаллик ва зараркунандалар билан зарарланмади. Б. Тўхтаев [5] [6] томонидан таклиф қилинган шўрланган тупроқларда ўсимликларни интродукцион баҳолашнинг шкаласи бўйича кўрсатмани ҳисобга олган ҳолда Сурхондарё вилояти шароитига хос бўлган интродукцион баҳолаш ишлаб чиқилди. Павловния дарахтни юқори ҳароратга муносабатига кўра-ўртача чидамли, суғоришга бўлган талаби-ўртача, паст ҳароратга муносабати-чидамли, вегетатив кўпайиши-кучсиз, табиий экилиш-ўртача, касаллик ва зараркунандаларга чидамлилиги-зарарланмайди. Шундай қилиб, келтирилган дарахт ўсимликлар Павловния интродукция шароитида 70 балл тўплади ва жуда истиқболли тур деб ҳисобланди (1-жадвал).

1-жадвал

Павловниянинг интродукцион баҳолаш шкаласи (баллар)

| Кўрсаткичлар | Даража ва баллар | | | | | | Интро- дукцио н бахоси, балл |
|----------------------------|------------------|----|----------------|----|---------------|---|--|
| | чидам- ли | 15 | ўртача чидамли | 10 | чидам- сиз | 5 | |
| Юқори ҳароратга муносабати | чидам-ли | 15 | ўртача чидамли | 10 | чидам-сиз | 5 | 10 |
| Суғоришга бўлган талаби | Паст | 15 | ўртача | 10 | юқори | 5 | 10 |

| | | | | | | | |
|---|-----------------|----|--------------------|----|--------------------|---|----|
| Паст ҳароратга муносабати | чидам-ли | 15 | ўртача чидамли | 10 | чидам-сиз | 5 | 15 |
| Вегетатив кўпайиши | интен-сив | 25 | кучсиз | 15 | кўкар-майди | 5 | 15 |
| Табиий Экилиш | Юқори | 15 | Ўртача | 10 | бўл-майди | 5 | 5 |
| Касаллик ва зараркунандаларга чидамлилиги | зарар-ланмай-ди | 15 | кучсиз зарарланади | 10 | кучли зарар-ланади | 5 | 15 |
| Жами | | | | | | | 70 |

Paulownia catalpifolia, paulownia elongata, paulownia fargesii, paulownia fortunei, paulownia kawakamii, paulownia tomentosa, Paulownia Shan Tong. лар истиқболли тур деб ҳисобланди.

Шунингдек дарахтларнинг илдиз қаламчасидан кўпая олиш қобилияти, юқори ҳароратларга муносабати жиҳатдан маҳсулдорлиги, касалликларга чидамлилиги жиҳатдан бу интродуцент ўсимликларни очик дала шароитида кўпайтириш мумкин.

Кўчатларни етиштириш ва парваришlash аготехникаси. Павловниянинг илдиз қаламчаларини ер юзасидан 10-15 см чуқурликда қазиб тайёрланган жойда етиштириш мақсадга мувофиқ. Бундай жойларда ўсимлик ўсаётган қаватда намлик узоқ сақланади ва кўчатларнинг ўсишига ижбий таъсир етади. Екиладиган жой дастлаб 30-40 см қазилади. Ҳосил бўлган чуқурлик имкони борича чириндига бой булган тупроқ билан тўлдирилади. Ернинг юқориги қатламда 5-10 см қалинликда чириган гўнг солиниб, тупроқ билан аралаштирилади. Шу тарзда тайёрланган жойда илдиз қаламча екилганда улар яхши ўсиб ривожланади.

Павловнияларни кўплаб етиштириш мақсадида экилганда уларни пуштада ўстириш мақсадга мувофиқ. Пушталар ораси одатда 60 м қилиб олинади. Илдиз қаламчалар эса ҳар 10 см га 1 донадан қилиб экилади.

Ниҳоллар ўсиши билан албатта уларнинг ёнида бегона ўтлар кўкаради. Муттасил ўтоқ қилиш орқали бегона ўтлардан тозаланиб турилади. Уларни олиб ташлаш учун кўчатлар суғорилганидан 1-2 кун кейин ўтказилади. Шундай қилинса, ёнидаги ниҳолларни зарарламайди. Ниҳоллар 10-15 см га етгач, яъни май ойининг охирларида одатда улар ер юзасини қоплайди ва шундан кейин бегона ўтлар деярли кўарб чиқмайди.

Павловнияларнинг кўчатлари очик жойда яхши ўсади. Лекин бу жойларда уларни муттасил суғориб туриш лозим. Сурхондарё шароитида ёз ойларида кўчатларга ҳар ҳафтада 1-2 марта сув бериб туриш керак. Акс ҳолда ер юзаси қотади ва қатқалоқ ҳосил бўлади.

Кўчатларни октябр ойининг ўрталарида суғоришдан тўхтатиш лозим. Шунда кўчатларнинг ўсиши ҳам секинлашади ва уларнинг новдаси қишгача пишиб улгуради. Шундай қилинганда Павловниянинг кўчатлари қишда совуқдан зарарланмайди.

Павловния ёз ойларида яхши ўсиши учун унга азотли ўғитлар билан озиқлантириш яхши натижа беради. Ўғит бериш нормаси 10 м² жойга ўртача 1-1,5 кг атрофида бўлиши мумкин.

Бунда ҳосил бўлган кўчатларни келгуси йил доимий ўсадиган жойга кўчириб ўтказиш мумкин.

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SALVIA OFFICINALIS –ЎСИМЛИГИНИНГ ЯШАШ МУҲИТИ ВА ЕТИШТИРИШ ТЕХНОЛОГИЯСИ

Аннотация: Мақолада Мармарак ўсимлигининг яшаш муҳити, етиштириш технологияси, таркиби дориворлик хусусияти ёритиб берилган.

Калим сўзлар: Доривор, (маврак) - *Salvia officinalis*, тарқалиш, маҳсулот, экиш, ўстириш, кимёвий таркиб, дориворлик хусусият.

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SALVIA OFFICINALIS PLANT HABITAT AND GROWING TECHNOLOGY

Abstract: The habitat, cultivation technology, medicinal properties of the Marmarak plant are explained in the article.

Key words: Medicinal, (mavrak) - *Salvia officinalis*, spread, product, planting, cultivation, chemical composition, medicinal properties.

Ўсимликнинг тарқалиши. Ўрта ер денгиз бўйи мамлакатларининг тоғли худудларида табиий ҳолда ўсади. Ўзбекистонда доривор маврак унча катта бўлмаган майдонларда хом-ашё олиш мақсадида етиштирилади.

Агротехник тадбирлар. Ўзбекистон шароитида қиш ўта совуқ бўлганда доривор мавракнинг ёғочланмаган новдаларини совуқ уради. Ўсимлик иссиқсевар, ёруғликни яхши кўради, қурғоқчиликка чидамли. Экинзорлардан 13-15 йил давомида яхши ҳосил олинади. Биологик хусусиятларини ҳисобга олиб, уни экиш учун бегона ўтлардан тозаланган, унумдор, суғориладиган, сув узок туриб қолмайдиган, сизот сувлар чуқур, автомобиль ўтиш йўлларида узок бўлган майдонлар танланади.

Кузги шудгор вақтида гектарига 30-50 тонна гўнг, 100 кг.дан фосфор солинади. Ноябрь-декабрь ойларида 30 см.гача чуқурликда шудгор қилинади. Ўсимлик уруғидан кеч кузда ёки баҳорда экилади. Экишдан олдин майдон молаланиб, текисланади. Уруғ сабзавот экадиган ускуналарда 60-70 см қатор оралиғида ва 2 см чуқурликка экилади. Гектари ҳисобига 8-10 кг уруғ сарфланади.

Баҳорда уруғ экилганидан кейин 18-22 давомида униб чиқади. Униб чиққан уруғлар қатқалокқа чидамсиз. Шунинг учун ёмғирдан кейин бундай экинзорга игнали ғалтаксимон мослама билан ишлов бериш ёки тупрок юзасини то майса ўсиб чиққунига қадар нам ҳолатда сақлаб туриш керак. Уруғ кўп экилганида, бегона ўтлар кўпайиб кетганида ёки баҳор серёмғир келганида ўсимликларда кулсимон замбуруғлар кўпайиб кетади.

Ўсимликда иккинчи жуфт чинбарглар ҳосил бўлганида, 15 см ораликдаги уячаларда 2 дондан ўсимлик қолдириб ягона қилинади.

Маврак мавсум давомида 8 марта суғорилади, 3-4 марта культивация қилинади ва қўлда ўтаб парваришланади.

Ҳар йили баҳорда, мавсум бошланиши олдидан ўсимликнинг ер устки қисми 5-8 см қолдириб қирқилади ва даладан олиб чиқиб кетилади. Бунинг учун КИР-15 ёки КИР-1,2 маркали роторли ўроқ- майдалагич машинаси ишлатилади. Гектарига 10 тонна махаллий гўнг, 50 кг фосфор ва шунча миқдорда калий солиб озиклантирилади. Калийли ўғитлар мавракнинг совуққа чидамлилигини оширади. Ана шундай тартибда ўғитлангач, эгатлар чуқур ҳайдалиб, қатор оралари юмшатилади.

Барг ҳосили биринчи йили - сентябрда йиғилади, кейинги йиллари эса мавсум давомида икки марта: шоналай бошлаганда - май ўрталарида ва сентябрь охири - октябрь бошларида йиғилади.

Барг йиғишни кечиктириб юбормаслик керак. Шунинг учун ёш новдалар бўйи 5-8 сантиметрга етиши биланоқ барглар йиғилаверади. Барглар қуритгичларда ёки шийпонларда 35-40 даражали ҳароратда қуритилади. Қуритишда хом-ашё вазнининг 25-35 %и қолади, 50 кгдан тойланади ва куруқ ерда 1 йил давомида сақланади.

Мавракнинг уруғларини йиғиш. Ўсимлик гуллагандан сўнг, уруғ тахминан бир ойлардан кейин етилади ва тўп уруғ рўваклар йиғиб олинади. Йиғиб олинган уруғ рўваклар хирмонда қуритилади. Уруғи ғалла янчиш машиналарида янчилиб, дон совургич-сархиллаш машинасида тозаланади. Қопларга 10-20 кгдан жойлаб сақланади. Уруғларнинг сақланиш муддати 3 йил.

Барг ҳосили гектар ҳисобига ўртача 800 кг олинади.

Ўсимликнинг ер устки қисми хом-ашёси гектар ҳисобига 15 центнерни ташкил этади.

Хом-ашё тайёрланиши ва унинг сифати. Ўсимликдан кўп миқдорда барг йиғиш учун иккинчи йилдан бошлаб ҳар йили эрта баҳорда, шира ажралишидан олдин маврак поялари илдиз бўғзидан кесиб олинади. Вегетациянинг иккинчи йилида ҳосилни йиғиш уруғ пишиш даврида(июлнинг бошида) бошланади. Бу вақтда баргларда эфир мойининг миқдори энг кўп бўлади (1,4-1,6%). Иккинчи ўримни эса октябрь ойидан кечиктирмаслик зарур. Маврак хом-ашёси 10-20 см ёйилган ҳолда салқин жойда қуритилади. Таркибидаги эфир мойини йўқотмаслик учун сунъий усулда қуритиш 60⁰С дан ошмаган ҳароратда амалга оширилади.

Қуритилган барглари майдаланиб 25-50 кг ли қопларга солинади ва 1,5 йил давомида қуруқ жойда сақланади.

XI ДФ талабларига кўра доривор маврак маҳсулоти бутун барглар ва 1 мм дан 35 мм атрофидаги барг бўлакчалари, унча кўп бўлмаган ўсимлик бошқа қисмларидан иборат бўлиши шарт. Маҳсулот таркибида эфир мойининг миқдори 0,8% дан кам бўлмаслиги, умумий кул 12% дан, қорайиб, қўнғир тусдаги барглари 5% дан, мавракнинг бошқа қисмлари 13% дан, органик аралашмалар 3% дан, минерал аралашма 0,5% дан ошмаслиги керак.

Тиббиётда қўлланилиши ва кимёвий таркиби. Мавракнинг барглари дориворлик хусусиятига эга.

Доривор мавракнинг баргларидан тайёрланган дамлама дезинфекцияловчи ва шамоллашга қарши восита сифатида стоматит бўлганда, оғиз бўшлиғи ва томоқни чайишда, юқори нафас олиш йўлларини тозалашда қўлланилади. Мавракнинг гуллари антибактериал прерарат – сальвин олиш учун ишлатилади. Халқ табобатида маврак барглари ошқозон яраси, колит, жигар, буйрак хасталикларини даволашда, бронхитда балғам кўчирувчи, юмшатувчи ва сийдик ҳайдовчи восита сифатида ишлатилади.

Маврак баргларидан тайёрланадиган дамлама. 10 г (2 ош қошиқ миқдорида маҳсулот олиниб сирланган идишга солинади, устидан 200 мл (1 стакан) қайнаган иссиқ сув қуйиб сув ҳаммомида 15 дақиқа давомида қиздирилади. Сўнгра 45 дақиқа совутилади, докадан ўтказилади, қолган масса сиқилади. Олинган дамламанинг устига дастлабки ҳажми 200 мл бўлгунича қайнаган сув солинади. Дамламани салқин жойда 2 кун мобайнида сақлаш мумкин.

Дамламани терининг шамоллаш касалликларида, тери жароҳатланганида, куйганида ва совуқ урганида ишлатилади; бунда дамламага ботирилган докали сальфеткалардан фойдаланилади, шунингдек, доривор маврак дамламаси билан ванна қилиш ҳам мумкин.

Ўсимликнинг барча органларида эфир мойи (баргларида 0,5-2,5%) мавжуд. Ундан ташқари барглар таркибида алкалоидлар, ошловчи моддалар, уваол, парадифенол ва В гуруҳи витаминлари бўлади. Илдизида юқори фаол табиий антиоксидант ва дитерпеноидли хинонлар, гулларида эса – сальвин ва унинг монометил эфир моддаси бўлади.

Тавсиялар. Катта плантацияларда етиштириш мумкин. Плантацияларга кўчатидан ўтказилади. Плантацияларни ўрмон тоғолди адирликларидаги суғориладиган майдонларда, асосий кишлок хўжалиги экиладиган суғориладиган майдонларда ташкил этиш мумкин.

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ПАВЛОВНИЯ ЎСИМЛИГИНИ УРУҒДАН УНИБ ЧИҚИШ БИОЛОГИЯСИ ВА НИҲОЛЛАРНИНГ ШАКЛЛАНИШИ

Аннотация: Ушбу мақолада шаҳримизда, Павловния ўсимлигининг биоэкологик, иқтисодий хусусиятлари, ҳосилдорлигини ошириш ва улардан унумли фойдаланиш билан боғлиқ масалалар билан таништириш.

Калим сўзлар: Павловния ўсимлиги, етиштириш, биология, уруғ, дарахт, ботаник оиласи.

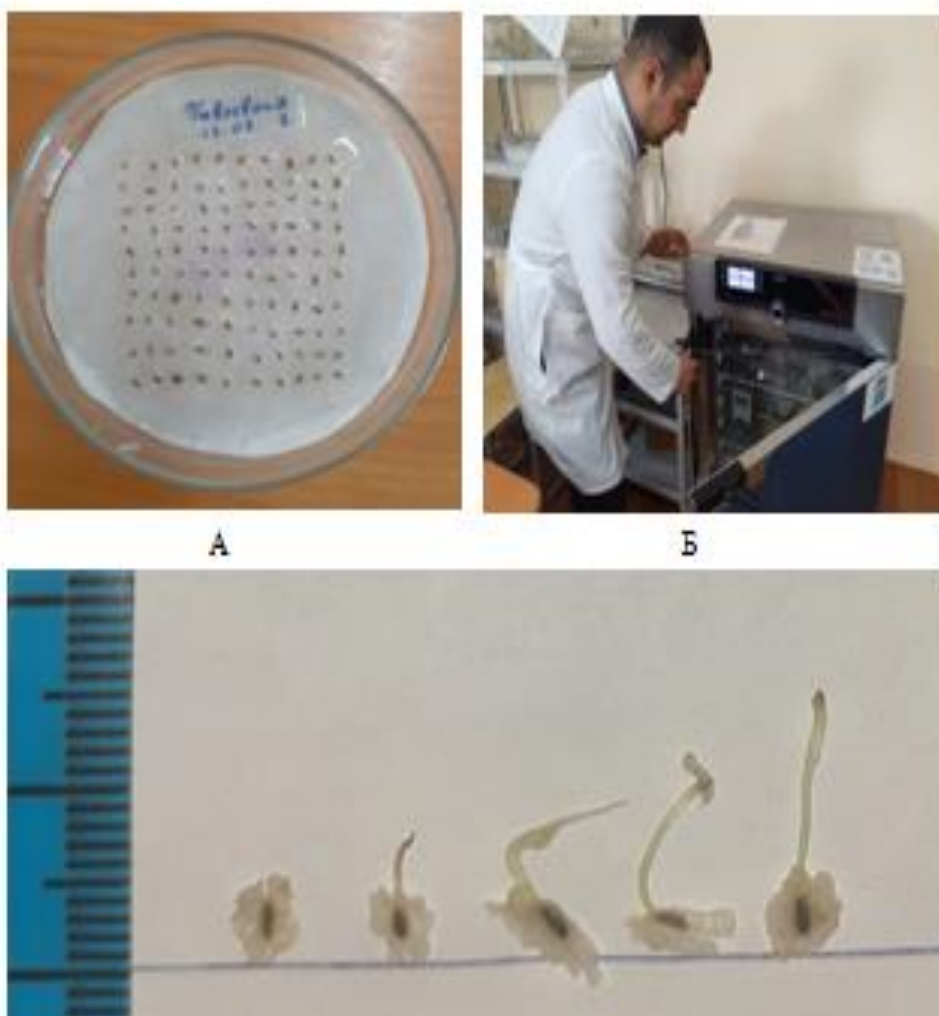
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BIOLOGY OF PAVLOVANIA SEED GERMINATION AND SEEDLING FORMATION

Abstract: In this article in our city we will introduce you to the issues related to the bioecological, economic properties of the Paulownia plant, increasing yields and their effective use.

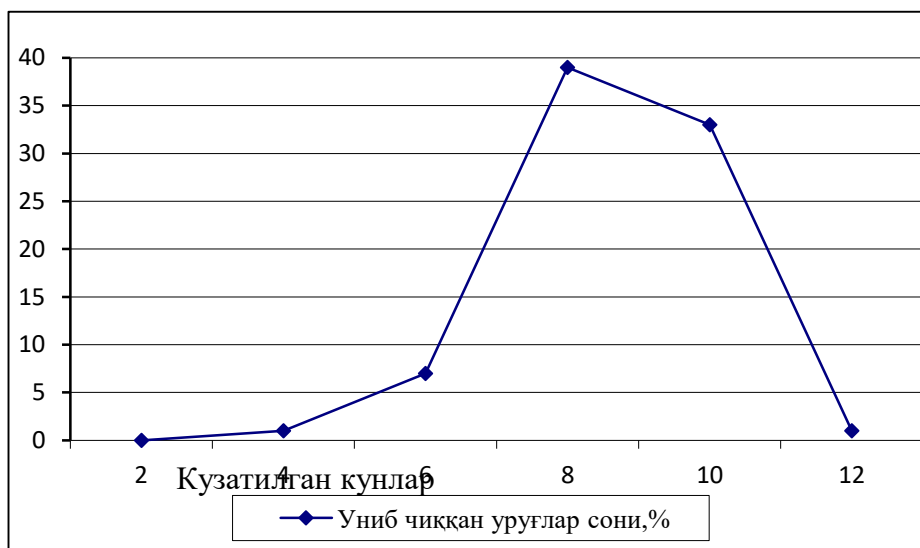
Key words: Pavlovnia plant, cultivation, biology, seed, tree, botanical family.

Павловния ўсимлигини лаборатория шароитида уруғ унувчанлигини тажриба асосида ўргандик. Танланган уруғлар 2020 йил 15-февраль куни, соат 15:00 да оддий сувга ивитиб қўйилди. Бир сутка турган уруғларни Петри ликопчасида 3 дона намланган қоғоз устига 100 донадан иборат бўлган уруғлари экилди кейин 10 томчи сув томизиб, 22°C ли термостатга жойлаштирилди ва ҳар куни назорат қилиб борилди.



1-Расм. Петри ликопчасига павловнияни экилган уруғлари (А), термостатда жойлаштирилган уруғлар (Б), уруғнинг униб чиқиши ва ўлчами (В).

Кузатиш жараёнида барча уруғлар бир вақтда униб чиқмасдан кузатилди. Лаборатория шароитида уруғлар 4 кунда униб чиқишни бошлади. Уруғлар униб чиқишни бошлаган кунда 1%, максимал даражада униб чиқиш эса 8 кунда (29%) ҳамда 12 кундан сўнг уруғлар униб чиқиши камайди (1%). Шундай қилиб лаборатория шароитида жами 87 % уруғлар униб чиқди. Бу ҳолатларни кузатиш натижасини қуйидаги жадвал асосида кўриш мумкин:



2-расм. Павловния уруғларининг унувчанлиги, %

Тадқиқотларда Павлониянинг уруғ унувчанлигини ўрганиш хона шароитда ҳам олиб борилди. Хона шароити мухитида Петри лycopчасида 3 дона намланган қоғоз устига 100 дондан Павловниянинг уруғлари экилди. Тадқиқотлар 3 хил муддатда март, апрель ва май ойларида ўтказилди



А



Б

3-расм. Павловниянинг Петри лycopчасида экилган уруғлари (А) ваи термомет кўрсаткичи (Б), (хона шароити).

Март ойида хона шароитида уруғлар 5 кунда униб чиқишни бошлади. Уруғлар униб чиқишни бошлаган кунда 2%, максимал даражада униб чиқиш эса 8 кунда (44%) ҳамда 10 кундан сўнг уруғлар униб чиқиши камайди (1%). Шундай қилиб хона шароитида жами 81 % уруғлар униб чиқди

Апрел ойида хона шароитида уруғлар 5 кунда униб чиқишни бошлади. Уруғлар униб чиқишни бошлаган кунда 3%, максимал даражада униб чиқиш эса 7 кунда (55%) ҳамда 10 кундан сўнг уруғлар униб чиқиши камайди (1%). Жами 88 % уруғларнинг униб чиқиши аниқланди.

Май ойида хона шароитида уруғлар 6 кунда униб чиқишни бошлади. Уруғлар униб чиқишни бошлаган кунда 1%, максимал даражада униб чиқиш эса 8 кунда (36%) ҳамда 11 кундан сўнг уруғлар униб чиқиши камайди (1%). Жами 83 % уруғларнинг униб чиқиши аниқланди.

Тегишли муддатларда уруғ унувчанлиги кўрсаткичи 81 %, 88% ва 83% ни ташкил этди.

Суғориладиган дала шароитида ҳам уруғларнинг униб чиқиш кўрсаткичлари нисбатан хона шароитидаги натижалардан анча паст бўлди. Тегишли муддатларда суғорилган тупроққа экилган уруғларнинг унувчанлиги кўрсаткичи мос тарзда 39% ни ташкил этди. Дала шароитида уруғ унувчанлигининг хона шароитига нисбатан пастлигини тупроқ-иқлимнинг таъсири билан изохлаш мумкин. Таъкидланганидек, сутка мобайнида ҳаво ва тупроқ ҳарорати кескин ўзгариб туради. Кундузи ўртача ҳаво ҳарорати 30-35⁰С бўлса, кечки пайтларда 12-18⁰С га етади. Бу эса уруғнинг униб чиқиши учун зарур ҳароратни ўз вақтида тўплашига ҳамда муртакнинг унишига ноқулайлик туғдиради.

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МЕТОДИКА ИЗУЧЕНИЯ УРОВНЕЙ ИССЛЕДОВАТЕЛЬСКОЙ ДЕЯТЕЛЬНОСТИ УЧАЩИХСЯ НА УРОКАХ ВНЕКЛАССНОГО ЧТЕНИЯ

***Аннотация:** в статье рассматривается авторская методика изучения уровней исследовательской деятельности учащихся 6-8 классов на уроках внеклассного чтения. Автор считает, что одной из задач в формировании компетенций учащихся при организации исследовательской деятельности является решение педагогических задач на внеклассных занятиях по литературе.*

***Ключевые слова:** исследовательская деятельность, внеклассное чтение по литературе, среднее звено школы, методика обучения, эксперимент.*

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METHODOLOGY OF STUDYING THE LEVELS OF RESEARCH ACTIVITIES OF STUDENTS IN EXTRACURRICULAR READING LESSONS

***Abstract:** the article examines the author's methodology for studying the levels of research activity of students in grades 6-8 in extracurricular reading lessons. The author believes that one of the tasks in developing students' competencies in organizing research activities is solving pedagogical problems in extracurricular literature classes.*

***Key words:** research activity, extracurricular reading in literature, middle school, teaching methods, experiment.*

Введение. Сегодня одной из главных задач образования в Новом Узбекистане является развитие исследовательских навыков, направленных на исследовательскую деятельность учащихся, особенно на уроках внеклассного чтения в 6-8 классах.

Вовлечение учащихся в исследовательскую деятельность поможет им научиться изобретать, понимать и усваивать новое, выражать свои мысли, принимать решения, формулировать интересы и осознавать свои возможности.

В связи с этим становится актуальной задача диагностики уровня развития исследовательских навыков учеников 6-8 классов в рамках уроков внеклассного чтения. С этой целью было необходимо разработать критерии для оценки этих умений. Важнейшим критерием эффективности и применимости предложенных материалов служит их систематизация и специфичность. С учётом универсальности критериев для оценки уровня развития исследовательских навыков учащихся, занимающихся учебно-исследовательской работой на уроках внеклассного чтения, можно выделить группы общих исследовательских навыков, отражающих суть данной деятельности.

Исследовательская деятельность учащихся на уроках внеклассного чтения по литературе в среднем звене школы – недостаточно изученный аспект педагогики и нуждается в конкретном методическом обеспечении, учебном материале, методиках обучения.

В учебных планах, программах, учебных и учебно-методических пособиях по дисциплине «Литература» в классах с русским языком обучения не обозначены уровни исследовательской деятельности учащихся 6-8 классов на уроках внеклассного чтения.

Однако специальное их изучение демонстрирует, что существует некоторое несоответствие между предусмотренными программами требованиями (компетенциями) и реальным уровнем изучения литературы в школе, а также мизерным количеством выделенных часов на самостоятельное чтение. В связи с этим мы провели педагогический эксперимент с целью выявить читательские интересы учащихся, их умения и навыки в области исследовательской деятельности.

Основная часть. Эксперимент – это действие, направленное на создание условий в целях воспроизведения того или иного явления. Эксперимент должен содержать следующие положения: актуальность; предполагаемые цели, задачи и методы; опытно-экспериментальную работу в контрольной и экспериментальной группах; анализ результатов.

Педагогический эксперимент — это научно-поставленный опыт преобразования педагогического процесса в точно учитываемые условия, преднамеренное внесение изменений в педагогический процесс, глубокий качественный анализ и количественное измерение результатов изменения процесса.

Структура и логика педагогического исследования могут быть представлены следующей последовательностью этапов:

1 этап – общее ознакомление с проблемой исследования, обоснование ее актуальности, уровня разработанности; определение объекта и предмета, темы исследования; формулировка цели и задач исследования;

2 этап – выбор методологии (исходной концепции, опорных теоретических положений, единого исследовательского подхода);

3 этап – построение гипотезы исследования;

4 этап – выбор методов исследования; проведение констатирующего эксперимента с целью установления исходного состояния предмета исследования;

5 этап – организация и проведение преобразующего и контрольного экспериментов;

6 этап – анализ, интерпретация и оформление результатов исследования;

7 этап – выработка практических рекомендаций.

Обсуждение и результаты. Одной из задач в формировании компетенций учащихся при организации исследовательской деятельности является решение педагогических задач на внеклассных занятиях по литературе. Для решения этой задачи нами был проведён педагогический эксперимент. В процессе работы мы опирались на компоненты исследовательской деятельности школьников, а именно:

- мотивационно-ценностный (состоит из желаний, стимулов, мотивов);

- исполнительно-организационный (включает различные умения, н-р, организацию и исследование);

- содержательный (по оптимальному уровню знаний, в нашем случае, по литературе);

- когнитивный (с развитыми приёмами умственной деятельности);

- креативно-творческий.

Из представленных компонентов исследовательской деятельности можно понять, на какие именно критерии они опираются. При этом данные компоненты являются частью разработанной нами структурно-функциональной модели развития исследовательской деятельности при изучении литературы в среднем звене общеобразовательной школы.

Опытно-экспериментальная работа была проведена в три основных этапа (2020-2021 гг.; 2021-2022 гг.; 2022-2023 гг.) в общеобразовательных школах Андижанской, Наманганской и Ферганской областей.

I этап эксперимента (2020-2021 гг.) является его начальной ступенью, охватывающей период онлайн-обучения, связанного с эпидемией коронавируса. Это и определило специфику работы, целей и задач, особенностей методики организации исследовательской деятельности. В данном случае работа с учащимися проводилась с опорой на самообразование в силу удалённого обучения, то есть ученики работали с поисковыми компьютерными программами в целях нахождения информации или выполнения заданий; составляли схемы и таблицы; готовили мультимедийные презентации и прочее.

Были задействованы информационно-технологические источники, мультимедийные средства, в перспективе – внедрение виртуальных средств обучения. В результате происходил полноценный контроль с обязательной коррекционной деятельностью с целью получения должных знаний и

умений. На этом этапе особая роль отведена уровню заинтересованности, пояснению (теоретическому обоснованию) и направленности исследовательской деятельности. Все виды исследовательских заданий соответствовали уровню развития учащихся; возрастным и психологическим особенностям; сензитивны учащимся 6-8 классов.

II этап эксперимента (2021-2022 гг.) является формирующим, т.е. он охватил весь второй год работы в общеобразовательных школах. На данном этапе мы интегрировали в педагогический процесс особые поисковые задачи, содержащие важные элементы исследования, учитывающие творческий и креативный подходы. Происходило формирование необходимых исследовательских компетенций с целью отбора текстов художественных произведений и методики работы с ними. Поисковые задачи содержали важные элементы в проработке, анализе и закреплении полученных ЗУН в ходе исследовательских заданий, индивидуально-творческих заданий, где теоретические и практические компетенции становились необходимой базой в исследовательской деятельности.

III этап эксперимента (2022-2023 гг.) связан с результатами и коррекцией по развитию и управлению исследовательской деятельностью на уроках внеклассного чтения в 6-8 классах общеобразовательных школ. Данный этап охарактеризован проведением практических занятий по внеклассному чтению в 6-8 классах общеобразовательных школ Намангана, Андижана и Ферганы, что нашло отражение в разработанном нами учебно-методическом пособии. Целью данного пособия является развитие исследовательской деятельности учащихся среднего звена, для которого были специально отобраны современные технологии, инновационные методы, соответствующие предлагаемой теме внеклассного урока и художественному тексту. Также в этот период времени нами был проведён ряд научных экспериментов, анкетирование, беседы; выяснена частота посещаемости учащимися 6-8 классов школьных, городских и областных библиотек; заинтересованность учеников в чтении художественной литературы.



Выводы. Результаты опытно-экспериментальной работы на III этапе исследования доказывают правильность нашей гипотезы, а именно, создание необходимых условий для развития исследовательской деятельности учащихся 6, 7, 8 классов на уроках внеклассного чтения по

литературе, последовательное и систематическое использование инновационных и современных педагогических технологий, дидактических методов и приёмов в процессе проведения внеклассных занятий на основе развивающего и личностно-деятельностного подходов приводят к эффективности.

Таким образом, на основании результатов, полученных в ходе исследования, была разработана структурно-функциональная модель формирования исследовательской деятельности в ходе исследовательской деятельности учащихся на уроках внеклассного чтения.

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СОЦИАЛЬНО-ТРУДОВЫЕ ОТНОШЕНИЯ В ЭПОХУ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА: АНАЛИЗ МЕЖДУНАРОДНЫХ КЕЙСОВ

***Аннотация:** Исследование посвящено анализу трансформации социально-трудовых отношений под влиянием искусственного интеллекта. Целью работы является выявление ключевых тенденций, вызовов и перспектив развития гибких форм занятости в условиях цифровой экономики. В ходе исследования были проанализированы международные кейсы, статистические данные и научная литература. Результаты исследования показали, что внедрение искусственного интеллекта приводит к изменению структуры занятости, появлению новых форм труда и требует адаптации системы социального обеспечения. Для обеспечения устойчивого развития цифровых экономик необходимо разработать новые модели регулирования трудовых отношений, которые бы балансировали интересы работодателей и работников. Автор предлагает ряд рекомендаций по совершенствованию законодательства и социальной политики в сфере труда с учетом специфики цифровой экономики.*

***Ключевые слова:** искусственный интеллект, социально-трудовые отношения, гибкая занятость, цифровая экономика, международный опыт, социальная защита, регулирование труда.*

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SOCIAL AND LABOUR RELATIONS IN THE ERA OF ARTIFICIAL INTELLIGENCE: ANALYSIS OF INTERNATIONAL CASES

***Abstract:** The research is devoted to the analysis of transformation of social and labour relations under the influence of artificial intelligence. The aim of the work is to identify key trends, challenges and prospects for the development of flexible forms of employment in the digital economy. The research analysed international cases, statistical data and scientific literature. The results of the*

study showed that the introduction of artificial intelligence leads to changes in the structure of employment, the emergence of new forms of labour and requires adaptation of the social security system. To ensure the sustainable development of digital economies, it is necessary to develop new models for regulating labour relations that would balance the interests of employers and employees. The author offers a number of recommendations to improve legislation and social policy in the field of labour, taking into account the specifics of the digital economy.

Keywords: *artificial intelligence, social and labour relations, flexible employment, digital economy, international experience, social protection, labour regulation.*

Введение

Современный мир переживает беспрецедентные трансформации, вызванные стремительным развитием технологий, особенно искусственного интеллекта (ИИ). Проникновение ИИ во все сферы человеческой деятельности, включая производство, услуги и управление, неизбежно приводит к глубоким изменениям на рынке труда и, соответственно, в социально-трудовых отношениях [1,2].

Настоящее исследование посвящено анализу трансформации социально-трудовых отношений в контексте широкого внедрения искусственного интеллекта. Целью работы является выявление ключевых тенденций и вызовов, связанных с этими изменениями, а также оценка их влияния на различные группы работников и экономику в целом. Особое внимание уделяется международному опыту, позволяющему выявить наиболее эффективные практики и модели регулирования новых форм занятости.

Актуальность выбранной темы обусловлена рядом факторов. Во-первых, искусственный интеллект все активнее замещает рутинные операции, что приводит к изменению структуры занятости и повышению требований к квалификации работников. Во-вторых, развитие платформ и гибких форм занятости, связанных с использованием ИИ, создает новые возможности для самореализации, но одновременно порождает проблемы социальной защиты и неравенства. В-третьих, широкое внедрение ИИ требует переосмысления традиционных моделей социального партнерства и разработки новых механизмов регулирования трудовых отношений.

В рамках исследования были проанализированы различные аспекты влияния искусственного интеллекта на социально-трудовые отношения:

- **Изменение структуры занятости:** автоматизация рутинных задач, появление новых профессий, связанных с ИИ, и сокращение занятости в традиционных отраслях.
- **Трансформация навыков:** анализ требований к квалификации работников в условиях цифровой экономики и необходимость постоянного обучения и переквалификации.

- **Гибкие формы занятости:** распространение удаленной работы, фриланса, платформной занятости и их влияние на социальные гарантии работников.

- **Социальное неравенство:** усиление неравенства между работниками, обладающими высокими цифровыми компетенциями, и теми, кто не имеет таких навыков.

- **Роль государства и социальных партнеров:** государственное регулирование рынка труда, социальное партнерство и коллективные договоры в условиях цифровой экономики.

Для проведения исследования были использованы различные методы, включая анализ научной литературы, статистических данных, а также международных кейсов. В качестве объектов исследования были выбраны страны с наиболее развитой цифровой экономикой и инновационными подходами к регулированию рынка труда.

Результаты исследования позволяют сделать вывод о том, что искусственный интеллект оказывает глубокое и многогранное влияние на социально-трудовые отношения. С одной стороны, ИИ создает новые возможности для экономического роста и повышения производительности труда [3]. С другой стороны, он порождает ряд социальных проблем, требующих комплексного решения.

Анализ и результаты

Последние несколько лет Содружество независимых государств (СНГ) демонстрирует устойчивую динамику роста, что стало результатом реализации масштабной интеграционной программы, включающей цифровую повестку до 2025 года. В рамках этой повестки страны СНГ сосредоточились на трансформации ключевых отраслей и рынков, ускоренном развитии цифровой инфраструктуры и создании благоприятных условий для более активного участия субъектов экономики в цифровом пространстве. Важным аспектом стало внедрение инновационных рабочих мест, содействие свободному перемещению товаров, капитала и рабочей силы, а также формирование устойчивых евразийских цифровых экосистем [4,5].

Для экономики Узбекистана, стремящегося к цифровым преобразованиям, опыт СНГ представляет собой важный ориентир. С 2020 года Узбекистан активно развивает цифровую инфраструктуру, ориентируясь на создание гибких социально-трудовых отношений, необходимых для успешной интеграции в цифровую экономику. Например, в рамках национальной программы «Цифровой Узбекистан — 2030» особое внимание уделяется поддержке проектно-сетевых форм организации труда, что способствует адаптации к глобальным изменениям на рынке труда [6]. При этом, по аналогии с СНГ, в Узбекистане наблюдается рост числа виртуальных рабочих мест и внедрение гибкого графика работы, что

отвечает запросам цифрового рынка труда и позволяет эффективно использовать трудовые ресурсы страны.

Тем не менее, глобальная цифровизация создаёт новые вызовы, в частности, необходимость обеспечения защиты персональных данных, регулирования трансграничного обмена информацией и сохранения технологического суверенитета. Пример Узбекистана в этом контексте интересен с точки зрения развития мер по защите данных и создания локальных цифровых платформ для предотвращения утечки данных в глобальные экосистемы [7]. Подобные шаги обеспечивают конкурентоспособность национальных компаний на фоне зарубежных цифровых гигантов.

Цифровое пространство в рамках СНГ и Узбекистана представляет собой комплекс цифровых процессов и средств взаимодействия, поддерживающих устойчивое экономическое развитие и социальное взаимодействие [8,9]. Сотрудничество внутри цифровой экосистемы СНГ позволяет странам-участницам развивать гибкие формы занятости, включая дистанционную и временную работу, а также ускоряет развитие социально-ответственных практик на рынке труда. Узбекистан также реализует эти практики, активно расширяя использование цифровых платформ для проектно-сетевой работы, что положительно сказывается на демократизации трудовых отношений и повышении социальной ответственности.

В условиях растущей потребности в гибкости социально-трудовых отношений и повышения значимости цифровых технологий перед СНГ и Узбекистаном стоит задача формирования современной системы управления социально-трудовыми отношениями, способствующей достижению долгосрочных целей цифрового развития.

Анализ литературных источников. Развитие искусственного интеллекта (ИИ) кардинально трансформирует рынок труда, вызывая необходимость переосмысления традиционных моделей социально-трудовых отношений.

В нашем исследовании представлен систематический обзор значимых исследований, посвященных влиянию искусственного интеллекта на рынок труда, социальные институты и будущее человечества. Одним из ключевых трудов в этой области является работа Эрика Бринолфсона и Эндрю Макафи «Машина, платформа, толпа. Наше цифровое будущее» [10], в которой авторы подробно рассматривают автоматизацию и ее влияние на экономику, они подчёркивают, что цифровая революция может усугубить финансовое и социальное неравенство, кардинально изменив рынок труда. По их мнению, автоматизация и внедрение роботов приведут к сокращению многих рабочих мест, что, в свою очередь, усилит разрыв между доходностью капитала и доходностью труда. В результате ключевым фактором производства станут индивидуальные способности людей,

особенно их талант, что усилит противоречие между теми, кто зарабатывает на трудовой деятельности, и теми, чей доход зависит от капитала.

С экономической точки зрения это развитие, вероятно, приведёт к росту спроса на высококвалифицированных специалистов и сокращению потребности в низкоквалифицированных кадрах. Это может привести к снижению доходов населения, ограничить возможности роста для низкоквалифицированных работников и вызвать стагнацию производства и торговли, создавая риски для дальнейшего экономического роста.

Фрэнсис Фукуяма в своей книге «Идентичность» обращает внимание на влияние технологий, в том числе искусственного интеллекта, на человеческую идентичность и общественные институты, подчёркивая угрозу дегуманизации труда [11].

В свою очередь, П.Лукичёв (2022), исследователь цифровых платформ, анализирует условия труда тех, кто работает на гибких платформах, и обсуждает вопросы социальной защиты таких работников [12].

Kurzweil, R. (2005), футуролог, рассуждает о концепции технологической сингулярности — моменте, когда искусственный интеллект превзойдёт возможности человеческого разума, — и размышляет о последствиях этого явления для общества [13].

Историк Юваль Ной Харари (2018) поднимает вопросы о будущем работы, доходов и социального равенства в условиях стремительного развития технологий, анализируя возможные риски и возможности [14].

В книге «Рождение роботов» Ford, M. (2015) рассматривает, как автоматизация, вызванная развитием робототехники и искусственного интеллекта, трансформирует экономику и общество [15].

Эндрю Ян (2016), предприниматель и политик, предлагает конкретные меры для адаптации к новой экономике, включая программы переквалификации и введение базового дохода.

Завершает обзор работа социолога Никласа Лумана (1995), в которой он предлагает теорию социальных систем как способ анализа социальных изменений в условиях технологического прогресса и автоматизации.

Как показывает анализ источников, основные темы исследований заключаются в концентрации внимания на:

- Изменение структуры занятости: автоматизация рутинных задач, появление новых профессий, связанных с ИИ, и сокращение занятости в традиционных отраслях.
- Трансформация навыков: анализ требований к квалификации работников в условиях цифровой экономики и необходимость постоянного обучения и переквалификации.
- Гибкие формы занятости: распространение удаленной работы, фриланса, платформной занятости и их влияние на социальные гарантии работников.

- Социальное неравенство: усиление неравенства между работниками, обладающими высокими цифровыми компетенциями, и теми, кто не имеет таких навыков.

- Роль государства и социальных партнеров: государственное регулирование рынка труда, социальное партнерство и коллективные договоры в условиях цифровой экономики.

- Этические аспекты: проблемы этики в сфере искусственного интеллекта, такие как дискриминация, прозрачность алгоритмов и ответственность за решения, принятые ИИ.

Таким образом, исследования, проведенные упомянутыми авторами, позволяют сделать вывод о том, что развитие искусственного интеллекта оказывает глубокое и многогранное влияние на социально-трудовые отношения. Необходимо разработать новые модели социального обеспечения и трудового законодательства, способные адаптироваться к новым реалиям и обеспечить справедливое распределение благ.

В современных условиях цифровая экономика позволяет бизнесу перемещаться туда, где он находит наиболее выгодные условия, не ограничиваясь ни национальными границами, ни локальными правовыми рамками. Этот процесс объясняет Зигмунт Бауман (2008), британский социолог, описывая «текущую» современность, которая способна разрушать традиционные социальные и институциональные ограничения. Подобная «текучесть» проявляется в том, что бизнес может легко переносить свои активы туда, где условия более благоприятны. Однако ключевыми препятствиями остаются различия в трудовом законодательстве, уровне заработной платы и социальных стандартах, создающие барьеры для свободного перемещения капитала и трудовых ресурсов.

Исследователь западного трудового права Лушников, А. М. (2020) подчеркивает важность гибкости в социально-трудовых отношениях, отмечая необходимость смягчения строгих трудовых регламентов, улучшения условий труда и обновления форм трудовых договоров. Похожие принципы находят отражение в практике Узбекистана, где государство стремится внедрять гибкие формы занятости, например, поддерживая фрилансеров и предпринимателей, работающих с собственными цифровыми платформами.

С развитием цифровых технологий экономический статус работников и работодателей также претерпевает изменения. Например, программисты или разработчики в Узбекистане могут одновременно выступать в качестве наёмных работников и поставщиков капитала, обладая собственными продуктами, что частично перераспределяет предпринимательские риски на самих работников и укрепляет их позиции в бизнесе.

Эти изменения способствуют формированию новой модели труда — «Работа 4.0», аналогичной парадигме «Индустрия 4.0», где высокие стандарты цифровой интеграции и гибкости становятся основными

характеристиками. В Узбекистане применение гибких форм занятости поддерживается государственными программами, направленными на стимулирование создания цифровых рабочих мест. Однако наряду с этим возникают и противоречия: гибкая занятость снижает затраты бизнеса, но может ухудшать социальные гарантии для работников (Римская, О. Н., Анохов, И. В., & Кранбихлер, В. С. (2021).

Создание единого цифрового рынка труда, например, в рамках СНГ, также требует учета прав иностранных работников, что нередко приводит к правовым коллизиям. В частности, выбор применимого права для социально-трудовых отношений международного характера может осуществляться с помощью коллизионных норм, указывающих на подходящий правовой порядок для регулирования договорных обязательств (Стригунова, Д. П., & Эриашвили, Н. Д. (2022)). В Узбекистане такие проблемы решаются на основе коллизионных норм, где особое внимание уделяется обеспечению правовой определенности и соблюдению национального законодательства.

Для полноценного функционирования гибких социально-трудовых отношений в СНГ необходимо целенаправленное многоуровневое управление. Это позволит стабилизировать макроэкономическую ситуацию, смягчив негативные последствия перераспределения трудовых ресурсов и стимулируя социально-экономическое развитие. В заключение рассмотрим ключевые цели и механизмы управления гибкими социально-трудовыми отношениями, основываясь на выявленных особенностях и закономерностях, актуальных как для стран СНГ, так и для Узбекистана.

Обсуждение.

Цели и механизмы управления гибкими социально-трудовыми отношениями: вызовы и приоритеты для Узбекистана в контексте Стратегии «Узбекистан-2030» и цифровой трансформации СНГ. В условиях цифровизации и интеграции в СНГ одной из основных задач Узбекистана и других стран-участниц становится модернизация социально-трудовых отношений, направленная на создание условий для роста занятости и содействия предпринимательской инициативе. Согласно Стратегии, «Узбекистан-2030», а также выступлениям Президента Узбекистана Ш. Мирзиёева, национальная политика уделяет особое внимание комплексной поддержке гибких трудовых отношений, обеспечению социальных гарантий и повышению качества жизни граждан. В рамках этих усилий Узбекистан стремится к интеграции международных трудовых стандартов, соблюдению прав работников, особенно в условиях цифровой экономики и растущей мобильности трудовых ресурсов.

Интеграция социально-трудовых стандартов и цифровизация: Роль Узбекистана. Основные цели цифрового управления трудовыми отношениями в странах СНГ предполагают повышение трудовой активности и мобильности граждан, создание благоприятных условий для

трудовой и проектной занятости в рамках цифровых экосистем. Для достижения этих целей требуется разработка механизмов, обеспечивающих социальные и правовые гарантии, включая оплату труда, условия труда и социальное обеспечение. Подписание Соглашения о сотрудничестве в области охраны труда в 1994 году [23], а также Соглашения о регулировании социально-трудовых отношений в транснациональных корпорациях, действующих на территории государств-участников СНГ в 1997 году стали важным шагом на пути к свободному перемещению трудовых ресурсов и защите прав трудящихся в СНГ, однако оно не решило всех вопросов системного регулирования.

Следует отметить, что Соглашение о сотрудничестве в сфере содействия занятости населения государств – участников СНГ, подписанное на заседании Совета глав правительств СНГ 28 мая 2021 года, явилось первым в истории Содружества многосторонним документом по вопросам занятости населения.

Соглашение подписали Республика Армения, Республика Беларусь, Республика Казахстан, Кыргызская Республика, Российская Федерация, Республика Таджикистан и Республика Узбекистан.

В соответствии со статьей 12 Соглашения последнее вступило в силу 28 января 2022 года. В настоящее время участниками данного международного договора являются Республика Армения, Республика Беларусь, Кыргызская Республика, Российская Федерация, Республика Узбекистан.

Президент Шавкат Мирзиёев неоднократно подчёркивал, что в условиях Стратегии «Узбекистан-2030» приоритетом является гибкость и безопасность трудовых отношений. Узбекистан планирует развивать платформенные и проектные формы занятости, что требует обеспечения юридических гарантий для работников в цифровой среде, включая защиту персональных данных и социальных прав, а также механизмов регулирования электронных трудовых договоров и иных форм дистанционного трудоустройства.

Гибкость трудовых прав и развитие личных прав трудящихся. Цифровизация подчёркивает важность личных прав работников, включая право на обучение, защиту частной жизни и защиту от моббинга. Документы МОТ и последние исследования указывают на необходимость сочетания гибкости с защитой прав работников, особенно в условиях цифровой экономики (Лушников, А., & Лушникова, М. (2022) и Конобеева, А. Б. (2021). В условиях СНГ вопросы балансирования экономических интересов и прав работников особенно актуальны. Узбекистан, учитывая цифровые тренды, вносит изменения в трудовое законодательство, которые охватывают вопросы дистанционной занятости и проектной работы.

Важной задачей становится обновление институтов трудового права: введение правовых механизмов для защиты достоинства работника,

обеспечения права на отдых и регулирования рабочего времени в условиях гибкого графика. В Узбекистане формируется национальная программа по поддержке прав трудящихся, включая защиту социальных прав при удалённой занятости и расширение доступа к непрерывному образованию.

Опыт других стран СНГ в модернизации социально-трудовых отношений.

Соседние страны СНГ также ведут активную работу по адаптации трудового законодательства. Например:

- **Армения** в 2019 году приняла программу «Достойный труд» (2019–2023 гг.), предусматривающую законодательные изменения для улучшения условий занятости.

- **Белоруссия** утвердила перечень индикаторов достойного труда на 2016 год.

- **Россия** подписала программу сотрудничества с МОТ (2017–2022 гг.), направленную на расширение занятости и социальной защиты, а также регулярно вносит изменения в Трудовой кодекс, адаптируя его к условиям цифровизации.

- **Казахстан** реализует программу «Еңбек» (2017–2021 гг.), а Министерство труда Казахстана работает над изменениями в Трудовом кодексе.

Для Узбекистана подобный опыт стран-партнёров является полезным ориентиром, особенно в плане разработки и внедрения программного регулирования в сфере труда.

Международное сотрудничество и гармонизация стандартов в СНГ. Стратегия «Узбекистан-2030» включает стремление к гармонизации трудовых норм и законодательства, что требует разработки унифицированных актов для правового регулирования социально-трудовых отношений в условиях СНГ. Это также требует внедрения стандартов МОТ и реализации международных трудовых норм, которые охватывают права на защиту от дискриминации, безопасные условия труда и защиту персональных данных.

Опираясь на политику Президента Ш. Мирзиёева, международное сотрудничество Министерства занятости и сокращения бедности Республики Узбекистан с такими организациями, как МОТ, Международная организация по миграции и Всемирная организация интеллектуальной собственности, является ключом к достижению достойного труда. Это необходимо для формирования межгосударственных стандартов трудовых прав, особенно с учетом многообразия цифровых юрисдикций.

Цифровизация и интеграция в СНГ требуют пересмотра подходов к управлению социально-трудовыми отношениями, и Узбекистан, опираясь на Стратегию «Узбекистан-2030», активно способствует модернизации трудовых норм и гарантий. Создание гибких условий для трудовых отношений, внедрение стандартов достойного труда и защита личных прав

трудящихся — важные шаги, которые помогут стране успешно адаптироваться к вызовам цифровой экономики, обеспечивая при этом устойчивый социально-экономический рост.

В условиях цифровой трансформации экономики стран СНГ управление социально-трудовыми отношениями претерпевает кардинальные изменения, смещаясь в сторону цифровых экосистем. В рамках «Стратегии развития Нового Узбекистана на 2022–2026 годы» особое внимание уделяется адаптации трудового законодательства к современным цифровым реалиям, что включает в себя поддержание единого цифрового рынка труда и защиту прав работников в условиях роста гибких и дистанционных форм занятости.

На уровне СНГ развитие цифровых экосистем может быть поддержано заключением международных коллективных соглашений, что уже практикуется с участием транснациональных корпораций и подтверждает жизнеспособность такой формы регулирования для цифровых экосистем на Евразийском пространстве.

Текущие вызовы и необходимость формирования цифрового рынка труда.

Несмотря на значительные шаги в направлении цифровизации, создание единого цифрового рынка труда требует дополнительных усилий в нескольких аспектах:

1. **Цифровизация малых и средних предприятий.** Для интеграции всех участников рынка труда, включая малый и средний бизнес, необходим переход на цифровые технологии управления трудовыми отношениями. Это позволит значительно упростить взаимодействие в рамках цифровых экосистем и повысить прозрачность трудовых процессов.

2. **Вывод социально-трудовых отношений из теневого сектора.** Узбекистан, следуя Стратегии на 2022–2026 годы, ставит перед собой цель формализовать оплату труда и сократить неофициальную занятость. Для этого разрабатываются механизмы защиты прав работников, что способствует интеграции трудовых ресурсов в легальный рынок труда.

3. **Механизмы налогообложения и создания социальных фондов.** Необходимость налогообложения и формирования социальных фондов для работников цифрового сектора должна сочетаться с сохранением стимулов для повышения производительности и предпринимательской активности. Узбекистан, адаптируясь к новым формам занятости, также стремится разработать прозрачные системы налогообложения и регулирования социальных фондов, чтобы обеспечить равенство прав работников.

Внедрение правовой культуры и социального регулирования

Формирование правовой культуры и социальной ответственности внутри цифровых экосистем требует времени, особенно в странах СНГ, где национальные стандарты и подходы могут отличаться. На международном

уровне работа, основанная на принципах и нормах права, может создать основу для стабильного цифрового рынка труда. В Узбекистане такие шаги включают создание безопасных условий для удалённой и гибкой занятости, обеспечение равенства прав и защиту персональных данных работников.

Примером успеха в этом направлении является национальная инициатива Узбекистана по модернизации трудового законодательства в контексте цифровой трансформации. Внедрение международных стандартов и адаптация трудовых практик к цифровым условиям позволят не только упростить обмен трудовыми ресурсами, но и обеспечить высокий уровень социальной защиты в странах СНГ.

Стандартизация трудовых норм и развитие цифрового доверия

Комплекс международных норм и правил способен поддерживать формализацию гибких трудовых отношений и удалённой работы в едином цифровом пространстве. Правовые институты СНГ могут создать атмосферу доверия и порядка, способствующую экономическому росту и социальной стабильности. Узбекистан, ориентируясь на Стратегию 2022–2026 годов, стремится выстроить систему, которая будет способствовать цифровому регулированию труда, защищая права трудящихся и развивая предпринимательскую активность.

Заключение

Переход на цифровой рынок труда требует комплексного подхода, охватывающего регулирование гибких и дистанционных трудовых отношений. Следуя стратегическим приоритетам, закреплённым в «Стратегии развития Нового Узбекистана на 2022–2026 годы», Узбекистан создает условия для эффективного функционирования цифровой экосистемы труда. Взаимодействие в рамках СНГ, основанное на принципах международного права, способствует выстраиванию единого цифрового рынка труда, что является важным элементом устойчивого социально-экономического развития региона.

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АРПА ДОН КУЯСИ ТУХУМИНИ АЖРАТУВЧИ МОСЛАМА

Аннотация: Ушбу мақолада дон куяси тухумини элаклардан ажратиш олиш учун тайёрланган мосламада иккитадан элакдаги тухумларни ажратиш олишда фойдаланилганда амалда 3-4 дақиқа вақт сарфланганда бўлиб, 45 та элакдан тухум олиш учун 67,5-90 дақиқа ёки андаза вариантига нисбатан кам вақт сарфланиши аниқланди.

Калим сўзлар: дон куяси, тухум, тангачалар, трихограмма, олтинкўз, ветилятор, патинус, банка ва трубка.

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BARLEY GRAIN MOTH EGG SEPARATOR

Annotation: This article found that when using a two-sieve egg separator, it takes 3-4 minutes to remove eggs from 45 sieves, or 67.5-90 minutes, or less time compared to the standard version.

Keywords: goldeneye, grain mole, eggs, scales, trichogramma, fan, jar, correta and tube.

Бир неча йиллар дан буён биолобаторияларда трихограмма ва олтинкўз кўпайтириш учун дон куяси тухумидан фойдаланиб келинмоқда. Албатта бу ишлар ҳамма биолобаторияларда оммалашган. Аммо юқорида таъкитлаб ўтилган жараён биолобаторияларда бир хил эмас. Оддий биолобаторияларда дон куясини кўпайтиришдан то тухум олиш жараёни ҳеч қандай тавсияларда берилмаган ҳолатда мосламаларсиз олиб борилади. Бу эса кўп вақтни сарфланишига ёки бир иш кунидаги берилган фойдали иш коэффицентини орқага сурилишига олиб келади. Бу эса трихограммани ва олтинкўзни озиклантиришни кечикишига олиб келади.

Ҳозирги кунда фанерли ёки темирли элаклардан фойдаланиш оммалашган бўлиб кўпроқ хонадан ташқарида дон куяси элаб олинади.

Бунга сабаб капалакларда ажралиб чиққан қанот тангачаларини ташқарига чиқаришни иложи йўқ эканлигидир. Юқоридаги камчилик-ларни бартараф этиш учун Андижон қишлоқ хўжалиги ва агротехно-логиялар институти ва Ўсимликларкарантини ва ҳимоя қилиш ИТИ ходимлари

томонидан дон куяси тухумини элаклар ёрдамида ажратиб олишда янги мослама яратилди (1-расм).

Дон куяси тухумини ажратувчи мослама

Мослама баъзи бир қисмлари қурилиш материалдан, металл ва тунукадан тайёрланган бўлиб, ўлчами 600x50x20x20мм бўлган ғилдиракли аравача, диаметри 27x27 бўлган иккита элак (2-расм), дон куяси тухумлари тўпланувчи патнус (каррета) (3-расм), ичкаридаги чангларни ташқарига чиқариб юборувчи вентилятор, чангни махсус йиғувчи банка ва трубкадан иборат. Ичида капалаклар жойлашган иккита элак аравачага жойлаштирилади ва қўл ёрдамида чап ва ўнг томонга силкита, бошлайди ва элакдаги дон куяси тухумлар пастга жойлашган патнусга туша бошлайди бу жараён тухумлар тўлиқ тушиб бўлгунга қадар давом этади. Тухумлар олингандан сўнг элаклар чиқариб олинади ва навбатдаги элаклар жойлаштирилади. Навбатдаги жойлаштирилган элаклардан ҳам юқоридаги ҳолатда тухум олиш жараёни давом этади.

Корпус бўйлаб тарқалаган элакдаги капалаклардан ажралиб чиққан чанглар вентилятор ёрдамида труба орқали ичига сув қуйилган пластмасса идишг юборилади ва чанглар сувга чўкади, ҳаво эса махсус трубка орқали ташқарига чиқиб кетади.



1-расм. Дон куяси капалакларидан тухум олиш мосламасини умумий кўриниши.

**Дон куясини тухумини олиш учун кетган вақт
(дақиқа ҳисобида)**

Андижон вилояти, Балиқчи туман, БИО биологическая лабораторияси, 2024 й.16- март.)

| № | Вариантлар | Элак-лар сони, дона | 1 элак учун сарфланган вақт, дақиқа ҳисобида | Жами сарфланган вақт, дақиқа ҳисобида | Андазага нисбатан фарқи | |
|---|--------------|---------------------|--|---------------------------------------|-------------------------|---------|
| | | | | | + | - |
| 1 | Янги мослама | 45 | 1,5-2 | 67,5-90 | 67,2-90 | - |
| 2 | Андаза | 45 | 3-4 | 135-180 | - | 67,2-90 |

Иш жараёнида битта элакдан ва махсус мослама ёрдамида тухум олиш



2-расм. Капалаклар солинган элаклар ва аравагани умумий қўриниши

учун 3-4 дақиқа сарфланади. Масус моламада 45 та элакдаги тухумни ажратиб олиш учун 67,5-90 дақиқа ёки 1,15соатдан 1,30 соатгача ва бир элакдан фойдаланилганда 135-180 дақиқа ёки 2,15 соатдан 3,0 соатгача вақт сарфланиши маълум бўлди.

Олиб борилган тажриба натижаларига кўра, янги тайёрланган мосламада ўртача 45 та элакдан тухум олинганда 1,1 соатдан 1,28 соатгача давом этиши маълум бўлиб, андазага вариантга нисбатан 69 дан 92 дақиқагача кам вақт сарфланган.

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МОРФОЛОГИЧЕСКАЯ ХАРАКТЕРИСТИКА ТУРКЕСТАНСКОГО СОМИКА (*GLYPTOSTERNON OSCHANINI*) РЕКИ ДАРБАНД

Аннотация. В статье рассказывается о морфологии, половой и возрастной изменчивости туркестанского сомика (*Glyptosternon oschanini*) реки Дарбанд. Реальные различия между самками и самцами обнаруживаются только по результатам морфометрии.

Ключевые слова: нерест, морфология, плодовитость, река Дарбанд,, гонада.

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MORPHOLOGICAL CHARACTERISTICS OF THE TURKESTAN CATFISH (*GLYPTOSTERNON OSCHANINI*) OF THE DARBAND RIVER

Abstract. The article tells about the morphology, sex and age variability of the Turkestan catfish (*Glyptosternon oschanini*) of the Darband river. Real differences between females and males are found only by the results of morphometry.

Key words: spawning, morphology, fertility, the Darband river, gonad.

Туркестанский сомик (*Glyptosternon oschanini* Herzenstein, 1889) — малоизученный вид, внесенный в Красную книгу Республики Узбекистан [11] как «уязвимый, сокращающийся, мозаично распространенный нагорно-азиатский эндемичный вид». Ареал его распространения охватывает водоемы бассейна верхнего течения Амударьи, Сырдарьи, Тарима и Инда [1,4,8]. В Сурхандарье обитает в ее притоках Сангардак и Туполанг, населяет горные и предгорные участки р. Шерабаддрья [1,2,3]. В том числе встречается в горных и предгорных реках Хужаипок [5].

Целью данной работы является пополнение сведений о внешней морфологии, половой и возрастной изменчивости туркестанского сомика реки Дарбанд.

Материал и методы

Материалом для настоящей работы послужили сборы рыб, проведенные в весенне-летние периоды 2017-2018 гг. на реке Дарбанд. Отлов рыб проводили преимущественно сетями «Тор», «Камон тур» и с помощью сачка. Морфометрические измерения проведены по общепринятой методике на свежем материале [10]. При статистической обработке материала определяли средние значения и их ошибки ($M \pm m$), среднее квадратическое отклонение (σ), коэффициент вариации ($CV\%$). Достоверность различий (t_{st}) средних значений оценивалась по критерию Стьюдента для 5-процентного ($P < 0,05$) уровня значимости [7]. Все вычислительные работы проведены с помощью компьютерной системы анализа данных MS Excel. Всего исследовано 4 экз. рыб длиной тела 95-160 мм.

Результаты и обсуждение

Лучей в спинном плавнике у туркестанского сомика из реки Дарбанд I 6, в анальном II-III 5, в грудном I 10 и в брюшном I 5. Количество жаберных тычинок на первой жаберной дуге-10, позвонков-33.

Тело сомика голое, невысокое, наибольшая высота его укладывается 6,7-7,6 раз в длине тела, наименьшая-2,6-3,3 раза в длине хвостового стебля. Антедорсальное расстояние меньше постдорсального в 1,5 раза. Грудные и брюшные плавники поставлены горизонтально. Голова плоская, ее длина 4,5-6,3 раз в длине тела. Глаза маленькие, 3,1-4,2 раза в ширине лба. Рот нижний. Длина рыла достигает 55% длины головы, на рыле 4 пары усиков.

Окраска тела от темно-коричневой до желтовато-коричневой, брюхо светлое. У большинства половозрелых рыб тело сплошь покрывается мелкопятнистой расплывчатой окраской.

Морфометрические признаки туркестанского сомика из реки Дарбанд приводятся в таблице.

Морфометрические признаки туркестанского сомика реки Дарбанд

Таблица 1

| Признак | Показатель | | | |
|----------------|------------|------------------|-------|----------|
| | пределы | $M \pm m$ | a | $Cv, \%$ |
| $SL, мм$ | 95-160 | 128,7 \pm 2,59 | 17,28 | 13,4 |
| В % длины тела | | | | |
| c | 21,2-25,3 | 23,5 \pm 0,15 | 1,09 | 4,7 |
| ao | 9,1-12,6 | 10,9 \pm 0,12 | 0,75 | 6,9 |
| o | 1,5-2,5 | 1,8 \pm 0,04 | 0,28 | 14,9 |
| po | 9,9-13,4 | 11,7 \pm 0,13 | 0,85 | 7,3 |
| hc | 10,0-14,8 | 12,4 \pm 0,15 | 0,97 | 7,9 |
| io | 5,8-7,9 | 6,6 \pm 0,07 | 0,46 | 6,9 |
| $b1$ | 7,9-10,8 | 9,0 \pm 0,11 | 0,67 | 7,4 |
| $b2$ | 7,9-10,6 | 9,0 \pm 0,09 | 0,57 | 6,3 |

| | | | | |
|------------------|-----------|------------|------|------|
| <i>b3</i> | 4,0-5,7 | 4,8±0,06 | 0,36 | 7,5 |
| <i>H</i> | 13,9-20,9 | 17,3±0,24 | 1,53 | 8,9 |
| <i>h</i> | 6,5-9,4 | 8,0 ±0,08 | 0,65 | 8,2 |
| <i>aD</i> | 36,0-42,2 | 38,6 ±0,19 | 1,32 | 3,5 |
| <i>pD</i> | 51,9-60,9 | 55,3±0,28 | 1,82 | 3,4 |
| <i>aA</i> | 62,5-69,6 | 65,9±0,14 | 0,98 | 1,5 |
| <i>lca</i> | 21,7-26,1 | 24,4 ±0,16 | 1,01 | 4,2 |
| <i>ID</i> | 8,9-11,4 | 9,9±0,09 | 0,64 | 6,4 |
| <i>hD</i> | 15,6-20,5 | 17,8±0,15 | 1,00 | 5,7 |
| <i>IA</i> | 5,9-9,2 | 7,1 ±0,09 | 0,65 | 9,1 |
| <i>hA</i> | 14,2-18,8 | 16,0 ±0,13 | 0,89 | 5,6 |
| <i>IP</i> | 20,7-26,7 | 24,2±0,17 | 1,14 | 4,7 |
| <i>IV</i> | 15,9-20,5 | 17,8±0,13 | 0,88 | 4,9 |
| <i>PV</i> | 25,9-37,1 | 33,0 ±0,34 | 2,29 | 6,9 |
| <i>VA</i> | 17,9-25,4 | 20,4 ±0,22 | 1,48 | 7,3 |
| <i>Id</i> | 30,1-36,7 | 33,3±0,13 | 0,90 | 2,7 |
| <i>hd</i> | 3,7-7,6 | 5,0 ±0,09 | 0,61 | 12,3 |
| В % длины головы | | | | |
| <i>ao/c</i> | 38,6-56,4 | 46,6±0,56 | 3,75 | 8,1 |
| <i>o/c</i> | 5,5-11,3 | 7,8 ±0,19 | 1,31 | 16,6 |
| <i>po/c</i> | 40,0-60,0 | 50,0±0,61 | 4,10 | 8,2 |
| <i>he/c</i> | 40,8-68,6 | 52,9±0,78 | 5,22 | 9,9 |
| <i>io/c</i> | 24,0-36,2 | 28,2±0,36 | 2,39 | 8,4 |

Судя по таблице, большинство пластических признаков подвержено значительной вариабельности. Наиболее изменчивыми являются следующие признаки: *H*, *h*, *IA*, *hd*, *o/c*, *po/c*, *he/c*, *io/c*. Остальные признаки изменчивы в меньшей степени.

Данных о половом диморфизме туркестанского сомика в литературе очень мало. По сведениям Г.В.Никольского, изменений пластических признаков с полом не наблюдается, самцы значительно крупней самок, и отличаются лишь некоторыми изменениями анального отверстия и величиной [9]. По данным В.А.Максумова, половой деморфизм не наблюдается у туркестанского сомика, обитающей в р. Ходжабакирга и по Н.М.Девонной в р. Ходжаипок [8,5]. Некоторые учёные для сомиков р. Сангардак указывают 10 признаков различия между полами из 25 исследованных [1,3,6].

Сравнение морфометрических признаков самок и самцов туркестанского сомика реки Дарбанд

Таблица 2

| Признак | Показатель | | | | Сv, % |
|----------------|---------------|------------|---------------|------------|-------|
| | самки (n = 3) | | самцы (n = 2) | | |
| | пределы | $M \pm m$ | пределы | $M \pm m$ | |
| <i>SL</i> , мм | 110-160 | 131,3±3,61 | 95-150 | 126,9±3,72 | |
| В % длины тела | | | | | |
| <i>H</i> | 15,5-20,9 | 18,0±0,31 | 13,8-19,9 | 16,7 ±0,27 | 3,26 |
| <i>PV</i> | 26,8-37,1 | 34,0±0,51 | 25,9-35,6 | 32,2 ±0,40 | 2,83 |
| <i>VA</i> | 19,1-25,3 | 21,1 ±0,33 | 17,9-24,1 | 19,7 ±0,23 | 3,41 |

По нашим данным, самки туркестанского сомика фактически не отличаются от одновозрастных самцов по внешнему виду. Реальные различия обнаруживаются только по результатам морфометрии. Самки от самцов отличаются по тем пластическим признакам, которые определенно связаны с более значительным объемом их половых продуктов. У самок достоверно большие значения *H*, *PV*, *VA*.

Для определения размерно-возрастной изменчивости исследуемые рыбы нами были разделены на две группы. Более крупных рыб больше антедорсальное, постдорсальное, заглазничное расстояния и высота головы, длинней хвостовой стебель, основание спинного и анального плавников, меньше только один признак—диаметр глаза.

Заключение

Таким образом, в результате проведенных работ получены данные, характеризующие признаки внешней морфологии туркестанского сомика. Существенные различия между самцами и самками не обнаружены. Выявленные различия по результатам морфометрии скорее связаны с развитием половых продуктов. С возрастанием линейных размеров у туркестанского сомика изменяются 5 пластических признаков тела и 3 признака головы, при этом относительный уровень изменчивости большинство признаков остается без изменений.

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СУРХОНДАРЁ СУВ ҲАВЗАЛАРИДА ТАРҚАЛГАН ТУРКИСТОН ЛАҚҚАЧАСИНИНГ (*GLYPTOSTERNON OSCHANINI*) ЭКОЛОГИК ХУСУСИЯТЛАРИ

Аннотация. В статье описаны экологические особенности туркестанского сомика распространенной в Сурхандарьинских водоёмах. Предоставляется информация о длине и массе тела, о росте, о возрастном составе и коэффициентах ожирения.

Ключевые слова: морфология, степень ожирения, половое созревание, гонады.

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THE ENVIRONMENTAL CHARACTERISTICS OF THE TURKESTAN CROWD (*GLYPTOSTERNON OSCHANINI*), DISTRIBUTED IN THE SURKHANDARYA RESERVOIRS

Abstract. The article describes the ecological characteristics of the Turkestan catfish common in the Surkhandarya reservoirs. Information is provided on the length and weight of the body, on growth, age composition and obesity rates.

Key words: morphology, degree of obesity, puberty, gonads

Туркистон лаққачаси (*Glyptosternum oschanini*)-камёб, кам ўрганилган тур, Ўзбекистон Республикасининг Қизил китобиға заиф, қисқариб бораётган, мозаик тарқалган тур сифатида киритилган [1].

Туркистон лаққачаси Сурхондарёнинг тоғли ирмоқлари–Тўполондарё, Сангардақдарё ва Хўжаипок дарёларида ва уларга қуюлувчи сойларнинг қуйи ва ўрта қисмларида учрайди. Туркистон лаққачаси дарёларнинг юқори тоғли қисмларида яшаганлиги сабабли уларнинг ўсиши яшаш муҳити билан боғлиқдир. Ўзбекистонда сув ҳавзаларида туркистон лаққачасининг ёши ва ўсиши яхши ўрганилмаган [2,3]. Тўполондарёдаги туркистон лаққачаси чавоқларининг узунлиги 20,0-26,6 (ўртача 23,0) мм ва вазни 165-320 (217) мг/г бўлганлиги тўғрисида маълумотларни келтиради.

Бизнинг намуналарда Сурхондарё сув ҳавзаларида туркистон лаққачаси танасининг узунлиги 65-150 ($112,86 \pm 2,35$; $Cv = 15,55\%$) мм ва вазни 2,3-40,5 ($23,85 \pm 1,26$; $Cv = 39,63\%$) г ни ташкил қилди. 1-жадвалда Сурхондарё сув ҳавзаларидаги туркистон лаққачасининг ҳажм ва вазн таркиби келтирилган.

1-жадвал

Сурхондарё сув ҳавзаларидаги туркистон лаққачасининг ҳажм ва вазн таркиби

| Тўполондарё ($n=18$) | | Сангардакдарё ($n=20$) | | Хўжайпоқдарё ($n=18$) | |
|----------------------------------|-----------------------------------|----------------------------------|-----------------------------------|----------------------------------|-----------------------------------|
| l , мм | Q , г | l , мм | Q , г | l , мм | Q , г |
| $\frac{65 - 150}{115,6 \pm 5,3}$ | $\frac{2,3 - 40,5}{26,7 \pm 2,7}$ | $\frac{81 - 140}{114,0 \pm 3,1}$ | $\frac{5,6 - 37,9}{24,1 \pm 1,8}$ | $\frac{74 - 130}{108,7 \pm 3,7}$ | $\frac{3,6 - 34,7}{20,6 \pm 1,7}$ |

Изоҳ: l – тана узунлиги, мм; Q – тана вазни, г.; каср устида – минимал ва максимал кўрсаткичлар, остида – ўртача кўрсаткич ва унинг хатолиги; n – намуналар сони.

Сурхондарё сув ҳавзаларида туркистон лаққачаси 1+-4+ ёшли балиқлардан иборат бўлиб уларнинг ёш-ўлчам таркиби ва семизлик коэффицентлари кўрсаткичлари 2-3.2.4-жадвалларда келтирилган.

2-жадвал

Тўполондарёдаги туркистон лаққачасининг ёш-ўлчам таркиби ва семизлик коэффицентлари

| Ёши | l , мм | Q , г | $СК_F$ | $СК_K$ | n |
|-----|-------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-----|
| 1+ | $\frac{65 - 80}{72,50 \pm 7,50}$ | $\frac{2,3 - 5,5}{3,90 \pm 1,60}$ | $\frac{0,84 - 1,07}{0,96 \pm 0,12}$ | $\frac{0,44 - 0,72}{0,58 \pm 0,14}$ | 2 |
| 2+ | $\frac{90 - 120}{107,00 \pm 0,40}$ | $\frac{10,3 - 30,1}{22,76 \pm 2,16}$ | $\frac{1,41 - 2,06}{1,81 \pm 0,07}$ | $\frac{1,14 - 1,72}{1,51 \pm 0,06}$ | 8 |
| 3+ | $\frac{124 - 135}{129,60 \pm 1,81}$ | $\frac{31,6 - 37,3}{35,00 \pm 1,81}$ | $\frac{1,52 - 1,66}{1,61 \pm 0,03}$ | $\frac{1,27 - 1,47}{1,38 \pm 0,03}$ | 5 |
| 4+ | $\frac{140 - 150}{144,00 \pm 3,06}$ | $\frac{38,1 - 40,5}{39,13 \pm 0,71}$ | $\frac{1,20 - 1,39}{1,31 \pm 0,06}$ | $\frac{1,00 - 1,16}{1,10 \pm 0,05}$ | 3 |

Изоҳ. Бу ва шунга ўхшаш бошқа жадвалларда: l – тана узунлиги, см; Q – тана вазни, г.; $СК_F$ – Фультон бўйича семизлик коэффицентлари; $СК_K$ – Кларк бўйича семизлик коэффицентлари; каср устида – минимал ва максимал кўрсаткичлар, остида – ўртача кўрсаткич ва унинг хатолиги; n – намуналар сони.

Тўполондарёдаги туркистон лаққачаси танасининг узунлиги 1+ ёшда 65-80 мм (ўртача 72,5) ва вазни 2,3-5,5 г (3,9) ни, 2+ ёшдагиси мос равишда

90-120 мм (107,0) ва 10,3-30,1 г (22,7), 3+ ёшдагиси 124-135 г (129,6) ва 31,6-37,3 г (35,0), 4+ ёшдагиси эса 140-150 г (144,0) ва 38,1-40,5 г (39,1) ни ташкил қилди. Семизлик коэффиценти Фултон бўйича 0,84 дан 2,06 гача, Кларк бўйича эса 0,44 дан 1,72 гача бўлиши аниқланди [5].

3-жадвал

Сангардақдарёдаги туркистон лақачасининг ёш-ўлчам таркиби ва семизлик коэффицентлари

| Ёши | l , мм | Q , г | CK_F | CK_K | n |
|-----|-------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-----|
| 1+ | 81 | 5,6 | 1,05 | 0,72 | 1 |
| 2+ | $\frac{92 - 119}{109,00 \pm 2,41}$ | $\frac{10,1 - 26,1}{20,77 \pm 1,31}$ | $\frac{1,30 - 1,96}{1,58 \pm 0,06}$ | $\frac{1,05 - 1,62}{1,33 \pm 0,05}$ | 12 |
| 3+ | $\frac{119 - 128}{124,20 \pm 1,50}$ | $\frac{25,5 - 36,1}{30,66 \pm 2,22}$ | $\frac{1,30 - 1,85}{1,60 \pm 0,12}$ | $\frac{1,12 - 1,56}{1,37 \pm 0,10}$ | 5 |
| 4+ | $\frac{131 - 140}{135,50 \pm 4,50}$ | $\frac{36,1 - 37,9}{37,00 \pm 0,90}$ | $\frac{1,38 - 1,61}{1,49 \pm 0,11}$ | $\frac{1,14 - 1,34}{1,24 \pm 0,10}$ | 2 |

Сангардақдарёдаги туркистон лақачаси танасининг узунлиги 1+ ёшда 81 мм ва вазни 5,6 г ни, 2+ ёшдагиси 92-119 мм (109,0) ва 10,1-26,1 г (20,7), 3+ ёшдагиси 119-128 мм (124,2) ва 25,5-36,1 г (30,6), 4+ ёшдагиси эса 131-140 мм (135,5) ва 36,1-37,9 г (37,0) ни ташкил қилди. Семизлик коэффиценти Фултон бўйича 1,30 дан 1,96 гача, Кларк бўйича эса 1,05 дан 1,62 гача бўлиши аниқланди.

4-жадвал

Хўжайпоқ дарёсидаги туркистон лақачасининг ёш-ўлчам таркиби ва семизлик коэффицентлари

| Ёши | l , мм | Q , г | CK_F | CK_K | n |
|-----|-------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-----|
| 1+ | $\frac{74 - 90}{82,33 \pm 4,63}$ | $\frac{3,6 - 16,5}{8,60 \pm 4,00}$ | $\frac{0,89 - 2,26}{1,38 \pm 0,44}$ | $\frac{0,57 - 1,92}{1,06 \pm 0,43}$ | 3 |
| 2+ | $\frac{95 - 118}{108,70 \pm 2,68}$ | $\frac{17,1 - 24,2}{20,29 \pm 0,80}$ | $\frac{1,37 - 1,99}{1,59 \pm 0,07}$ | $\frac{1,15 - 1,69}{1,35 \pm 0,06}$ | 10 |
| 3+ | $\frac{120 - 130}{124,80 \pm 1,66}$ | $\frac{25,5 - 34,7}{28,48 \pm 1,77}$ | $\frac{1,34 - 1,58}{1,46 \pm 0,04}$ | $\frac{1,08 - 1,29}{1,21 \pm 0,04}$ | 5 |
| 4+ | 130 | 34,7 | 1,58 | 1,29 | 1 |

Хўжайпоқ дарёсидаги туркистон лақачаси танасининг узунлиги 1+ ёшда 74-90 мм (82,3) ва вазни 3,6-16,5 г (8,6) ни, 2+ ёшдагиси 95-118 мм (108,0) ва 17,1-24,2 г (20,2), 3+ ёшдагиси 120-130 мм (124,8) ва 25,5-34,7 г

(28,4), 4+ ёшдагиси эса 130 мм ва 34,7 г ни ташкил қилди. Семизлик коэффиценти Фултон бўйича 0,89 дан 2,26 гача, Кларк бўйича эса 0,57 дан 1,92 гача бўлиши аниқланди. [4].

Сурхондарё сув ҳавзаларида туркистон лақачаси 1+2+ ёшда анча тез ўсади, 3+ ёшдан бошлаб ўсиш тезлиги бир мунча пасаяди, яъни балиқларнинг жинсий вояга етиш давригача ошиб боради, кейин эса аста пасая бошлайди (5-жадвал).

5-жадвал

Сурхондарё сув ҳавзаларидаги туркистон лақачасининг тана узунлиги ва вазнининг ўсиши (умумлаштирилган маълумотлар)

| Ёши | <i>l</i> , мм | Ўсиш, мм | % | <i>Q</i> , г | Ўсиш, г | % |
|-----|---------------|----------|-------|--------------|---------|-------|
| 1+ | 78,83 | 78,83 | 56,78 | 6,53 | 6,53 | 17,33 |
| 2+ | 108,37 | 29,54 | 21,27 | 21,14 | 14,61 | 38,74 |
| 3+ | 125,93 | 17,56 | 12,64 | 31,14 | 10,00 | 26,53 |
| 4+ | 138,83 | 12,90 | 9,29 | 37,68 | 6,54 | 17,35 |

Корреляцион ва регрессион таҳлил натижаларига кўра, Сурхондарё сув ҳавзаларидаги туркистон лақачасининг ёши, тана узунлиги ва вазнининг ўртасида ўзаро кучли боғлиқлик мавжудлиги аниқланди.

Шундай қилиб, олиб борган тадқиқотларимиз натижасида Сурхондарё сув ҳавзаларидаги туркистон лақачасининг ўсиш хусусиятлари очиб берилди. Ўрганилган балиқларнинг тана узунли 65-150 мм ($112,86 \pm 2,32$) ва вазни 2,3-40,5 г ($23,85 \pm 1,26$) ни ташкил қилдиши, семизлик коэффиценти Фултон бўйича 0,84-2,26 ($1,55 \pm 0,04$), Кларк бўйича 0,44-1,95 ($1,29 \pm 0,04$) бўлиши аниқланди. Балиқ тана узунлиги ва вазнининг ўсиши уларнинг жинсий вояга етиш давригача ошиб бориши ва аста пасайиши, шунингдек, ёши, тана узунлиги ва вазнининг ўртасида ўзаро тўғри чизиқлик кучли боғлиқлик мавжудлиги ёритилди ҳамда боғлиқлик даражасининг корреляция коэффиценти 0,849-0,987 га тенглиги ва боғлиқлик $P \leq 0,05$ даражасида аҳамиятли эканлиги аниқланди.

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СОДЕРЖАНИЕ ЭФИРНОГО МАСЛА У НЕКОТОРЫХ ВИДОВ ХВОЙНЫХ, ПРОИЗРАСТАЮЩИХ В СУРХАНДАРЬИНСКОЙ ОБЛАСТИ (УЗБЕКИСТАН)

Аннотация: Флора Узбекистана насчитывает значительное число видов растений, содержащих эфирные масла, обычно это виды из семейств *Apiaceae*, *Asrteraceae*, *Lamiaceae*. Группа хвойных (*Pinophyta* или *Coniferae*), включающая виды таких семейств как *Cupressaceae* — Кипарисовые, *Pinaceae* — Сосновые, мало изучены для данной территории. На протяжении ряда лет в лабораторных условиях оценивали накопление эфирного масла методом гидродистилляции в зелёных ветвях и хвое у следующих видов: сосны эльдарской (*Pinus brutia* var. *eldarica*), можжевельника зеравшанского (*Juniperus seravschanica*), можжевельника виргинского (*Juniperus virginiana*), туи западной - *Thuja occidentalis*, кипариса вечнозелёного (*Cupressus sempervirens* var. *sempervirens*). Наибольшее количество эфирного масла было выделено из хвои и ветвей *Juniperus seravschanica* – почти до 1.4 %. У *Juniperus virginiana* и *Cupressus sempervirens* var. *sempervirens* накапливается от 0.4 до 0.6 % эфирного масла. Самое низкое содержание искомым продуктов было у *Thuja occidentalis* (до 0.12 %) и у *Pinus brutia* var. *eldarica* (всего лишь 0.05 %).

Ключевые слова: *Pinophyta*, *Coniferae*, *Cupressaceae*, *Pinaceae*, *Pinus brutia*, *Juniperus seravschanica*, *Juniperus virginiana*, *Thuja occidentalis*, *Cupressus sempervirens* var. *sempervirens*.

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ESSENTIAL OIL CONTENT OF SOME CONIFER SPECIES GROWING IN THE SURKHANDARYA REGION (UZBEKISTAN)

Abstract: The flora of Uzbekistan has a significant number of plant species containing essential oils. The coniferous group (Pinophyta or Coniferae), including species of such families as Cupressaceae and Pinaceae, has been little studied for this territory. Over the course of several years, the accumulation of essential oil in green branches and needles of the following species was assessed in laboratory conditions using the hydrodistillation method: *Pinus brutia* var. *Eldarica*, *Juniperus seravschanica*, *Juniperus virginiana*, *Thuja occidentalis*, and *Cupressus sempervirens* var. *sempervirens*. The largest amount of essential oil was isolated from the needles and branches of *Juniperus zeravschanica* – almost up to 1.4%. *Juniperus virginiana* and *Cupressus sempervirens* var. *sempervirens* accumulate from 0.4 to 0.6% of essential oil. The lowest content of the desired products was found in *Thuja occidentalis* (up to 0.12%) and *Pinus brutia* var. *eldarica* (only 0.05%).

Keywords: Pinophyta, Coniferae, Cupressaceae, Pinaceae, *Pinus brutia*, *Juniperus zeravschanica*, *Juniperus virginiana*, *Thuja occidentalis*, *Cupressus sempervirens* var. *sempervirens*.

Введение.

Республика Узбекистан имеет очень необычное географическое месторасположение. Большая часть территории расположена в центральной части Средней Азии и находится в междуречье Амударьи и Сырдарьи. Своеобразные климатические условия сформировали свой неповторимый климат, флору и фауну. Флора Узбекистана включает приблизительно 3 700 видов сосудистых растений.

В классе Хвойных (*Pinopsida*) по числу видов значительное место занимают представители семейства сосновых (*Pinaceae*) и кипарисовых (*Cupressaceae*). Семейство сосновых включает 10 родов и около 250 видов. Сосновые леса состоят в основном из вечнозелёных и некоторых листопадных кустарников. Листья игольчатые, плоские, ланцетные, чешуйкообразные, тонкие ланцетные, разной величины. Листья хвойных в основном многолетние и листья остаются на стебле в течение 2–7 лет. Листья размещены по одному, иногда до 50 в пучках. Семейство кипарисовых (кипарисовых) включает 27-30 родов и 130-140 видов. Кипарисы – вечнозелёные кустарники и деревья. Листья у них чаще чешуевидные, иногда ланцетные, на стебле располагаются супротивно или кольцеобразно.

Представители сосен в Узбекистане не произрастают в диком виде и не являются аборигенными видами локальной флоры. Так, в частности, только сосна эльдарская (*Pinus brutia* var. *eldarica*) широко культивируется как декоративное растение в Сурхандарьинской области. Это эндемичное реликтовое растение третичного периода, сохранившийся в естественном виде только на хребте Эльдар-Оюгу в Азербайджане. В республике Узбекистан произрастают 2 разновидности кипарисовых: Кипарис

вечнозеленый пирамидальный – *Cupressus sempervirens* var. *sempervirens* и кипарисовик вечнозеленый горизонтальный *Cupressus sempervirens* var. *horisontalis* (Флора ..., 1941-1962, 2016).

Можжевельники находят широкое применение в разных отраслях промышленности и народном хозяйстве, так, например, ценится их древесина, находят применение эфирные масла в медицинской, парфюмерной и косметической практике, кулинарии, как имерсионное масло в микротехнике (Шалыт, 1951; Алимбаева и др., 1987). В эфирном масле основными компонентами являются α - и β -пинены, α -туйен, α -фенхен, цедрол, мирцен, лимонен, γ -терпинен и другие моно-, ди- и сесквитерпены, обладающие выращенными биологическими свойствами (Холов, Азонов, 2014; Пономарёва и др., 2015).

Материалы и методы исследования: В качестве материала и объекта исследования были выбраны 5 представителей класса хвойных, произрастающих и культивируемых в окрестностях села Вахшивор, расположенного на высоте 1450-1600 м над уровнем моря на отрогах Гиссарского хребта (Памира-Алай) Сурхандарьинской области, Узбекистан. Были взяты следующие виды: сосна эльдарская (*Pinus brutia* var. *eldarica* (Medw.) Silva), можжевельник зеравшанский (*Juniperus seravschanica* Kom. В настоящее время этот вид отнесён в синонимы к *Juniperus excelsa* subsp. *polycarpus* (K.Koch) Takht.), можжевельник виргинский (*J. virginiana* L.), туя западная (*Thuja occidentalis* L.) и кипарис вечнозелёный (*Cupressus sempervirens* var. *sempervirens* L.). Эфирные масла из зеленых ветвей и листьев отгоняли методом гидродистилляции в стеклянном аппарате Гинзберга (Гинзберг, 1932; Ткаченко и др., 1998). Для определения сроков максимального накопления эфирных масел в органах растений проводили опыты с 8, 12, 14 и 16 часовой непрерывной отгонкой.

Целью исследования явились определение количественного содержания эфирных масел, образующихся в надземных вегетативных органах 5 видов растений, произрастающих в условиях Сурхандарьинской области Республики Узбекистан, относящихся к семействам Сосновых и Кипарисовых.

Результаты и их обсуждение

В Узбекистане встречаются представители из семейства Кипарисовые: Кипарис - *Cupressus*, Можжевельник – *Juniperus* и Туя – *Thuja*. Среди них только 3 вида можжевельника: можжевельник зарафшанский (*J. seravschanica*), можжевельник туркестанский (*J. turkestanica*) и можжевельник полушаровидная (*J. semiglobosa*) встречаются в горных районах Узбекистана и образуют уникальные леса. Кроме того, можжевельник виргинский (*J. virginiana*), родиной которого считается Северная Америка, широко выращивается в качестве декоративного растения в городах и сёлах Узбекистана (Пратов, Жумаев, 2003), а так же выпрашивают в качестве главного вида ассортимента для применения в

ландшафтном дизайне тую западную – *Thuja occidentalis* (также родом из Северной Америки) и тую восточную (*Thuja orientalis*) или Биоту восточную (*Biota orientalis*), а также Платикладус (*Platycladus stricta*) (родиной которой являются Китай, Япония, Корея) (Farjon, 2013; Zhao Tianliang, 2015). Можжевельник зеравшанский обладает неповторимым ароматом и используется как пряность при приготовлении различных мясных изделий местной кухни. Потому что в его ветвях и шишках накапливается значительное количество эфирных масел. Все перечисленные выше растения известны как эфирномасличные виды растений, которые богаты эфирными маслами. Данные виды растений имеют эфирномасличные вместилища схизогенного типа окружены толстыми клетками и расположены под клетками кутикулы, эпидермиса, гиподермы и паренхимы (Пигулевский, 1938; Писарев и др., 2010). Такое глубокое расположение вместилища эфирных масел для их извлечения требует длительного кипячения или тщательного измельчения (Ботанико-фармакогносический..., 1990; Дендрология, 2016).

В 1936 году С.Н. Кудряшев (1936) из зеленых веточек *J. zeravschanica* в течении 8 часовой перегонки получил 0.45-0.75 % эфирного масла, К. Джумаев (1974), из этого жевида, в течении 16 часовой отгонки получил до 1.45 % эфирного масла.

Поэтому для определения периодов максимального выделения эфирных масел в органах растений использовали следующие схемы извлечения эфирного масла из растительного сырья в 8, 12, 14 и 16 часов.

Количество эфирных масел, выделенных из разных органов растений, представлено на рисунке. Как видно из данных таблицы, места накопления эфирных масел в органах этих растений относятся к эндогенным органам, в частности, к схизогенному типу. Поэтому для разложения вместилищ и полного отделения эфирных масел навески необходимо долгое время кипятить.

При кипячении свежих зелёных ветвей можжевельников зеравшанского и виргинского и кипариса пирамидального в течение 8-9 часов выделяется почти 80-85% имеющихся эфирных масел. По мере увеличения времени кипячения растительного сырья количество экстрагируемых эфирных масел также увеличивалось, а из органов растения, проваренных ранее в течение 14 часов, извлекалось еще до 15-20% эфирных масел. Кипячение сверх этого срока (на примере можжевельника зеравшанского) существенно не повлияло на выделение эфирных масел.

Таким образом, достаточно кипятить продукты в течение 14 часов, чтобы извлечь максимальное количество эфирного масла из стеблей и листьев опытных растений.

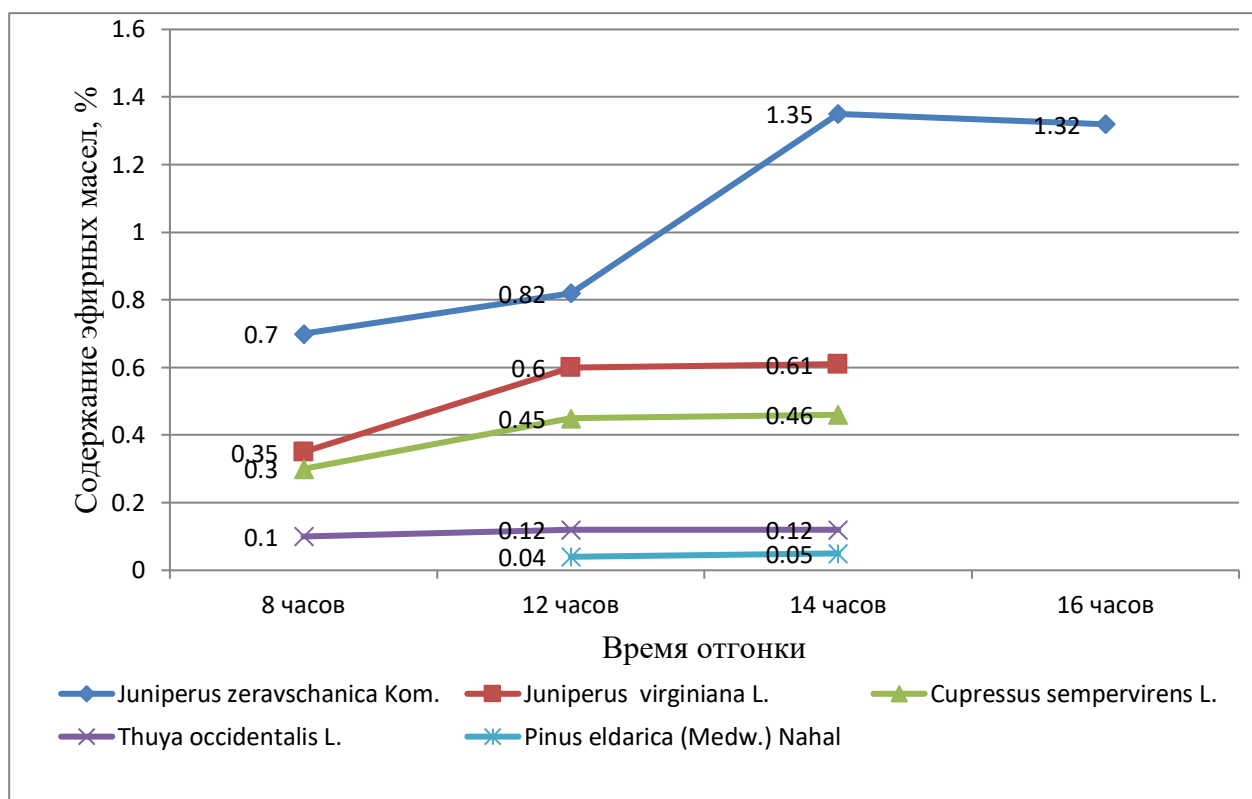


Рисунок. Содержание эфирных масел в побегах и листьях некоторых представителей голосеменных растений

Заключение

Для получения эфирного масла из некоторых видов, представителей семейств - Cupressaceae — Кипарисовые, Pinaceae — Сосновые можно использовать разные виды: *Pinus brutia* var. *eldarica*, *Juniperus seravschanica*, *Juniperus virginiana*, *Cupressus sempervirens* var. *sempervirens* и *Thuja occidentalis*.

Наибольшее количество эфирного масла содержится в хвое и ветвях у *Juniperus zeravschanica* – почти до 1.4 %. У *Juniperus virginiana* и *Cupressus sempervirens* var. *sempervirens* накапливается от 0.4 до 0.6 % эфирного масла. Эти виды представители флоры Узбекистана. Самое низкое содержание искомым продуктов было отмечено для интродуцированных на территорию Узбекистана видов – у *Thuja occidentalis* (до 0.12 %) и у *Pinus brutia* var. *eldarica* (всего лишь 0.05 %). Таким образом наиболее перспективыми могут быть первые три вида.

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МЕТОДЫ ОЦЕНКИ ПОТРЕБИТЕЛЬСКОЙ ЛОЯЛЬНОСТИ

***Аннотация:** В условиях высокой конкуренции на современном рынке компании стремятся привлечь лояльных потребителей как ключевой фактор успеха. Несмотря на множество исследований, не существует единого мнения о лучших инструментах для формирования лояльности. Это требует учета специфики отрасли, некоторых характеристик. В данной статье рассмотрены некоторые методы оценки потребительской лояльности. С помощью данных методов можно определить будет ли потребитель лояльным, определить ее уровень.*

***Ключевые слова:** потребительская лояльность, NPS, метод разделения потребностей, Метод Райхельда, модель SERVLOYA, потребитель, методы оценки лояльности*

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METHODS FOR ASSESSING CONSUMER LOYALTY

***Annotation:** In today's highly competitive market, companies strive to attract loyal consumers as a key success factor. Despite a lot of research, there is no consensus on the best tools for building loyalty. This requires taking into account the specifics of the industry and some characteristics. This article discusses some methods of assessing consumer loyalty. With the help of these methods, it will be possible to determine consumer loyalty, determine its level.*

***Keywords:** consumer loyalty, NPS, separation of needs method, Reichheld method, SERVLOYA model, consumer, loyalty assessment methods*

В современном бизнесе уровень конкуренции достаточно высок, поэтому каждая компания стремится привлечь лояльных потребителей для обеспечения своего успеха. Несмотря на большое количество различных исследований не существует мнения относительно инструментов, необходимых для формирования потребительской лояльности. При проведении исследований необходимо учитывать особенности отрасли и индивидуальные характеристики потребителей. Существует множество различных методов оценки потребительской лояльности. Работы по

данному вопросу принадлежать многим авторам, таким как Д.Акер, М. Дикосн, Ф. Райхельд, Ж.Ж. Ламбен, К. Парфенов, Ж. В. Папазян и другие.

Рассмотрим некоторые методики оценки потребительской лояльности.

Первый метод исследования возник в 50-х годах XX века и называется «методом разделения потребностей». Суть данного метода заключается в том, что степень потребительской лояльности измеряется в числовом выражении.

Например, если потребитель приобрёл товар или услугу у условной компании 8 из 10 раз, это говорит о том, что данная компания удовлетворяет его потребности на 80%. В данном случае уровень лояльности определяется количеством раз, когда клиент выбирает одну и ту же компанию, не обращая внимания на аналогичную продукцию у конкурентов. [2]

Один из способов измерения потребительской лояльности носит название «традиционный подход». Суть данной методики заключается в выявлении намерений клиентов по покупке товаров или услуг конкретной компании. При высоких намерениях потребителей их можно отнести к группе лояльных или преданных клиентов. Такие потребители равнодушны к маркетинговым усилиям конкурентов, готовы совершать повторные покупки и рекомендовать компанию знакомым. [1]

Третий метод называется «Метод Райхельда». Ключевым показателем данного метода являются рекомендации. Лояльный клиент будет советовать компанию своим знакомым, тем самым способствуя росту числа клиентов. Получая рекомендацию от знакомых или друзей, потенциальный клиент имеет большую уверенность в рекомендуемой компании, чем в других, так как она, уже проверена и ей можно доверять.

Индекс Net Promoter Score (NPS) был разработан Фредом Райххельдом в 2003 году. На сегодняшний день большинство компаний, которые занимаются вопросами потребительской лояльности применяют именно данную методологию для оценки уровня лояльности.

Оценки NPS позволяют компаниям улучшить обслуживание клиентов, продукцию или услугу, для повышения лояльности потребителей. Высокий показатель NPS показывает не только удовлетворенность клиентов компанией, но и их способность и готовность рекомендовать ее другим.

Показатель NPS рассчитывается путем вычитания процента клиентов, ответивших на вопрос с оценкой 6 или меньше, из процента клиентов, давших оценку от 9 до 10. В основе индекса потребительской лояльности лежит вопрос: «Насколько вероятно, что вы порекомендуете нашу компанию своим друзьям или знакомым по шкале от 1 до 10?»". И в зависимости от оценки, респонденты распределяются по следующим категориям:

Промоутеры (оценка от 9 до 10), лояльные потребители которым нравятся продукция и услуги компании.

Нейтралы (оценка от 7 до 8), они удовлетворены, но недостаточно. Вероятнее всего, нейтралы не будут оставлять отрицательных отзывов, но и делиться положительным опытом о компании с окружением они тоже не будут.

Критики (оценка от 0 до 6) это недовольные потребители, которые вряд ли повторно совершат покупку и могут также оговорить от покупки других.

Чтобы рассчитать индекс потребительской лояльности, используют формулу:

$$NPS = \% \text{ промоутеров} - \% \text{ критиков}$$

Например, если 10% респондентов являются критиками, 20% - нейтралами и 70% - промоутерами, показатель NPS будет $70 - 10 = 60$.

Необходимо также пояснить, что автор методики не давал указаний как толковать результаты исследования. Чем показатель выше, тем лучше.

Еще одним из комплексных методик является модель SERVLOYAL. Модель SERVLOYAL, была основана Зейтамлом, Парасураманом и Берри в 1980-х годах является широко используемой структурой для оценки качества обслуживания. В данной методике комплексно оценивается соотношение следующих показателей: 1) потребительское поведение; 2) отношение к фирме; 3) когнитивные составляющие; 4) конативные составляющие; 5) аффективные компоненты; 6) доверие клиентов к бренду; 7) обязательства клиентов. Главным преимуществом этого метода является то, что оцениваются различные переменные в совокупности, что дает полное представление. Однако модель SERVLOYAL вызывает споры, так как некоторые исследователи считают, что переменные аспекты доверия и обязательств следует рассматривать скорее, как предсказателями формирования лояльности, а не как ее элементами. [4]

В современном бизнесе при высокой конкуренции, вопрос потребительской лояльности особенно актуален. Поэтому, понимание и применение различных методов оценки лояльности становится важным аспектом стратегии каждой компании, которая стремится к успеху. Благодаря описанным выше методам, можно определить лояльность потребителя, оценить удовлетворенность товарами либо услугами компании.

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АНТИБИОТИКОРЕЗИСТЕНТНОСТЬ ЗОЛОТИСТОГО СТАФИЛОКОККА СРЕДИ ПОЖИЛЫХ, ЕГО ВЛИЯНИЕ НА ОРГАНИЗМ

***Аннотация.** В данной статье рассматриваются общее воздействие инфекций *S. aureus* и значимость резистентности к антистафилококковым б-лактамным антибиотикам у пожилых людей. Будут кратко обсуждены новые вопросы, такие как возникновение резистентности у внебольничных штаммов стафилококка и проблема устойчивости к антибиотикам.*

***Ключевые слова:** *S. aureus*, Атипичное течение, *Streptococcus pneumoniae*, Метил-резистентным, антибиотикотерапия*

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ANTIBIOTIC RESISTANCE OF STAPHYLOCOCCUS AUREUS AMONG THE ELDERLY, ITS IMPACT ON THE BODY

***Abstract.** This article discusses the general impact of *S. aureus* infections and the importance of resistance to antistaphylococcal b-lactam antibiotics in the elderly. New issues such as the emergence of resistance in community-acquired staphylococcal strains and the problem of antibiotic resistance will be briefly discussed.*

***Keywords:** *S. aureus*, Atypical course, *Streptococcus pneumoniae*, Methyl-resistant, antibiotic therapy*

Введение. Оценка риска воздействия золотистого стафилококка среди пожилых людей - непростая задача. Пожилые люди представляют собой гетерогенную популяцию. Существует большое разнообразие в бремени сопутствующих заболеваний, требованиях к медицинскому обслуживанию (которые варьируются от помощи в основных видах повседневной жизни до потребности в квалифицированном уходе, оказываемом медсестрой) и других факторах риска инфицирования среди взрослых [2].

Стафилококковая инфекция не подлежит регистрации заболеваний, таким образом, общая распространенность среди пожилых людей неизвестна. Однако, стафилококковые инфекции вызывая аутоиммунные болезни, являются распространенными причинами бактериемии, эндокардита, пневмонии, септического артрита и остеомиелита позвоночника у пожилых людей [3].

В то же время существует большой интерес к проблеме устойчивого к антибиотикам золотистого стафилококка, особенно среди ослабленных пожилых людей [1].

Риск заражения стафилококковой инфекцией у пожилых людей.

В последнее время показатели госпитализации по поводу инфекционных заболеваний возросли в первую очередь среди пожилого населения, и заражение ятрогенной инфекцией чаще встречается среди пациентов старшего возраста. [4]. Несмотря на успехи, достигнутые в сфере медицинской помощи, немало случаев смерти от инфекционных заболеваний среди этого населения. Пожилые люди не только страдают от инфекционных заболеваний, но и имеют более высокий процент смертности от них [6].

S.aureus широко распространен во внешней среде и является четвертым по распространенности внутрибольничным заболеванием, после *Escherichia coli*, *Pseudomonas aeruginosa* и энтерококков, и составляет 27% всех внутрибольничных инфекций. Кроме того, это вторая по распространенности причина инфицирования места операции, на долю которой приходится 33 % случаев этого типа инфекции [2]. В учреждениях длительного ухода показатели инфицирования аналогичны тем, которые наблюдаются в больницах [5], но общая частота заражения *S. aureus* не известна. Много информации об эпидемиологии заражения золотистым стафилококком среди не госпитализированных пожилых людей происходит из сообщений о специфических клинических синдромах или из сообщений о вспышках инфекции штаммами, устойчивыми к антибиотикам. Большая часть информации об эпидемиологии инфекции *S. aureus* среди не госпитализированных пожилых людей почерпнута из сообщений о конкретных клинических синдромах или из сообщений о вспышках инфекции штаммами устойчивыми к антибиотикам [7].

Синдромы заболеваний вызываемых стафилококками, у пожилых людей

Бактериемия - инфекция кровотока, одна из основных причин смерти у пожилых людей [10]. Сообщается, что показатели смертности, связанные с бактериемией *S. aureus*, у пожилых людей в несколько раз выше, чем у молодых людей. В домах престарелых и общинах уровень смертности от бактериемии *S. Aureus* наиболее высок [14]. Увеличение показателей смертности среди пожилых людей было связано с более широким использованием таких устройств, как протезы сердечных клапанов или

кардиостимуляторов, с сахарным диабетом и с респираторным источником инфекции [7-10]. Повышенные показатели смертности от стафилококковой инфекции может быть результатом отсутствия явных клинических признаков у этой популяции [9]. Стафилококковая инфекция у пожилых людей может сопровождается и другими инфекциями. Атипичное течение заболевания приводит к тому, что диагноз вовремя не выявляется и лечение затягивается, что приводит к тяжелым осложнениям [8].

Бактериemia в основном встречается у пожилых госпитализированных пациентов. В больницах в конце XX века на долю золотистого стафилококка приходилось 21 % всех инфекций, распространенных среди больничных инфекций, вызывающих заболевания у пожилых людей [12]. Более поздние исследования показали, что инфекции стафилококков были вторыми по распространенности патогеном (после кишечной палочки), среди пожилых пациентов, госпитализированных с бактериемией, приобретенной по месту жительства или в больнице [11].

В домах престарелых и общественных учреждениях инфекции кровотока проявляется реже, чем в больницах. Урогенитальные грамотрицательные инфекции являются наиболее частой причиной бактериемии у пожилых людей, проживающих в домах престарелых. Однако, когда бактериemia действительно возникает у пациентов учреждений длительного ухода, *S. aureus* является единственным наиболее распространенным организмом [9]. В условиях дома престарелых *S. aureus* является первой или второй по частоте причиной пневмонии и наиболее распространенным возбудителем, связанным с инфекцией кровотока, также с кожей и мягкими тканями. *S. aureus* является второй по распространенности причиной бактериемии в популяции после *E. coli*, *Klebsiella* и *Streptococcus pneumoniae* [15].

Инфекция дыхательных путей.

Известно, что пневмония, вызванная *S. aureus*, имеет неблагоприятный прогноз, особенно у пожилых людей. Пневмония, вызванная *S. aureus*, преимущественно возникает у пожилых людей с сопутствующими заболеваниями и хроническими заболеваниями легких. Нередко долевые поражения наблюдаются в нижних отделах легких с осложнениями абсцесса и эмпиемы [12].

После *P. aeruginosa* золотистый стафилококк является второй по распространенности причиной нозокомиальной пневмонии у пожилых людей, на его долю приходится 18 % случаев инфицирования [15]. Исследования, специально посвященные пневмонии, вызванной *S. aureus*, сообщают, что большинство эпизодов выявляется у госпитализированных пожилых пациентов со значительными сопутствующими заболеваниями [13,14].

Заболеваемость стафилококковой пневмонией в реабилитационных учреждениях составляет в среднем 9%, но диапазон может составлять от 0%

до 33%. Диагностика пневмонии в этой популяции осложняется снижением температуры, отсутствием кашля и жалобами на одышку [15]. Наличие тахипноэ (125 вдохов/мин) может быть одним из самых ранних диагностических показателей пневмонии в этих условиях [1]. Изменения в результатах обследования легких могут вводить в заблуждение пациентов с хроническим сердечно-легочным заболеванием. Бактериологическое исследование мокроты, анализы крови и рентгенография легких не всегда проводятся перед первичной терапией [7].

Если у пожилых людей при анализе мокроты результаты посева положительные, это указывает на наличие условно-патогенных кокков в горле. В связи с частым возникновением ОРИ среди лиц пожилого возраста высока заболеваемость бактериальной пневмонией. При ОРИ пневмония вызывается вторичной инфекцией. *S. Pneumoniae* и *S. aureus* в большинстве случаев вызывает пневмонию. Было высказано предположение, что *S. aureus* редко вызывает внебольничную пневмонию у здоровых взрослых, за исключением случаев, когда они переболели ОРИ [2]. Таким образом, во время сезона ОРИ следует проводить скрининг на *S. aureus* у здоровых пожилых людей в домах престарелых и вне больниц [8].

Нарушения сердечно-сосудистой системы.

По данным литературы, стафилококк чаще вызывает эндокардит у лиц старше 60 лет [14]. Эндокардит, вызванный *S. aureus*, представляет собой все более распознаваемое осложнение госпитализации, использования внутрисосудистых устройств и нозокомиальной бактериемии. [1,9]. 25% пациентов с нозокомиальной приобретенной стафилококковой бактериемией имеют эхо-кардиографические признаки эндокардита, и у этих пациентов, возникает, осложнение - стафилококковый эндокардит [12].

У пожилых людей эндокардит может проявляться атипично. Представленные симптомы могут быть неопределенными; такие заболевания, как узлы Ослина и спленомегалия, поражение яичников, обычно не имеют классических симптомов, а шумы в сердце часто можно обнаружить у пожилых людей. Кроме того, у большинства больных при эндокардите отсутствуют повышения температуры тела и лейкоцитоз, это может привести к поздней постановке диагноза из-за поздней диагностики заболевания и отсутствия своевременного лечения у пожилых людей уровень смертности выше, чем у более молодых пациентов [15].

Мягкие ткани и костно-суставная система.

Стафилококк является распространенной инфекцией и вызывает заболевания костей и суставов у пожилых людей. Стойкое стафилококковое поражение кожи может привести к остеомиелиту и септическому артриту. По мере прогрессирования инфекции увеличивается частота заболеваний суставов, что также вызывает бактериемию у 50% больных [2].

Возрастные изменения кожи и состояния, такие как заболевания периферических сосудов, диабет и возрастное снижение подвижности,

повышают риск кожных инфекций у пожилых людей. Это может вызывать истончение кожи, снижение эластичности, невропатию, снижение кровотока, давления, трещины и язвы кожи. Вторичное инфицирование кожной раны, фурункул, карбункул является одним из наиболее частых осложнений стафилококковой инфекции [1, 2].

Увеличение заболеваемости артрозом и ревматоидным артритом у пожилых людей связано с увеличением частоты септического артрита. В большинстве случаев септический артрит обусловлен не инфицированием из внешней среды, а диссеминацией инфекции гематогенным путем в аномалии сустава [1,5].

У многих пожилых пациентов со стафилококковой септическим артритом не наблюдается лихорадки или лейкоцитоза. Повышенная скорость оседания эритроцитов в анализе крови у пожилого пациента может свидетельствовать, что боль в суставе вызвана патогенными инфекциями. У пожилых людей 40 % смертей при остеомиелите и 20 % при сепсисе обусловлены осложнениями заболевания [15].

Широкое применение операций по протезированию суставов у пожилых людей может привести к стафилококковой инфекции сустава. В некоторых исследованиях *S. aureus* является второй наиболее распространенной причиной инфекций протезированных суставов у пожилых людей, на долю которой приходится почти треть эпизодов [10]. Инфекции *S. aureus* равномерно распределяются между ранними и поздними послеоперационными инфекциями.

Мочевыделительная система.

Стафилококковая бактериурия встречается редко и составляет 2% инфекций мочевыводящих путей. В основном это происходит у пожилых госпитализированных пациентов после операции, катетеризации или других инвазивных процедур. Злокачественные новообразования и другие причины обструктивной уropатии ассоциируются со стафилококковой бактериурией. У многих пожилых пациентов наблюдается значительная пиурия, но она может протекать бессимптомно. Бактериemia после стафилококковой бактериурии развивается у 5% больных. Стафилококковая бактериурия чаще возникает как следствие бактериемии или эндокардита.

При выявлении симптомов или признаков заболевания у пожилых пациентов диагноз следует ставить как можно раньше, поскольку лечение бактериурии вызванной *S.aureus*, пероральными антибиотиками нецелесообразно и неэффективно при инфекциях кровотока[9,13].

Стафилококковое носительство.

Повышенная частота заражения *S. aureus* среди пожилых людей не может быть объяснена специфическим приобретенным дефектом иммунных реакций, наблюдаемым с увеличением возраста. Фактически, воспалительная реакция у пожилых на *S. aureus* может быть нормальной или даже ускоренной по сравнению с таковой у молодых [8].

Предшествующее носительство *S. aureus* является значительным фактором риска развития последующей инфекции колонизирующим штаммом [4]. Около 30% населения являются носителями *S. aureus*. Устойчиво и сильно колонизированные носители, по-видимому, подвергаются наибольшему риску развития инфекции *S. aureus* [3]. Повышенная частота колонизации не объясняет повышенных показателей инфицирования у пожилых людей - на самом деле, пожилые люди менее склонны к переносу *S. aureus*, чем дети и молодые. [5,11].

Стафилококковая инфекция усиливается при состояниях, связанных с нарушением кожных или слизистых барьеров, таких как те, которые возникают в связи с ранами, дерматологическими заболеваниями, использованием игл, а также хирургическими процедурами [2,4]. Заболевания, требующие длительного использования игл, включая сахарный диабет и хронический диализ, связаны с повышенными показателями колонизации *S. aureus* и риском заражения. Диабет и его осложнения усиливаются с возрастом и могут способствовать распространенности инфекции *S. aureus* среди пожилого населения [7]. Стафилококковая бактериемия *S. aureus* наблюдалась у 25% пациентов больницы диабетом, 18% жителей учреждений длительного ухода и 30% пожилых людей, проживающих по месту жительства [3,10]. Однако в другом исследовании, в котором участвовали пациенты в возрасте 75 лет, поступившие в отделение интенсивной терапии, сахарный диабет не был значимым фактором риска развития пневмонии *S. aureus* [15]. У пожилых людей стафилококковая пневмония чаще всего возникает у ослабленных пациентов, уход за которыми зависит от других [13]. Увеличение продолжительности пребывания в больницах и домах престарелых было связано с повышенным риском заражения золотистым стафилококком, в частности, штаммами с множественной лекарственной устойчивостью [9].

Таким образом, существует мало доказательств того, что старение само по себе приводит к увеличению риска заражения *S. aureus*. Инфицирование золотистым стафилококком представляет собой сложное взаимодействие множества факторов, включая воздействие патогенных штаммов, тяжесть основного заболевания, сопутствующие заболевания и функциональную зависимость.

Антибиотикорезистентность золотистого стафилококка

Поражение Метил-резистентным стафилококком может привести к тяжелым случаям. Смертность при метициллин-резистентной стафилококковой бактериемии примерно в 3 раза выше [6]. Влияние возраста на исход внутрибольничной пневмонии, вызванной MRSA, напрямую не сравнивалось с пневмонией, вызванной MSSA. Однако пациенты с MRSA, по-видимому, старше и имеют больше хронических заболеваний, и в анамнезе у них часто имеются недавние госпитализации.

Эти факторы, вероятно, объясняют более высокие показатели смертности [7].

Риск заражения MRSA-инфекцией возрастает с обострением заболевания. В ходе обследований, проведенных в нескольких больницах, доля MRSA среди инфицированных *S. aureus* была выше в стационаре длительного лечения (47%), чем в амбулаторных условиях (23%) [3,7]. Среди госпитализированных пациентов MRSA чаще всего выявлялся у пациентов с ожоговыми ранами [4]. Распространенность инфекций MRSA среди госпитализированных пациентов пожилого возраста неизвестна. Однако, большинство пациентов с внутрибольничной приобретенной MRSA старше и более ослаблены, и у большинства из них более тяжелое основное заболевание [2,6].

Жители домов престарелых, которые зависят от ухода других людей, у кого есть раны, с большей вероятностью могут заразиться MRSA.

Некоторые исследования показывают, что большинство пациентов домов престарелых приобретают носительство MRSA в больнице, а не в доме престарелых. Высокие показатели инфицирования в домах престарелых, вероятно, отражают хроническое носительство, которое может сохраняться от нескольких месяцев до нескольких лет. Таким образом, высокие показатели носительства MRSA в домах престарелых, вероятно, отражают большое количество лиц, которые чаще всего заражались в больнице и остаются постоянно инфицированными в течение длительных периодов времени. Повышенные показатели смертности среди жителей, инфицированных MRSA, вероятно, отражают их плохой функциональный статус и бремя сопутствующих заболеваний, а не смерть в результате MRSA [6,13].

Пожилых людей, инфицированных *S. aureus*, следует лечить с учетом нескольких факторов. Лечение должно быть организовано с учетом информации о клинических симптомах, тяжести заболевания, условиях проживания, наличии сопутствующих заболеваний стационарном лечении и истории болезни. Существует риск заражения внутрибольничной инфекцией *S. aureus* у пожилых людей, госпитализированных и перенесших хирургическое вмешательство [1,3]. Если у пациента нет инфекции мочевыводящих путей или других бактериальных заболеваний, надо провести бактериологическое обследование перед началом лечения антибиотиками. Учитывая высокую частоту заражения *S. aureus*, в зависимости от тяжести заболевания рекомендуется применение бактерицидных антибиотиков. Если будет получен положительный бактериологический результат, необходимо будет найти источник инфекции [2,4].

Трансторакальную эхокардиографию следует проводить пациентам со стафилококковой бактериемией даже при отсутствии признаков эндокардита. При появлении болей в позвоночнике следует провести

тщательный осмотр и рентгенологическое исследование остеомиелита позвонков. Исследуются наличия или отсутствия подвижности суставов, боли, отёки, повышения температуры и эритемы. Для обнаружения абсцессов селезенки, почек или других мягких тканей, которые могут потребовать хирургического вмешательства, должна быть проведена компьютерная томография. Любого пожилого пациента, нуждающегося в госпитализации по поводу инфекций опорно-двигательной системы и мягких тканей, следует лечить антибиотиками, независимо от места жительства и факторов риска [5,8].

Заключение.

Если пациент проживает в географическом районе, где распространен MRSA, и недавно проходил лечение от этого заболевания, тогда определяется чувствительность к антибиотикам и антибиотик выбирается исходя из тяжести заболевания.

Пероральная терапия является разумным вариантом лечения инфекций мягких тканей и костно суставной системы, не требующих госпитализации.

Первоначально подобранная антибиотикотерапия проводится исходя из места проживания пациентов, степени тяжести заболевания.

При появлении аллергической реакции на β -лактамы антибиотики целесообразно проводить лечение пациентов с MRSA-инфекцией сульфаниламидными антибиотиками.

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НАЧАЛЬНОЕ ПОТОКОРАСПРЕДЕЛЕНИЕ В КОЛЬЦЕВЫХ СЕТЯХ

Аннотация: *Водоснабжение является ключевым фактором устойчивого развития городов, особенно когда речь идет о населенных пунктах, объединенных в кольцевую линию. Кольцевая система подразумевает плотное взаимосвязанное расположение городов по периметру одной или нескольких транспортных артерий, что создает уникальные вызовы и возможности для водоснабжения. Анализ кольцевых сети и потокораспределение, обеспечивающее наиболее рациональное решение задачи определения диаметров труб ее участков.*

Ключевые слова: *сеть, диаметр, потокораспределение, водообеспечение.*

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Nukus*

INITIAL FLOW DISTRIBUTION IN RING NETWORKS

Abstract: *Water supply is a key factor in the sustainable development of cities, especially when it comes to settlements united in a ring line. The ring system implies a dense interconnected location of cities along the perimeter of one or more transport arteries, which creates unique challenges and opportunities for water supply. Analysis of the ring network and flow distribution, which provides the most rational solution to the problem of determining the pipe diameters of its sections.*

Keywords: *network, diameter, flow distribution, water supply.*

Введение: Кольцевые сети водоснабжения играют важную роль в современных системах водоснабжения. Они представляют собой замкнутую систему трубопроводов, где вода циркулирует по кольцевым маршрутам, что обеспечивает более равномерное распределение потока и уменьшает вероятность сбоев в случае аварий. Важной задачей при проектировании и эксплуатации таких систем является начальное потокораспределение,

которое определяет, как вода будет распределяться по различным участкам сети для удовлетворения потребностей потребителей.

Особенности кольцевых сетей водоснабжения

Кольцевые сети водоснабжения отличаются от традиционных разветвленных (линейных) сетей тем, что они обеспечивают возможность многовариантной подачи воды к каждому узлу системы. Это создает условия для более равномерного распределения давления, повышения надежности и предотвращения застойных зон. В случае аварии на одном из участков кольцевой сети, подача воды может быть быстро восстановлена за счет альтернативных маршрутов. Однако, такой тип сетей требует более сложного подхода к процессу потокораспределения, особенно на начальном этапе.

Основные преимущества кольцевых сетей:

1. Надежность: Возможность резервного водоснабжения при аварии на одном из участков.
2. Устойчивость давления: Равномерное распределение давления во всей сети.
3. Эффективное использование ресурсов: Возможность оптимизации использования насосов и трубопроводов.

Основы начального потокораспределения

Начальное потокораспределение — это процесс определения направлений и величин потоков воды в разных участках сети при заданных условиях работы (например, потребностях потребителей, мощности насосных станций и давлениях на входах и выходах). При проектировании сети и ее запуске важно правильно рассчитать, как будет распределяться поток воды между различными узлами, чтобы обеспечить необходимое давление и объем воды на каждом участке сети.

Основными факторами, влияющими на начальное потокораспределение, являются:

Гидравлические параметры сети: длина труб, их диаметр, шероховатость внутренних стенок.

Мощность и расположение насосных станций.

Потребности потребителей: объем воды, который необходим каждому потребителю в различных точках сети.

Расположение водозаборных сооружений и резервуаров.

Методы расчета потокораспределения

Для определения начального потокораспределения в кольцевых сетях водоснабжения используются различные математические и численные методы, основанные на уравнениях гидравлики и принципах сохранения энергии и массы. Наиболее распространенные методы:

1. **Метод узловых расходов:** В этом методе рассматриваются узлы сети, в которых происходит перераспределение потоков. Для каждого узла составляется система уравнений, где учитываются входящие и исходящие

потоки воды. Суммарный входящий поток должен быть равен исходящему, что обеспечивает выполнение принципа сохранения массы. Этот метод особенно эффективен для больших и сложных сетей.

2. Метод балансировки потоков: Применяется для поиска оптимального распределения потоков с учетом сопротивления трубопроводов и текущих потребностей узлов сети. Этот метод использует итеративные алгоритмы, которые корректируют потоки на каждом шаге до достижения оптимального решения. Одним из наиболее известных методов является метод Хардди-Кросса.

3. Метод минимизации энергии: Основан на принципе минимизации затрат энергии при движении потока воды по сети. Для каждого участка сети рассчитываются потери энергии (в первую очередь из-за трения и сопротивления труб), и потоки перераспределяются таким образом, чтобы минимизировать эти потери.

4. Компьютерное моделирование: Современные программные пакеты, такие как EPANET, WaterGEMS и другие, позволяют проводить детализированные гидравлические расчеты сетей водоснабжения с учетом большого числа параметров. Эти инструменты позволяют моделировать как статическое распределение потоков, так и динамические процессы изменения давления и потоков в сети.

Первой подготовительной операцией, предшествующей расчету кольцевой сети, является начальное распределение потоков воды по ее линиям. В кольцевой сети, в отличие от разветвленной, заданные отборы воды в узлах могут быть обеспечены неограниченным числом вариантов распределения потоков воды по ее участкам.

Одним из основных условий, предъявляемых к начальному потокораспределению, является удовлетворение требований надежности. Под надежностью сети понимается ее свойство при любых случайных событиях, требующих выключения из работы отдельных участков, подавать потребителям воду в количествах не ниже установленных пределов. Надежность сети обеспечивается наличием в ней не менее двух параллельных транзитных магистралей, транспортирующих воду от точек подачи ее к сети до наиболее удаленных участков. Эти магистрали должны быть взаимозаменяемыми при аварии, т. е. иметь примерно равную пропускную способность. Кроме того, перемычки между магистралями должны иметь достаточную пропускную способность для возможности переброски воды с одной магистрали на другие (параллельные) в случае аварий на одной из них. Эффективным способом увеличения надежности водообеспечения является кольцевание сетей.

Метод исследования и результаты

Начальное потокораспределение, служащее основой для определения диаметров труб сети, должно быть намечено одновременно для всех расчетных случаев, которые могут существенно влиять на расходы участков

и напоры в них. Для каждого из таких расчетных случаев предварительно намечают по совмещенным графикам подачи и потребления воды предполагаемые величины подач водопитателей и нефиксированных отборов.

Характер потокораспределения в сети в большой степени зависит от ее конфигурации, расположения водопитателей и напорных емкостей. Начальное распределение потоков для каждого расчетного аварийного случая производят с удовлетворением (точно или приближенно) баланса расходов в узлах сети (первый закон Кирхгофа).

Схемы начального потокораспределения для выбранных расчетных случаев позволяют установить значения расчетных расходов отдельных участков и определить по ним диаметры труб. Разумеется, для различных расчетных случаев расходы на одних и тех же участках будут различными.

Обычно один из основных расчетных случаев работы сети определяет для всех или большинства участков сети диктующие расходы. Иногда для отдельных участков перед определением диаметров приходится вносить в расчетные расходы коррективы исходя из вероятной нагрузки этих участков при других расчетных случаях.

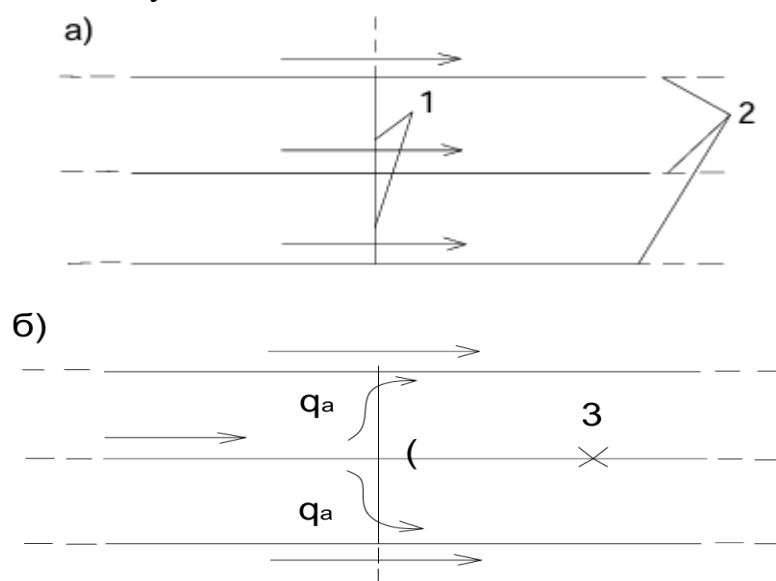


Рисунок 1.

Здесь: 1-перемычки; 2-магистралей; 3-место аварии.

Для назначения диаметров перемычек, которые при нормальной работе системы (рис. 1,а) нагружены весьма слабо или совсем не работают, следует принимать расход q_a , перебрасываемый по перемычке в случае аварии (рис. 1, б). Этот расход будет меньше идущего по магистрали ($q_a = \alpha q$), так как он передается на несколько соседних магистралей. Диаметры перемычек можно назначать по конструктивным соображениям после определения наиболее выгодных диаметров магистралей. Обычно диаметр перемычки принимают на один порядок ниже (по соответствующему стандарту используемых труб).

Как уже отмечалось, характер движения воды по участкам кольцевой сети в значительной степени зависит от ее конфигурации и расположения точек подачи воды к сети и крупных (фиксированных и нефиксированных) отборов воды.

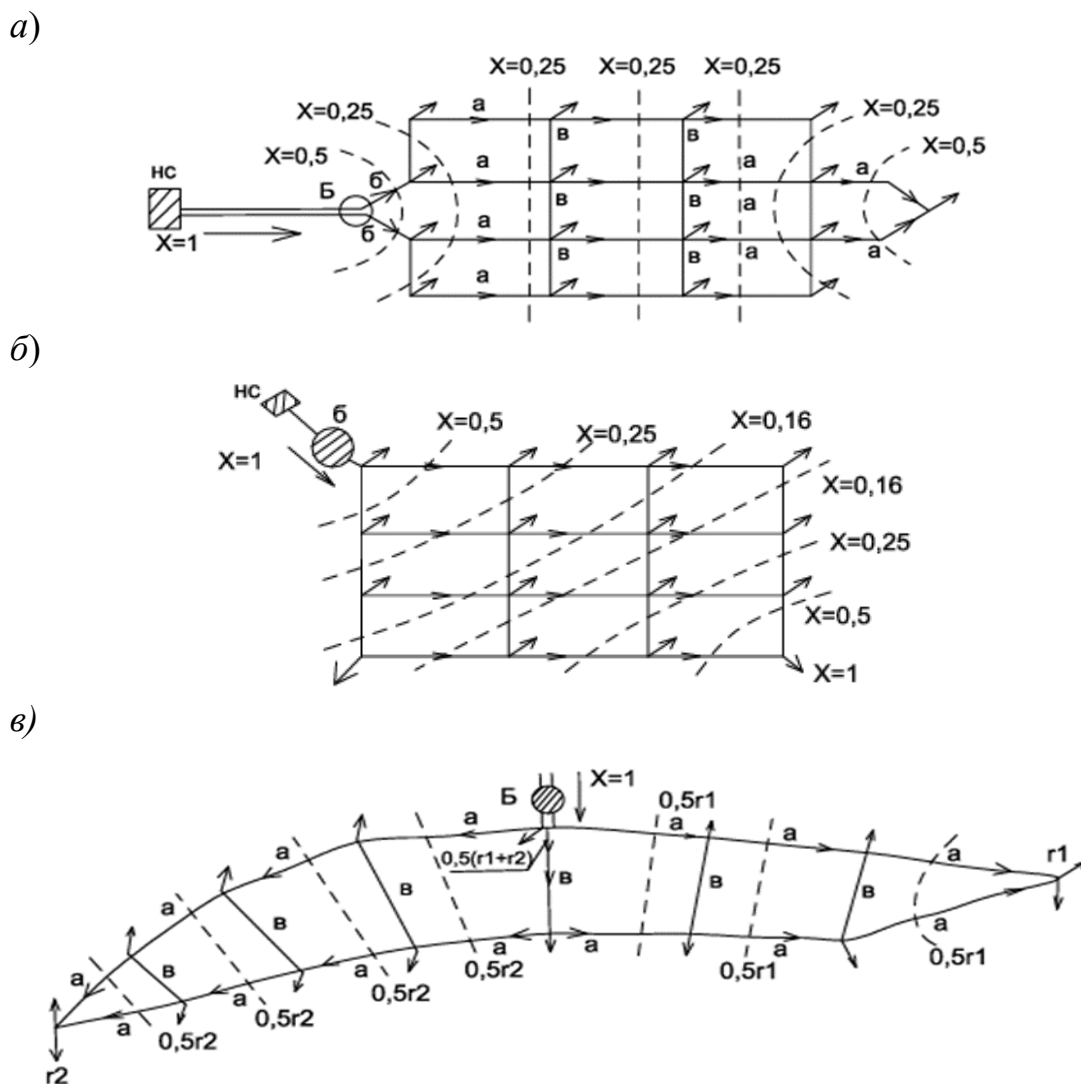


Рисунок 2. Движения воды по участкам кольцевой сети.

Рассмотрим прежде всего системы с одним водопитателем (насос и башня в начале сети) без нефиксированных отборов.

На схеме, приведенной на рис 2,а, представлена сеть такой конфигурации, при которой четко разграничена роль отдельных линий сети. Линии а — это постоянно нагруженные транзитные магистрали. Линии б — распределительные «гребенки», тоже постоянно нагруженные; они раздают воду по магистралям. Наконец, линии в — перемычки, работающие при авариях на магистралях.

На схеме рис. 2,б представлена сеть, в которой расположение водопитателя обуславливает отсутствие четкого различия между транзитными магистралями и перемычками. Все линии сети постоянно

нагружены (в той или иной степени). При аварии на одном из участков параллельные участки работают с большей нагрузкой.

Сеть, показанная на рис. 2, в, при одном источнике питания имеет две конечные точки не схода. Центральная линия б от водопитателя играет роль распределительной «гребенки», работающей на оба направления, а по каждому из двух направлений проходят линии параллельных магистралей а с соответствующими перемычками в. Конечных точек схода может быть несколько.

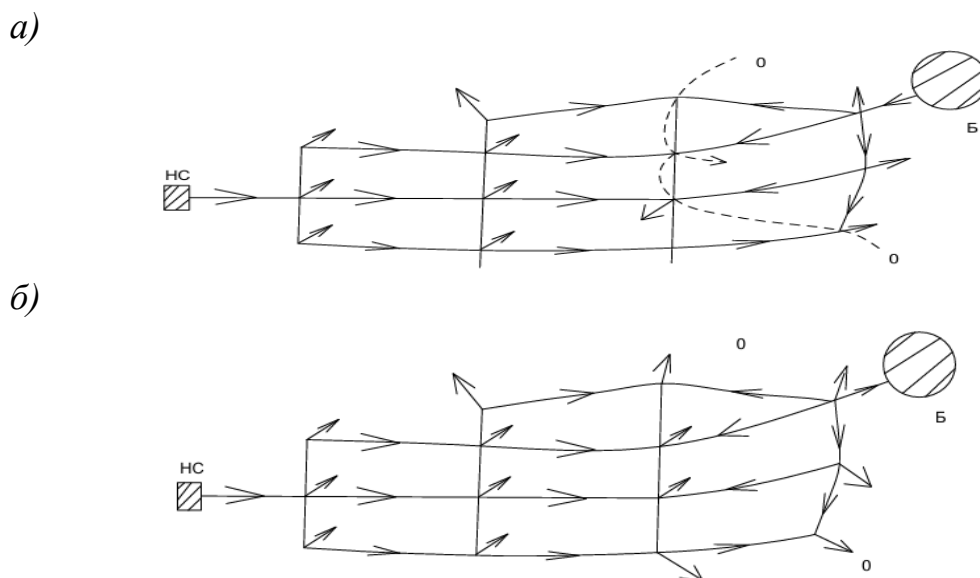


Рисунок 3. Системы с общим числом водопитателей и нефиксированных отборов.

Рассмотрим далее системы с общим числом водопитателей и нефиксированных отборов, равным двум. Распространенной системой такого типа является система с контррезервуаром. В этой системе в часы наибольшего водопотребления вода поступает в сеть от насосов и от башни, которая в указанный период служит вторым водопитателем (рис. 3, а). В периоды превышения подачи воды насосами над водопотреблением избыток подаваемой воды проходит транзитом через сеть и поступает в башню, которая в этот период работает как нефиксированный отбор (рис. 3, б).

Начальное потокораспределение в таких сетях должно быть намечено одновременно для двух расчетных случаев — на работу в часы наибольшего водопотребления и на работу в часы наибольшего транзита воды в башню. Если предусмотрена равномерная работа насосов в течение суток, то расходы в головных участках сети в обоих расчетных случаях будут мало изменяться. В участках сети, примыкающих к точке присоединения башни, расчетные расходы будут менять знак при этих расчетных случаях, но значения их обычно не будут сильно различаться. Значительно меняется нагрузка в часы наибольшего водопотребления и в часы транзита в участках

сети, примыкающих (и близких) к границе зон питания сети от насосов и от башни. Расходы в часы транзита здесь часто оказываются большими.

За основной расчетный случай для определения диаметров труб магистральной сети следует принимать работу часы наибольшего транзита воды в башню.

Характер движения воды в сети с контррезервуаром будет зависеть от ее конфигурации и взаимного расположения точек присоединения водоводов от насосов и от башни. Это оказывает соответствующее влияние на назначение диаметров отдельных линий.

К категории сетей, имеющих общее число водопитателей и нефиксированных отборов, равное двум, относятся также сети, питаемые от двух насосных станций или от одной насосной станции и одного напорного резервуара, постоянно подающего воду в сеть. Такая система тоже может иметь одну, две и более точек схода. Как и в сетях с одним водопитателем, в рассматриваемых сетях при начальном потокораспределении должны быть предусмотрены и соблюдены требования надежности.

В системах с несколькими (более двух) водопитателями и нефиксированными отборами распределение потоков воды в отдельные периоды работы (как и выбор расчетных расходов) может оказаться весьма сложным.

Таким образом, на основании принятого начального распределения потоков воды в сети (любого типа) для основных расчетных случаев могут быть получены значения расходов, по которым определяются диаметры труб с соблюдением требований экономичности и надежности.

Следует отметить, что нахождение значений наивыгоднейших диаметров осуществимо только при заданном потокораспределении, т. е. при некоторых принятых значениях расходов в участках сети.

Нахождение наивыгоднейшего распределения расходов в кольцевой сети приводит к превращению ее в разветвленную (для удовлетворения тех же заданных узловых отборов).

Факторы, влияющие на потокораспределение

1. Диаметр трубопроводов: Чем больше диаметр трубы, тем меньше сопротивление потоку, и больше воды может быть передано через этот участок. Распределение диаметров по сети играет ключевую роль в обеспечении нужного потока воды к каждому потребителю.

2. Длина трубопроводов: Более длинные трубопроводы имеют большее гидравлическое сопротивление, что требует большего давления для прокачки воды.

3. Высота рельефа: Разница в высотах различных частей сети может значительно повлиять на распределение давления, и, как следствие, на распределение потоков.

4. Потребности в воде: Пиковые нагрузки, потребности разных потребителей на разных участках сети требуют гибкого подхода к потокораспределению, особенно в часы наибольшего потребления.

Проблемы и задачи начального потокораспределения

Одной из основных проблем при расчете начального потокораспределения является учет изменчивости потребностей в воде. В условиях реальной эксплуатации потребление воды может варьироваться в зависимости от времени суток, сезона и многих других факторов. Это требует разработки моделей, способных учитывать динамические изменения в сети.

Еще одной важной задачей является балансировка давления в сети. Для предотвращения возникновения зон с низким или чрезмерно высоким давлением необходимо тщательно настраивать работу насосов и корректировать диаметр труб на различных участках сети.

Заключение: Начальное потокораспределение в кольцевых сетях водоснабжения — это ключевой этап проектирования и эксплуатации таких сетей, который напрямую влияет на их эффективность и надежность. Правильное распределение потоков позволяет минимизировать затраты энергии, обеспечить равномерное давление во всей сети и избежать перегрузок на отдельных участках. Современные методы математического моделирования и компьютерные технологии позволяют значительно упростить и ускорить процесс расчета начального потокораспределения, обеспечивая высокую точность и адаптивность к изменяющимся условиям.

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ГЛОБАЛЛАШУВ ШАРОИТИДА РАДИКАЛЛАШУВНИНГ ПАЙДО БЎЛИШ ОМИЛЛАРИ ВА УНИНГ ОҚИБАТЛАРИ

Аннотация: Ушбу мақолада "радикаллашув" сўзининг маъноси ва келиб чиқиши ҳамда ёш авлоднинг ривожланишига ижтимоий муаммо сифатида таъсири кўриб чиқилади.

Ключевые слова: Радикаллашув, Терроризм, Глобал, Кураш, Ғоя, Жамият

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FACTORS OF THE EMERGENCE OF RADICALISM IN THE CONDITIONS OF GLOBALIZATION AND ITS CONSEQUENCES

Annotation. This article examines the meaning and origin of the word radicalization and its impact on the developing young generation as a social problem.

Key words: radicalization, terrorism, global, struggle, idea, society.

Янги минг йилликнинг характерли хусусияти экстремизм, айниқса, унинг энг хунук шаклларида бири – терроризмдир. Декларация ва резолюциялар қабул қилиниб, терроризм ва зўравон экстремизмга қарши курашиш бўйича миллий, минтақавий ва global ҳаракатлар режалари ишлаб чиқилиб, амалга оширилмоқда. Ушбу ҳодисага қарши кураш узок давом етмоқда ва унинг кўлами, частотаси ва намоён бўлиш шакллари, хатти-ҳаракатларнинг шафқацизлиги ва воситалардаги виждонсизлик даражасининг ортиши фониди турли муваффақиятлар билан олиб борилмоқда. Қозоқ файласуфи А.К.Абдина таъкидлаганидек, "...замонамиздаги маданий ва сивилизация жараёнлари, ўз навбатида, мурасасизликнинг кучайиши билан ҳамроҳ бўла бошлаган. Бунинг яққол мисолини терроризм, диний экстремизм, миллатлараро муносабатларнинг кескинлашуви ва бошқа салбий ҳодисаларда кўришимиз мумкин". Эксперт тадқиқотлари экстремистик туйғуларнинг пайдо бўлиши ва илдиз отиши учун кўп ҳолларда сиёсий, ижтимоий, иқтисодий, диний (конфессиявий) ва миллатлараро қарама-қаршилиқлар, ҳатто жамиятда ушбу параметрларга кўра кучайиб бораётган кескинлик ва бўлинишлар ҳам қулай муҳит

еканлиги маълум бўлди. Шунингдек, экстремизмнинг пайдо бўлиши ва тарқалишининг энг муҳим шарти, унинг ғоявий-эмоционал асоси радикализм еканлиги аниқланди. У ёки бу ўзига хос радикализм тури экстремистик қарашлар ва амалиётларнинг ўзига хос моделини шакллантиради, уларни тузади ва кучайтиради. Бугунги кунда радикалшувнинг асосий кўриниши сифатида диний радикализм намоён бўлмоқда. Диний радикализм катта бузғунчилик кучига ега, чунки у жамият учун муҳим бўлган кадриятлар ва муносабатларни шубҳа остига қўяди, ижтимоий ва диний ақидапарастлик учун асос бўлиб хизмат қилади, бу еса ўз навбатида одамларни ноқонуний хатти-ҳаракатлар содир етишига, радикал ғоялар ортидан турли салбий оқибатларга олиб келади. Радикализм (лотинча *radix* – илдиз) – сиёсий тузум ва ижтимоий институтларни тубдан ўзгартиришга қаратилган ғоя ва ҳаракатларни ифодаловчи сиёсий, диний оқим. Радикализм умумийроқ етилган анъаналарга бутунлай зид муносабатда бўлиб, кескин ҳаракатларни ёқлаб чиқади. Тарихда бу атама мўтадил ислохотлар тарафдорларига нисбатан ҳам қўлланган. Радикализм – муайян шахс ёки гуруҳнинг мавжуд ижтимоий, сиёсий ва маданий ҳолатини тубдан ва муросасиз ўзгартириш истагидан иборат жараён дир. Радикализм жараёнлари диний йўналишда ҳам кузатилиши мумкин. Бунда шахс ўз диний ётиқодини ҳақ деб билиб, ўзгача ётиқодий қарашлар ва фикрларга муросасиз ва кескинлик асосида ёндашади ҳамда уларни зўрлик йўллари билан ўзгартириш тарафдори бўлади. Бу ҳолат кўпинча жамиятда мавжуд турли диний конфессияларларга кескинлик билан ёндашиш, бир дин доирасидаги ўзга мазҳаб ёки қарашларни муросасиз инкор етиш ҳамда уларни рақиб сифатида қабул қилишда намоён бўлади. Радикализм умумийроқ етилган анъаналарга бутунлай зид муносабатда бўлиб, кескин ҳаракатларни ёқлаб чиқади. Тарихда бу атама мўтадил ислохотлар тарафдорларига нисбатан ҳам қўлланган. Ҳозир қатор сўл сиёсий партияларга нисбатан ҳам радикализм тушунчаси қўлланади. Инсон ажиб бир мавжудот. Сабаби: унинг дунёқараши мавжуд. Чунки у дунёни яхлит тасаввур ета олади ҳамда унинг – дунёнинг маълум маънавий қонуниятлар устида қурилганини англай олади, амаллар ва нарсаларни маънавий тарозисига солиб, "оқ ва қора", "яхши ва ёмон"га ажрата олиш хусусиятига ега. Гарчи маънавий оламни кўз билан кўриб бўлмаса-да, инсон унинг низомларини ҳис қила олади. Инсонларнинг қарашлари турлича бўлади, ҳатто бир қарашнинг ичида турланиш мавжуд. Ҳатто, битта оила аъзолари ичида турлича қарашдаги кишилар бўлиши мумкин, зеро инсонлар бир хил емас.

Глобаллашув жараёнида кишиларнинг ўз миллати ва Ватани учун қайғуриши, унинг ривож ва озодлигини исташи бу яхши, ҳар бир инсонга безак бўла олувчи туйғу. Бироқ, бундай интилиш қизғида инсон маънавий меъёрларни чеккага суриб қўядиган бўлса, бунда у ўша доирадан чиқиб кетган бўлади – радикаллашиш асносида экстремизм ва бошқа – жиддий

иллатларга дучор бўлади. Айрим радикаллар ҳанузгача бу атаманинг етимологиясидан (лотинча "илдиз", "келиб чиқиш" деган маънони англатади) келиб чиққан асл маъносини ўзгартиришга ҳаракат қилмоқда. Улар 1960-1980 йиллардаги дунёдаги енг машҳур радикал сиёсий арбоблардан бирининг сўзларига таянадилар. Америкалик Анжела Девис: "...радикал шунчаки нарсаларнинг келиб чиқишини тушунишни англатади". Замонавий анархист мафкурачи Жефф Шантзнинг таъкидлашича, нотўғри талқин қилишганидек, радикализм бу стратегия эмас. Бу замонавий дунёда ҳаракат қилиш имконини берувчи ҳаётга муҳим ёндашув бўлиб, унинг фикрига кўра, "радикал бўлиш - қабул қилинган тахминлар, жуда осон тушунтиришлар, қониқарсиз жавоблар ва муаммоларни ҳал қилиш учун даволоччи воситалардан ташқарига қарашдир". Асосан радикализмнинг шаклланишига сабаб бўлувчи омиллар бу болаликдаги таълим тарбия, шахснинг ўзига хос хусусиятлари яъни ўзига паст баҳо бериш ва ўзини мутакаббир тутмоқ ҳамда хулқ - атворни вайрон қилувчи ва емирувчи ёд ғоялардир. Фикримизча ҳозирги кундаги ёшларда радикализм тушунчасининг пайдо бўлиши бу ёшлардаги тажрибасизлик ва ҳиссиётга таянган ҳолда иш юритиши, ташқи таъсир натижасида руҳий ҳолатнинг ўзгарувчанлиги руҳий тушкунликка тез тушиши ва руҳий зарбаларга чидамсизлиги яқинлари еътиборидан бутунлай четда қолиши асосий сабаблардан биридир. Яна кўшимча равишда шуни такидлаш керакки, ахборотларни тўлақонли таҳлил қилмаслик, ижтимоий тармоқларда инсоннинг фикрига ёд ғояларни сингдирадиган гуруҳларга аъзо бўлмоқ ҳар қил турдаги нарсаларга ишонувчанлик каби қатор омиллар радикализм сабабларидан яна биридир. Радикаллашув ижтимоий касаллик сифатида, жамиятнинг турли ёт ғоя ва мафкураларга нисбатан иммунитетини сусайтиради, терроризм, мутаассиблик, экстремизм ва бузғунчиликнинг бошқа шаклларига йўл очади. Хулоса ўрнида шуни таъкидлаш керакки, глобаллашув жараёнида енг муҳим ўрин қаратиладиган жиҳат ҳар бир инсоннинг радикализм борасидаги фикр ва ёд ғояларни яхши билмоқлиги, уни мақсадлари нималигини ҳамда натижаси нималарга олиб келишини билмоғи лозим. Шунинг учун биз жамиятнинг онгли аъзоси сифатида ижтимоий media ва рақамли дунёнинг инсонлар ва жамиятларнинг онгини манипуляция қиладиган кучи ва таъсирини ҳисобга олишимиз керак. Ўзимиз ёқтирган ва баҳам кўрган ахборотларгача бўлган ҳамма нарса бизнинг мўтадил қадриятларимиз ҳамда ахлоқий туйғуларимизга мос бўлиши керак. Ушбу мураккаб муаммони ҳал қилиш ижтимоий-иқтисодий тенгсизликларни бартараф етиш, маданий тушунишни ривожлантириш ва бағрикенглик ҳамда танқидий фикрлашни рағбатлантирадиган таълимни ривожлантиришга қаратилган саъй-ҳаракатларни бирлаштирадиган комплекс ёндашувни талаб қилади. Радикализмнинг илдизларини тушуниб, жамиятлар экстремизмга тўсқинлик қиладиган ва инклюзивликни тарғиб қилувчи муҳит яратишга ҳаракат қилиши мумкин.

ADABIYOTLAR RO‘YXATI

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ВЛИЯНИЕ СОЦИАЛЬНОЙ ПОЛИТИКИ НА ФИНАНСОВО- ЭКОНОМИЧЕСКУЮ БЕЗОПАСНОСТЬ РОССИЙСКОЙ ФЕДЕРАЦИИ

***Аннотация:** В статье рассмотрены вопросы взаимосвязи качества жизни населения и проводимой социальной политики. Анализируется социальная политика в России сегодня и описываются ключевые социально-экономические факторы, определяющие качество жизни и устойчивость развития страны. Также рассматривается взаимовлияние между социальной политикой и экономической безопасностью, и демонстрируется их взаимозависимость.*

***Ключевые слова:** финансово-экономическая безопасность, потребности населения, социальное развитие, социальная политика, качество жизни.*

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THE IMPACT OF SOCIAL POLICY ON THE FINANCIAL AND ECONOMIC SECURITY OF THE RUSSIAN FEDERATION

***Abstract:** The article deals with the issues of the relationship between the quality of life of the population and the social policy. The article analyzes the social policy in Russia today and describes the key socio-economic factors that determine the quality of life and the sustainability of the country's development. The mutual influence between social policy and economic security is also examined, and their interdependence is demonstrated.*

***Keywords:** primary housing market, secondary housing market, mortgage rate, cost of housing, rent, housing market, real estate.*

Введение

На современном этапе развития мирового сообщества представляется актуальным понимание того, что социальная политика является одним из важнейших направлений государственного регулирования экономики. Ведь социальная политика – это деятельность государства по созданию и регулированию социально-экономических условий жизни общества с целью повышения благосостояния членов общества, ликвидации негативных последствий функционирования рыночных процессов, обеспечения социальной справедливости и социально-политической стабильности в стране [1].

Государство на разных ступенях своего развития может отдавать приоритет тому или иному её направлению. И главный вопрос данной статьи – исследовать наиболее эффективные направления современной социальной политики, оказывающие наибольшее влияние на качество и уровень жизни населения в РФ.

Методы.

В статье используется метод анализа социальной политики в России в контексте её влияния на финансово-экономическую безопасность, применяется метод синтеза для резюмирования состояния социальной политики и экономической безопасности. Используется метод сравнения социальных и экономических факторов в корреляции с качеством жизни населения, системный подход помогает рассмотреть системы государственного регулирования через призму экономической стабильности России.

Результаты.

Актуальность темы и, соответственно, социальная политика является важным фактором, который влияет на экономическую безопасность государства. Она включает в себя меры, направленные на обеспечение достойного уровня жизни населения, защиту прав и интересов граждан, поддержку уязвимых слоев населения и т.д.

В современных условиях экономическая безопасность является феноменом жизни общества и имеет комплексную природу.

Общественно-хозяйственные процессы протекают в ускоренном темпе, и своевременный учет между социальными и экономическими аспектами становится важным моментом в разработке социальной политики и грамотном расчете влияния на неё экономических факторов [2].

Актуальность проведения социальной политики государства заключается в том, что она направлена, в первую очередь, на население страны, которое должно чувствовать защищённость своих интересов, быть уверенным в своём будущем, знать, что государство способно это обеспечить.

Социальная политика реализуется через социальную направленность экономики, её модернизацию, при которой обеспечивается социальная

устойчивость и стабильность всех членов общества в условиях повышения уровня и качества жизни. Современные реалии состоят в росте потребностей, истощении ресурсов, увеличении численности населения, что ставит перед главами государств необходимость решения сложных задач: экономического роста и экономической эффективности. Показатель экономического роста является значимым, когда он сопровождается социальной стабильностью.

Экономический рост и качество жизни по определению неразделимы друг от друга. В настоящее время проблемы качества жизни привлекают исследователей и являются центром внимания в экономической науке. Объектами управления должны выступать не только продукция и услуги, но и процессы, качество жизни, которое признано международным сообществом одной из важных характеристик, отражающих уровень развития и экономического роста стран и народов [4].

Неудовлетворительное развитие социальной сферы, рост нищеты, безработицы, пробелы в обеспечении жилищно-коммунальными услугами населения, другие социальные потрясения в основном объясняются экономическими проблемами и ошибками формирования расходной части бюджетов, когда на финансирование социальных мероприятий предусматривают необоснованно ограниченные средства [2].

По опыту развитых стран видно, что в благоприятных социальных условиях эффективность расходования ресурсов становится выше по причинам повышенной трудовой мотивации, увеличения работоспособности персонала, улучшения качества рабочей силы. На основании этих факторов повышается производительность труда, идёт сокращение непроизводительных издержек и текучести кадров, быстрее восстанавливается энергия и силы, появляется больше времени на продуктивную работу.

Улучшение условий труда посредством снижения шума, поддержания комфортной рабочей температуры воздуха в помещении, лучшей освещенности рабочих мест позволяет значительно повысить производительность труда. Из этого следует, что финансовые затраты, направленные на улучшение условий труда, полностью окупаются и способствуют росту экономической эффективности [7].

Социальному развитию и росту экономического эффекта способствует увеличение доли затрат на создание рабочих мест и повышение уровня занятости населения [6]. Данные затраты могут оказаться несущественными по сравнению с тем эффектом, который они могут принести. Но, в свою очередь, возможен случай, когда затраты на дополнительное образование или переподготовку кадров вовсе не окупаются или окупаются лишь их малая часть.

Модернизация производительных сил ведёт к тому, что круг потребностей становится шире, меняются способы их удовлетворения, но, в

свою очередь, расширение человеческих потребностей является мощным стимулом развития производительных сил.

Распространение средств массовых коммуникаций привело к тому, что расширение потребностей поспособствовало созданию новых механизмов. Под внешним влиянием совокупный потребительский спрос в менее развитых странах сконцентрировался на тех товарах, производство которых требует более высокие технические стандарты [3]. Возник «демонстрационный эффект», при котором в менее развитых странах экономический рост и развитие не поспевают за стремительным увеличением материальных потребностей общества. В итоге, в настоящее время немало стран, где наблюдается углубление разрыва между уровнем развития производства и характером потребностей. Данный эффект является препятствием для экономического развития, также растёт социальная напряжённость.

Социальная политика и экономическая безопасность тесно связаны между собой, поэтому вопросы социальной политики, особенно те, что направлены на долгосрочную перспективу, нельзя рассматривать отдельно от перспектив экономического развития страны.

В настоящее время социальные проблемы в России включают следующие вопросы:

Бедность – проблема бедности является наиболее остро ощущаемой среди населения России, особенно среди пенсионеров и малоимущих семей.

Образование – низкий уровень образования оказывает отрицательное влияние на качество жизни людей, на экономическое развитие страны и социальное неравенство.

Безработица – высокий уровень безработицы и низкие зарплаты создают трудности в экономике и способствуют росту социального неравенства.

Коррупция – распространённость коррупции создает неравенство в обществе и мешает справедливости в правосудии, а также в экономике.

Насилие – проблема насилия является острой для женщин и детей, а также для пессимистически настроенной молодёжи.

Здравоохранение – проблемы здравоохранения включают чередующиеся заболевания, недостаточный доступ к лекарствам, а также болезни, связанные с плохой экологией.

Демография – проблемы демографического развития, связанные со снижением численности населения, меньшинствами и абортами, могут нарушить стабильность общества.

Неудовлетворительное жильё – острый, постоянно присутствующий недостаток хорошего, светлого жилья с современными коммуникациями, гигиеническим оборудованием и комфортабельностью также является проблемой в России.

Обозначенные выше проблемы социального характера напрямую влияют на жизнь общества и определяют степень благосостояния народа, а также затрагивают его морально-нравственную сферу, что перекликается с вопросами социальной справедливости.

Экономический рост и его перспективность – это фактор, который необходим для того, чтобы улучшить жизнь граждан нашей страны [5]. Объективные показатели, которые отражают уровень и качество жизни населения, необходимо сделать главными критериями, на которые исследователи будут полагаться в своей оценке эффективности экономической и социальной политики государства. В то же время следует акцентировать внимание на том, что главными и необходимыми условиями для улучшения жизни населения являются следующие: высокий уровень благосостояния населения, возможность удовлетворять свои потребности без вмешательства со стороны государства или иных органов социальной помощи и страхования; справедливая оплата труда, которая позволит человеку без труда обеспечивать себя и реализовывать свои потребности; возможность получать бесплатное образование и медицинское обслуживание; больше путей для реализации собственного потенциала и актуализация личности в общественной системе.

Безусловно, чтобы осуществить все эти цели и направления, следует полностью изменить приоритеты государственной социальной политики. В первую очередь, очень важно преодолеть массовую бедность, в которой мы все находимся. Разрыв между богатыми и бедными слоями населения должен быть не настолько очевидным и резким. Осуществить это можно путем сокращения безработицы и повышения оплаты труда работников предприятий. Также государство должно предпринять меры по увеличению финансирования таких сфер, как здравоохранение и образование. В действительности должна быть продемонстрирована забота о таких категориях населения, как старики, инвалиды, дети.

Из года в год государством прописываются меры, необходимые для того, чтобы в перспективе улучшить положение и состояние государственной социальной политики. Однако нынешние власти предпочитают отменять некоторые нормативы государственных бюджетных расходов вместо того, чтобы исполнять их и направлять на удовлетворение необходимых социальных нужд.

По нашему мнению, для улучшения ситуации необходимо превратить социальную составляющую государственной политики в исходную точку, от которой специалисты будут отталкиваться в дальнейшем проектировании федерального бюджета.

В политике государства в социальной сфере на обозримую среднесрочную перспективу выведены следующие ориентиры, которые выступают в качестве ключевых целей:

1. Увеличение средней продолжительности жизни, ориентируясь на уровень развитых стран. Таким образом, должен быть прирост «+10 лет» к тому показателю, что есть сейчас. Преимущественно этого можно добиться путем изменений в системе здравоохранения и социального обслуживания, а также путем изменений отношения к экологической ситуации, установлением новых норм безопасности для граждан.

2. Приближение среднедушевых доходов населения, ориентируясь на уровень и опыт развитых стран. Таким образом, доходы должны быть увеличены практически втрое, что требует кардинальных изменений в экономической сфере государства. Только этим путем возможен выход Российской Федерации на уровень Европейского союза по «индексу развития человеческого потенциала».

Еще одна мера – преодоление вынужденной безработицы как одной из самых распространённых её форм в современной России. Прежде всего, её необходимо преодолеть среди молодежи, а преодоление возможно в результате опережающего роста производства товаров и услуг с высокой долей добавленной стоимости. Второй путь – создание новых рабочих мест, привлекательных для молодых специалистов, с возможностями карьерного роста и достойной заработной платой, а также развитие высшего и среднего профессионального образования, возможности учиться по интересной профессии, увеличение количества бюджетных мест, привлечение молодых людей к социальной, политической, научно-просветительской деятельности.

При этом товары и услуги должны быть одинаково доступны всем категориям граждан. Это и доступное образование, размытие границ между богатыми и бедными, инвалидами и здоровыми людьми. Каждый человек должен почувствовать себя нужным и полноценным, чтобы в будущем вести такую же активную деятельность, как и все остальные. Для этого очень важно развитие социальной сферы, а толчком становятся меры, предусмотренные государственными органами власти в области государственной социальной политики. Только благодаря этим направлениям в перспективе Россия сможет выйти на высокий международный уровень и закрепить свои позиции как развитое государство.

Заключение.

В современных условиях экономическая безопасность является феноменом жизни общества и имеет комплексную природу. Социальная политика является важным фактором, который влияет на экономическую безопасность государства. Она включает в себя меры, направленные на обеспечение достойного уровня жизни населения, защиту прав и интересов граждан, поддержку уязвимых слоев населения и т.д.

Социальная политика сегодня является одним из важнейших направлений государственного регулирования экономики России.

Социальная составляющая в реформировании общественного устройства в настоящее время является одним из главных направлений. На основании того, как решаются социальные проблемы, насколько качественно пространство, в пределах которого проходит жизнедеятельность человека, можно судить о сущности государства, его базовых гуманитарных принципах.

Таким образом, главная цель социальной политики — повышение благосостояния населения, снижение бедности и неравенства.

На основании приведённого выше исследования можно сделать вывод, что социальная политика и экономическая безопасность тесно связаны между собой, поэтому вопросы социальной политики, особенно те, что направлены на долгосрочную перспективу, нельзя рассматривать отдельно от перспектив экономического развития страны.

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**БАХТСИЗ ҲОДИСАЛАРГА САБАБ БЎЛУВЧИ ЗАРАРЛИ ВА
ХАВФЛИ ИШЛАБ ЧИҚАРИШ ОМИЛЛАРИ ВА УЛАРНИ
ТАЪСИРИДАН ҲИМОЯЛАНИШ ЙЎЛЛАРИ**

***Аннотатсия:** Мақолада ишлаб чиқаришда бахтсиз ҳодисаларга сабаб бўлувчи омиллар келтирилган ва уларни олдини олиш учун қандай чора-тадбирлар кўриш зарурлиги ёритилган.*

***Калим сўзлар:** меҳнат, хавфли ва зарарли ишлаб чиқариш омиллари, , хавфли физик омиллари, зарарли физик омиллари, хавфли ва зарарли кимёвий омиллари, хавфли ва зарарли психо-физиологик омиллар, хавфли ва зарарли биологик омиллар*

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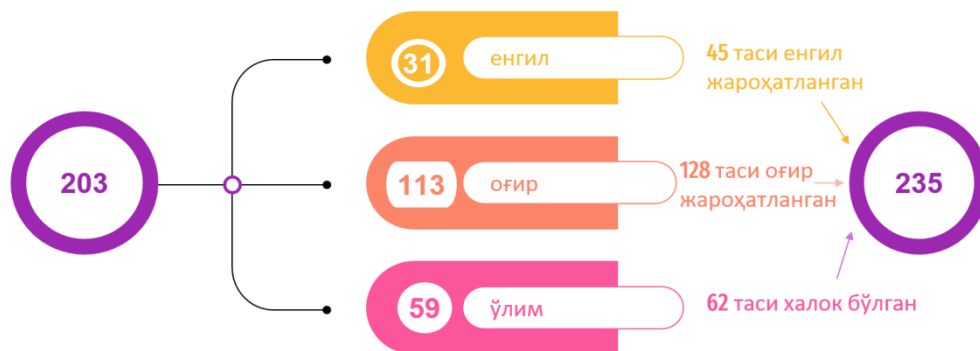
**HARMFUL AND DANGEROUS WORKING FACTORS THAT
CAUSE ACCIDENTS AND WAYS OF PROTECTION AGAINST THEIR
EFFECTS**

***Abstract:** The article presents the factors that cause accidents in production and what measures should be taken to prevent them.*

***Key words:** work, dangerous and harmful production factors, dangerous physical factors, harmful physical factors, dangerous and harmful chemical factors, dangerous and harmful psycho-physiological factors, dangerous and harmful biological factors*

Давлат меҳнат инспекциясини берган маълумотларига кўра, 2020 йилда ишлаб чиқариш жараёнларида бахтсиз ҳодисалар сони 607 тани ташкил этган, бу еса 2019 йилга нисбатан 107 тага кўпайганлигини кўрсатди. Турли сабаблар оқибатида 693 нафар ходим жабрланган, шундан, 201 нафари халок бўлган, 457 нафари оғир ва 35 нафари енгил тан жароҳат олган. Ташкилот ва муассасаларда 2021 йилда аниқланган ишлаб чиқариш билан боғлиқ бахтсиз ҳодисалар жами 203 тани ташкил этган, улардан 59 таси оқибати ўлим билан тугаган, 113 таси оқибати оғир ҳамда 31 таси оқибати енгил бахтсиз ҳодисалар бўлиб, шулардан 19 таси гуруҳийни ташкил этган [1].

Ишлаб чиқаришдаги бахтсиз ҳодисалар



1-расм. Ишлаб чиқаришдаги бахтсиз ҳодисалар

1-расмдаги статистик маълумотлар шуни кўрсатмоқдаки, ишлаб чиқаришнинг одамга таъсир этадиган шундай хавфли ва зарарли омиллари борки, уларга жиддий эътибор қаратиш зарур.

Зарарли ишлаб чиқариш омиллари (ЗИО) ишлаётган одамга таъсир этиб, унинг ишлаш қобилиятини пасайтиради, сурункали касб касаллигини келтириб чиқариши мумкин.

Ишлаб чиқаришнинг хавфли ишлаб чиқариш омиллари (ХИО) эса одамни жароҳатлайди ёки соғлиғига кескин таъсир этади (ўткир касалланиш рўй беради) [2]. ГОСТ 12.0.003-74 «ССБТ. Хавфли ва зарарли ишлаб чиқариш омиллари. Таснифи»га кўра, бу хавфлар тўрт гуруҳга бўлинади: физик, кимёвий, биологик ва психофизиологик.

Ишлаб чиқаришнинг хавфли физик омиллари: ҳаракатдаги машина ва механизмлар; кўтариш-ташиш ускуналари ва юкларни ҳаракатлантирувчи ускуналар; ишлаб чиқариш ускуналарининг тўсиқсиз элементлари (юритувчи ва узатувчи механизмлар, қирқувчи асбоблар, айланадиган ва суриладиган мосламалар ва шу кабилар); ишлов берилаётган материалдан ва асбобдан сачраб чиқувчи зарралар, электр токи, ишлов бераётганда ҳосил бўладиган катта ҳарорат ва бошқалар.

Ишлаб чиқаришнинг зарарли физик омиллари: ишчи зона ҳавосининг ошиб ёки пасайиб кетган ҳарорати; ҳавонинг юқори намлиги ва тезлиги; шовқин, титраш, ултратовуш ва турли нурланишлар; иссиқлик, ионловчи, электромагнит, инфрақизил ва бошқалар даражасининг ортиб кетиши; иш зонаси ҳавосининг чанглилиги ва зарарли газлари; иш жойи, юриш йўллари етарлича ёритилмаганлиги; ёруғликнинг ортиқча ёрқинлиги ва нур оқимининг пулсатсияланиши.

Ишлаб чиқаришнинг хавфли ва зарарли кимёвий омиллари: одам организмга таъсирига қараб қуйидаги гуруҳларга бўлинади: умум заҳарловчи, кўзғатувчи, сенсбилли (аллергик касалларни келтириб чиқарувчи), кансероген (шиш пайдо қилувчи) мутагенли (организмнинг

ирсиятига таъсир этувчи) ва насл қолдириш қобилиятига таъсир этувчи. Бу гуруҳга агрессив суюқликлар (кислоталар, ишқорлар) киради; улар терини куйдиради.

Ишлаб чиқаришнинг хавfli ва зарарли биологик омилларига микроорганизмлар (бактериялар, вируслар ва бошқалар) макроорганизмлар (ўсимликлар ва ҳайвонлар) киради; улар одамга жароҳат етказиш ёки уни касал қилиши мумкин.

Ишлаб чиқаришнинг хавfli ва зарарли психо-физиологик омилларига жисмоний зўриқиш (статик ва динамик), асаб-психик зўриқиш (аклий зўриқиш, эшитиш, кўриш аъзоларининг чарчаши) киради.

Ишлаб чиқаришнинг хавfli ва зарарли омиллари ўртасида маълум боғланиш мавжуд. Кўп ҳолатларда зарарли омиллар хавfliсини келтириб чиқаради. Масалан: ишлаб чиқариш биносидаги ҳавонинг ўта намлиги ва тоқ ўтказувчи чангнинг борлиги (булар – зарарли омиллар) одамни тоқ уриш хавfliни (хавfli омил) кучайтиради. ЗИО нинг ишловчиларга таъсир даражаси чегаравий-рухсат этилган (жоиз) қийматлар билан меъёрланган, улар меҳнат муҳофазаси стандартларида ва санитария-гигиена қоидаларида кўрсатилган [3]. ЗИОнинг чегаравий жоиз қиймати ГОСТ 12.1.005-88 «ССБТ. Иш ҳудуди ҳавосига қўйиладиган умумий санитария-гигиена талаблари» да кўрсатилган бўлиб, у ҳар куни, маълум муддат таъсир этганида, одамнинг бутун меҳнат стажи давомида иш қобилиятини пасайтирмаслиги ва касаллик келтириб чиқармаслиги керак, кейинги ҳаёти давомида ҳам касал қилмаслиги, наслининг соғлиғида асорат қолдирмаслиги керак.

Ишлаб чиқаришда хавфсиз ва зарарсиз меҳнат шароитларини яратишнинг асосий йўллари мос технологияни, иш тартибини, ишлаб чиқариш воситаларидан фойдаланишни, қулай иш шароитларини, хом ашёларни, ярим маҳсулотларни, иш ўринларини ташкил қилишни ва жиҳозлардан, ҳимоя воситаларидан оқилона фойдаланиш, хавфсизлик талабларини бажариш, касбига қараб танлов ўтказиш ва ишчиларни ўқитиш, техник-меъерий ҳужжатларга хавфсизлик воситаларини киритиш билан таъминланади. Технологик жараёнлани лойиҳалаш, ташкил этиш ва ўтказишда хавфсизлик талаблари олдиндан назарда тутилмоғи шарт. Бунинг учун ишлаб чиқаришда зарарли таъсирларнинг олдини олиш, ишдаги операция ва жараёнларни ўзгартириш, ишлаб чиқаришни автоматлаштириш ҳам да унда масофадан туриб бошқаришни қўллаш, гиподинамияга эътибор бериш, ишни оқилона ташкил этиш шу билан бир қаторда оғир меҳнатни чегаралашни ҳам ҳисобга олиш керак. Шунингдек, ўз вақтида ишлаб чиқариш хавфсизликлари тоғ'рисидаги маълумотни, жараённи бошқариш ва назорат қилиш тизимини, о ўз вақтида чиқиндиларни зарарлантириш, чиқариб ташлашга хавф ва зарар туг'дирувчи манбаларга алоҳида э'тибор қаратиш керак. Иш хоналари, қурилиш меъери ва қоидаларига (ҚМ ва Қ) мос келиши керак, хоналар ва иш жойларида хавfli ва зарарли таъсирлар

даражаси меъерий кўрсаткичлардан юқори бўлмаслиги шарт. Ишлаб чиқариш майдонлари ҚМ ва Қ талабларига ва давлат назорат ташкилотлари тасдиқлаган қоидаларга жавоб бериши зарур. Ишлаб чиқариш жиҳозлари ГОСТ 12.2.003-74 га, ҚМ ва Қ ва технологик лойиҳалаш меъёрига мос келиши ҳамда иш жойлари етарли ҳолда ёритилган бўлиши шарт. Эргономик талабларга риоя қилган ҳолда ускуналарни жойлаштириш лозим.

Хулоса қилиб айтганда, юқорида келтирилганлардан ташқари, фан-техника ютуқларини ишлаб чиқаришга ва инсонлар ҳаётининг барча соҳаларига жорий этиш асосида қўл меҳнатини машина меҳнатига айлантириш, энгиллаштириш, машинани машина билан яратиш, меҳнатнинг мазмуни ва характерини ўзгартириш зарур.

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ИНГИЧКА ТОЛАЛИ ҒЎЗА НАВЛАРИ ЭКОЛОГИК СИНОВИ

***Аннотация:** Мақолада ингичка толали ғўзанинг 15 нави бўйича экологик синов натижалари ҳақида маълумотлар берилган. Ушбу тадқиқот натижалари Ўзбекистонда пахта секторининг барқарорлиги ва рақобатбардошлигини оширишга катта ҳисса қўишиши кутилмоқда.*

***Калим сўзлар:** Экологик синов, Sp-1607, Термиз-202, Термиз-208, Сурхон-16, Сурхон-14, Сурхон-106, Сурхон-18.*

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ECOLOGICAL TESTING OF FINE FIBER COTTON VARIETIES.

***Abstract.** The article provides information on the results of environmental tests of 15 varieties of fine-staple cotton. The results of this research are expected to contribute significantly to increasing the stability and competitiveness of the cotton sector in Uzbekistan.*

***Keywords.** Environmental tests, Sp-1607, Termiz-202, Termiz-208, Surxon-16, Surxon-14, Surxon-106, Surxon-18.*

Жаҳонда етиштирилаётган қишлоқ хўжалиги экинлари ҳосилининг 20-25% и табиатдаги турли хил нохуш абиотик омиллар (гармсел, юқори харорат, сув танқислиги в.х.к.з.) таъсирида нобуд бўлади. Шу жумладан гармсел ғўза ва бошқа қишлоқ хўжалиги экинларига жиддий зарар келтирадиган жиддий омиллардан бири ҳисобланади. «Гармселнинг салбий таъсири бўйича пахтадан ўртача 9,0-10,0 ц/га, буғдойдан 7,0-8,0 ц/га, шолидан 3,0-5,0 ц/га ҳосил йўқотилиши аниқланган. Айниқса, бугунги кунда Жанубий ва Шарқий Осиё мамлакатлари, Шимолий Африка ва Яқин Шарқ мамлакатлари, Австралия ҳамда Жанубий ва Шимолий Американинг чўл ва сахро минтақаларида гармселнинг салбий таъсири яққол

кузатилмоқда»1. Шу сабабли тезпишар ва экологик пластик ғўза навларини яратиш долзарб муаммо ҳисобланади.

Тадқиқотнинг услублари: Таҷрибалар Термиз туманидаги Ингичка толали пахтачилик илмий тадқиқот институти (ИТПИТИ) марказий таҷриба даласида ўтказилди. Селекция ишлари ва тадқиқотлар “ Методы селекция хлопчатника ” (1968), “Методы выведения и размножения новых сортов хлопчатника ”(1969), “Қишлоқ Хўжалиги экинларининг давлат нав синови ” (1977), “ дала таҷрибаларини ўтказиш услублари ” Ўзпити (2007), Ўрта Осиё ирригация ИТИ, халқаро ФАО услублари “нав ва тизмаларда ҳосилдорлик маълумотлари” Даспехов Б.Н. (1985) услуби асосида таҳлил етилди.

1-жадвал

Ингичка толали ғўзанинг янги навлари ҳосилдорлиги ҳамда тола ва чигити сифат белгилари.

| № | навлар | Тола узунлиги мм | Тола чиқиши % | 1000 дона ч.в.г | Ҳосилдорлиги ц/га | | |
|----|------------|------------------|---------------|-----------------|-------------------|--------|--------|
| | | | | | 2020 й | 2021 й | 2022 й |
| 1 | Ст-Сурх-14 | 38.4 | 35.8 | 122 | 37.1 | 39.4 | 36.0 |
| 2 | Сурх-16 | 35.5 | 36.9 | 106 | 37.7 | 39.8 | 36.0 |
| 3 | Сурх-18 | 38.2 | 34.5 | 116 | 35.8 | 39.1 | 34.0 |
| 4 | Сурх-102 | 39.0 | 35.5 | 120 | 30.4 | - | - |
| 5 | Терм-49 | 37.3 | 36.6 | 130 | 35.7 | 37.3 | 33.0 |
| 6 | Сурх-103 | 40.1 | 37.0 | 109 | 32.1 | 34.2 | 30.6 |
| 7 | Сурх-104 | 40.4 | 40.7 | 102 | 28.9 | | |
| 8 | Сурх-106 | 37.8 | 35.7 | 109 | 36.2 | 39.8 | 35.1 |
| 9 | Ангор | 37.0 | 37.5 | 120 | 28.4 | - | - |
| 10 | Иолатан-14 | 38.4 | 32.5 | 132 | 35.8 | 36.7 | 34.4 |
| 11 | Терм-202 | 37.7 | 34.9 | 117 | 39.8 | 39.8 | 37.5 |
| 12 | Терм-208 | 39.9 | 37.0 | 113 | 37.4 | 40.3 | 37.7 |
| 13 | СП-1607 | 39.2 | 37.2 | 108 | 39.2 | 41.8 | 37.2 |
| 14 | Ст-1651 | 38.1 | 37.6 | 115 | 35.5 | 38.1 | 33.4 |
| 15 | Марварид | 41.6 | 35.2 | 118 | - | - | 32.0 |

Ингичка толали ғўзанинг 15 нави экологик синов кўчатзорида экиб синовдан ўтказилди. Булар ичида Термиз-49 ва Сурхон-102 навлари илгари экилган. Туркменистон пахтачилик илмий тадқиқот институтида яратилган Иолатан-14 нави Туркменистон Республикасида 5000 га экилиб келинмоқда. Янги навлардан “Ангор” нави морфологик жиҳатдан бир хил бўлмаганлиги

ва ҳосил элементлари кам боғлаганлиги сабабли, Сурхон-104 нави бўйи паст, ҳосили камлигидан кейинг йилларда экилмади, бошқа 11 та нав 2020-2022 йилларда синовдан ўтказилди.

Сп-1607, Термиз-202 ва Термиз-208 навлари ҳосилдорлиги 39.4-38.5 ц/га юқори (39.4;39.0;38.5) кейинг ўринларда Сурхон-16, Сурхон-14, Сурхон-106 ва Сурхон-18 навларида 37.8-36.3 ц/га (37.8;37.5;37.0;36.3) ҳамда Ст-1651 ва Йолатан-14 навларида 35.7 ц/га ҳосил олинди. Сурхон-103 ва Марварид навлари ҳосилдорлиги паст (32.3-32.0) бўлганлиги қайд этилди.

Тола узунлиги белгиси бўйича андоза Сурхон-14 навида 38.4 мм, ундан юқори кўрсаткичлар Марварид (41.6), Сурхон-104 (40.4), Сурхон-103 (40.1), Термиз-208 (39.9), Сп-1607 (39.2), Сурхон-102 (39.0) навларида қайд этилди. Сурхон-18 (38.2), Ст-1651 (38.1) навлари белги кўрсаткичи андоза Сурхон-14 навида жуда яқин, Сурхон-106 0.6 мм га, Термиз-202 0.7 мм га, Термиз-49 1.1 мм “Ангор” 1.4 мм Сурхон-16 2.9 мм га калта бўлганлиги қайд этилди.

Юқоридаги маълумотлардан шундай хулоса қилиш мумкинки, пахтачиликда бугунги кунда тезпишар, асосий ҳосилини эрта муддатларда берадиган, шунинг билан бир қаторда юқори тола сифатига бўлган ғўза навлари майдонини кенгайтириб бориш ўзининг ижобий самарасини беради.

1. Келиб чиқиши генетик жиҳатдан узоқ бўлган *G.hirsutum* L. ва *G.barbadense* L. турларига мансуб ғўза навлари ва тизмаларини чатиштириш орқали яратилган дурагайларнинг юқори авлодларида хўжалик учун қимматли белгиларнинг шаклланиши ва барқарорлашуви аниқланди.

2. Турлараро мураккаб дурагайлаш услуби орқали яратилган F₃-F₄ дурагайларини яқка танлов ҳамда F₅ ва юқори авлодларни оила тарзида ўрганиш орқали тезпишарлик, юқори ҳосилдорлик ҳамда тола чиқими ва тола узунлиги каби белгиларнинг ижобий мажмуасига эга қимматли селекцион ашёлар яратиш мумкинлиги исботланди.

3. Турлараро мураккаб дурагайлаш услуби орқали яратилган юқори авлод дурагайлари ва селекцион ашёлар қимматли хўжалик белгилари бўйича тўлиқ баҳоланиб тезпишарлик, тола ҳосилдорлиги ва сифати юқори, янги ғўза оилалари ва тизмалари яратилди.

4. Турлараро мураккаб чатиштириш, яқка танлаш ва юқори авлод дурагайларини ўрганиш орқали морфологик, хўжалик ва навдорлик белгилари бўйича андоза Наманган-77 ва Бухоро-102 ғўза навларидан фарқланадиган тезпишар, тола чиқими ва сифати юқори янги ЎзПТИ-1604 ғўза нави яратилди.

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ПРАВА ЧЕЛОВЕКА И ОБЩЕСТВЕННАЯ БЕЗОПАСНОСТЬ: БАЛАНС ОБЯЗАННОСТЕЙ В ПРАВООХРАНИТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ

АННОТАЦИЯ: В данной научной статье поясняется, что основной целью судебных действий, связанных с применением оружия органами внутренних дел – является обеспечение прав человека. Предусмотрены соответствующие процедуры для эффективного применения юридических квалификаций при использовании оружия. Сотрудничество органов внутренних дел с гражданами в обеспечении высшей ценности прав человека имеет правовую основу.

Ключевые слова: права человека, высшая ценность, последняя необходимость, Закон «Об органах внутренних дел», юридическая квалификация.

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HUMAN RIGHTS AND PUBLIC SAFETY: BALANCING RESPONSIBILITIES IN LAW ENFORCEMENT

ABSTRACT: This scientific article explains that the main goal of legal action related to the use of weapons by internal affairs bodies is – to ensure human rights. Appropriate procedures for the effective implementation of legal qualifications in the use of weapons are provided. The cooperation of internal affairs bodies with citizens in ensuring the highest value of human rights is legally based.

Keywords: human rights, supreme value, last necessity, Law “On Internal affairs bodies”, legal qualification.

Республика Узбекистан продолжает демонстрировать приверженность международным стандартам правозащитных органов в своей политической деятельности. Это связано, в первую очередь, с проведением демократических реформ, формированием правового

государства, провозглашением политического и идеологического плюрализма и, наконец, с конституционным признанием прав и свобод человека как высшей ценности.

Права человека — это сложное, многогранное понятие, являющееся одной из важнейших ценностей современной цивилизации. Значение прав человека заключается в том, что это, прежде всего, понятие, относящееся к индивиду, чья свобода определяется социальными и правовыми нормами, установленными в обществе и государстве.

Сотрудники органов внутренних дел являются представителями государства и при выполнении своих служебных обязанностей по поддержанию общественного порядка иногда вынуждены ограничивать права человека. В связи с этим для сотрудников органов внутренних дел крайне важно разграничивать понятия «свобода» и «права и свободы человека». В первом случае «свобода» понимается в широком философском смысле как возможность действовать в соответствии с собственными желаниями и волей.

Свобода предоставляет человеку возможность реализовать свои способности и вносить вклад в успех общества. Права и свободы человека же трактуются как конституционно-правовое понятие в сугубо юридическом смысле, которое предполагает осуществление индивидом объективных и субъективных прав в рамках, установленных законом.

При этом сотрудники органов внутренних дел обязаны действовать в соответствии с международными стандартами по правам человека и национальным законодательством.

Необходимость изучения прав человека сотрудниками органов внутренних дел определяется следующими факторами:

во-первых, культура прав человека является составной частью профессиональных навыков сотрудников органов внутренних дел;

во-вторых, согласно документам ООН, сотрудники органов внутренних дел относятся к числу государственных служащих, для которых изучение прав человека является обязательным;

в-третьих, правоприменительная деятельность сотрудников органов внутренних дел требует постоянного повышения их правосознания, а знания о правах человека составляют важную часть этого процесса;

в-четвертых, все виды деятельности сотрудников органов внутренних дел (борьба с преступностью, поддержание общественного порядка, оперативно-розыскная деятельность) требуют соблюдения международных стандартов по правам человека;

в-пятых, Республика Узбекистан ратифицировала все основные международные договоры по правам человека, обязательные к исполнению;

в-шестых, положения всех международных договоров по правам человека имеют прямое отношение к профессиональной деятельности сотрудников органов внутренних дел.

Сотрудник органов внутренних дел в своей служебной деятельности обладает определенными правами, такими как обеспечение общественной безопасности, поддержание общественного порядка, борьба с преступностью и защита прав и свобод граждан, чтобы эффективно выполнять свои задачи. Право на применение оружия является наиболее строгой мерой принуждения, применяемой сотрудником правоохранительных органов.

Право на применение оружия является процессом, требующим от сотрудника правоохранительных органов высокой профессиональной и юридической точности. Если служебная необходимость требует применения оружия, неукоснительное соблюдение установленных законом процедур имеет огромное значение для обеспечения законности действий.

6 апреля 2023 года на интернет-платформе Gazeta.uz была опубликована новость под заголовком «В Кашкадарье по приказу начальника РОВД застрелен медведь». Суть новости заключается в следующем:

«Бурый медведь, который зашел в одно из сел Чиракчинского района, должен был быть обездвижен и возвращен в природу. Однако по приказу начальника РОВД животное было застрелено «ради безопасности населения». Виновные в происшествии будут привлечены к дисциплинарной ответственности.

Согласно МВД, данный случай продолжает расследоваться. В отношении ответственных лиц, допустивших халатность и повлекших за собой гибель медведя, будут приняты соответствующие дисциплинарные меры.

«Этот инцидент, вероятно, связан с несогласованными действиями при принятии решения о ликвидации дикого животного», — считает специалист зоопарка.

При знакомстве с новостью и её анализе видно, что выражение «ради безопасности населения», взятое в кавычки, а также представленные мнения указывают на несоответствующие действия начальника отделения внутренних дел или охотника, исполнившего его приказ.

По информации новостного сайта Kun.uz от 11 апреля 2023 года, по данному случаю возбуждено уголовное дело по пункту «ж» части 3 статьи 202 Уголовного кодекса (Нарушение порядка использования животного или растительного мира).

На наш взгляд, поскольку медведь не причинил никакого ущерба, события развивались именно в этом направлении. Если рассматривать данный случай с другой точки зрения, то есть с позиции сотрудника органов внутренних дел, то с целью обеспечения законности можно обратиться к следующим нормативно-правовым документам:

1. В статье 13 Конституции Республики Узбекистан говорится: «Демократия в Республике Узбекистан основана на общечеловеческих

принципах, согласно которым человек, его жизнь, свобода, честь, достоинство и другие неотъемлемые права являются высшей ценностью. Демократические права и свободы защищаются Конституцией и законами»;

2. В статье 38 Уголовного кодекса Республики Узбекистан указано, что действие, совершенное в состоянии крайней необходимости для устранения угрозы личности, правам других граждан, интересам общества или государства, которое причинило ущерб законным правам и интересам, не признается преступлением, если устранение угрозы другими мерами невозможно и причиненный ущерб меньше предотвращенного;

3. В статье 16 Закона «Об органах внутренних дел» указаны обязанности органов внутренних дел, и в пункте 2 данной статьи отмечено, что «в пределах своих полномочий они обязаны принимать все необходимые меры для защиты прав, свобод и законных интересов граждан, имущества юридических и физических лиц, а также для обеспечения безопасности личности, общества и государства»;

4. В статье 10 Закона «Об органах внутренних дел» закреплено, что законные требования сотрудников органов внутренних дел обязательны для исполнения. В первом пункте сказано, что «законные требования сотрудника органа внутренних дел в пределах его полномочий, включая соблюдение закона, предоставление документов, материалов проверок и других данных, привлечение специалистов, явку в органы внутренних дел и дачу объяснений по выявленным правонарушениям, устранение нарушений, а также условий, способствовавших их совершению, обязательны для исполнения всеми государственными органами, другими организациями, должностными лицами и гражданами»;

5. В учебнике «Уголовное право» говорится, что «состояние крайней необходимости предполагает нанесение меньшего ущерба охраняемым законом общественным отношениям для защиты других, более значимых интересов от вреда. Согласно статье 38 Уголовного кодекса, причинение ущерба охраняемым законом правам и интересам в таком случае не считается преступлением, а, напротив, рассматривается как социально полезное действие. Это объясняется тем, что лицо предотвращает значительный ущерб, нанося меньший. Лицо, действующее в состоянии крайней необходимости, преследует социально полезную цель — защиту важных личных и общественных интересов, либо предотвращает тяжкие последствия, которые неизбежно наступили бы, если бы вред не был причинен.

В состоянии крайней необходимости угроза может также исходить от животных. Например, если сорвавшаяся с цепи собака нападает на человека, её можно убить, чтобы спасти жертву; или когда из клетки в зоопарке сбегает лев, его отстрел допускается, чтобы не допустить человеческих жертв».

Можно сделать вывод, что правовая квалификация ситуаций, связанных с применением оружия, носит субъективный характер на

практике. Это означает, что в служебных расследованиях, следственных и судебных практиках правовая квалификация случаев применения оружия демонстрирует разнообразие. В связи с этим не исключены случаи ошибок, допущенных ответственными органами в отдельных случаях. Важно учитывать упомянутые правовые нормы при правовой квалификации подобных случаев в будущем.

Согласно сообщению, оперативная группа, созданная представителями власти, не смогла принять срочные меры по этому случаю, а специалисты, прибывшие из Ташкента в Кашкадарьинскую область, обнаружили, что медведь уже погиб. Так как специалисты, связанные с этой областью, не организованы во всех регионах, решение этого вопроса легло на начальника местного отдела внутренних дел. Начальник отдела внутренних дел отдал приказ на выстрел в условиях крайней необходимости с целью обеспечения безопасности населения. Обеспечение прав и свобод человека как высшей ценности, как и других правоохранительных органов, также является одной из приоритетных задач органов внутренних дел Республики Узбекистан.

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ПРЕДЛОЖЕНИЕ ПО СОВЕРШЕНСТВОВАНИЮ РАБОЧЕГО ОРГАНА ЭКСКАВАТОРА

Аннотация. В рамках процесса разработки предложений по совершенствованию работы карьерного экскаватора необходимо обратить внимание на несколько ключевых аспектов. Прежде всего, оптимизация конструкции рабочего органа может повысить его эффективность в производстве материалов. Учитывалась возможность внедрения передовых технологий, таких как системы автоматизации и контроля, которые способствуют повышению точности и безопасности операций. Мы также улучшили зубья, предоставив смесь из стали, чтобы обеспечить эффективное использование экскаватора.

Ключевые слова: износостойкий ковш, экскаватор, смесь, сталь, ударопрочный.

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PROPOSAL TO IMPROVE THE WORKING BODY OF THE EXCAVATOR

Annotation. As part of the process of developing proposals for improving the operation of a quarry excavator, it is necessary to pay attention to several key aspects. First of all, optimizing the design of the working body can increase its efficiency in the production of materials. The possibility of introducing advanced technologies, such as automation and control systems, which contribute to improving the accuracy and safety of operations, was taken into account. We have also improved the teeth by providing a mixture of steel to ensure efficient use of the excavator.

Keywords: wear-resistant bucket, excavator, mixture, steel, impact resistant.

Эффективность использования горного экскаватора зависит не только от его производительности, но и от усиленных перерывов для замены устаревших агрегатов. Во время операции части ковша подвергаются наибольшему естественному износу. Например, зубы считаются расходным материалом. При создании работающего оборудования для карьерных экскаваторов, обладающих высокой плотностью и абразивностью горных пород, проблема продолжительности жизни ковшовых установок всегда стоит на первом месте.

Обрабатываемый экскаватор имеет износостойкий, ударопрочный ковш сплав Si, Cr, Mn, в качестве основы В, а также сплав, состоящий из оставшихся Fe и стабильных смесей. Нагревают до температуры 1600-1650° С и заливают расплавленный металл во внутреннюю полость формы, чтобы ковш экскаватора создавался путем заливки песка в форму. Литой ковш помещают в электрическую печь, нагревают до температуры 900-1100° С, охлаждают в холодной воде, затем сверлят, просверлив фиксирующую часть остывшего ковша и вставляют в него резьбу, поэтому ковш крепится к корпусу экскаватора и фиксирует в нем такие детали, как втулка, палец, винт. Наконец, вымойте и покрасьте ковш.

Ковш, представляющий собой износостойкую, ударопрочную сталь с высоким содержанием марганца, имеет весовой процент 0,90-1,35 C (углерод), весовой процент 0,30-0,80 Si (кремний), весовой процент 11-14 Mn (марганец), ниже 0,10 P (фосфор), менее 0,50 процента S (сера), менее 0,005 процента В баланс стабильных примесей, состоящих из (бора) и Fe (железа).

Прочность ковша обеспечивается специально подобранными вариантами компонентов металла, и его основные недостатки не заключаются в том, что он не ремонтируется и однородность состава не снижает концентрации рабочих напряжений в его изнашиваемых элементах и увеличивает их сопротивление критическим напряжениям.

Еще один вариант повышения прочности ковша-укрепление областей ковша, подверженных абразивному износу в местах одноременного возникновения в них критических напряжений.

При работе ковша экскаватора почву соскребают снизу вверх. В этом случае зуб становится абразивным, но из-за относительно небольшой толщины зуба и из-за этой формы зуба толщина зуба практически не изменяется в рабочей области, что приводит к тому, что зуб стачивается самостоятельно. Таким образом, угол заточки, угол между нижней и верхней поверхностями зуба всегда острый, что обеспечивает эффективное разрушение породы и высокую производительность.

Зубья ковша небольшой толщины из-за наклона нижней поверхности и угла копания могут не обеспечивать их самоочищение из-за неравномерности породы при истирании во время копания. Кроме того, наличие точек изгиба в геометрии может создавать критические напряжения

и как следствие, вызывать разрушение зубьев при копании. Направленный вверх передний край зуба не позволяет очистить дно поверхности и усиливает абразивный износ передней стенки ковша.

Техническое решение ковшей экскаватора, позволяющее повысить надежность и долговечность: композитное складывание, созданное с помощью болтов, тянет тяговый элемент и систему для нижнего клапана, а винты приводятся в движение внешним приводом. Винт одного из буклетов кинематически связан с последующим листом.

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МУСТАҲКАМ ОИЛА-ТАРБИЯ МАСКАНИ

Аннотация: Мазкур мақолада ёш авлоднинг тарбияси ва унда оиланинг муҳим ўрни ҳақида сўз юритилади.

Калит сўзлар: Оила, тарбия, комиллик, мукамаллик, инсонпарварлик, меҳр-муҳаббат, оқибат, меҳнатсеварлик, ватанпарварлик, мардлик, юксак ахлоқ.

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A STRONG FAMILY IS A PLACE OF EDUCATION

Abstract: This article talks about the upbringing of the young generation and the important role of the family in it.

Key words: Family, upbringing, perfection, humanity, love, consequences, hard work, patriotism, courage, high morality.

Маънавий-маърифий тарғибот ишларимиз юксак мақсадларга-Ватанимизнинг маънавий асосларини янада мустаҳкамлаш, миллий ўзликни англаш, жамиятни юрт тинчлиги, Ватан равнақи, халқ фаровонлиги, ижтимоий ҳамкорлик, комил инсонни тарбиялаш, миллатлараро тотувлик, динлараро бағрикенглик каби олижаноб ғоялар атрофида бирлашиш учун, мамлакатимизда амалга оширилаётган кенг кўламли ўзгаришларни, пировард мақсадимиз бўлган эркин ва фаровон ҳаёт моҳиятини кенг тарғиб қилишга қаратилган. Бунда ҳар томонлама етук, комил инсонни тарбиялаш бугун жамиятимиз олдида турган долзарб масалалардан бири бўлиб келмоқда. Жамиятимизда руй бераётган муҳим ижтимоий, иқтисодий ва сиёсий ўзгаришлар ёшлар онгига таъсир қилмасдан қолмайди. Ҳозирда мактаб ўриндиларида ўтирган ёш авлод эртага бизнинг кўлимиздан ишимизни оладиган, ҳаётимизни давом эттириб, ўзидан кейинги авлодга етказувчи ворисларимиздир. Шундай экан ёш авлод тарбияси билан шуғулланиш нафақат педагоглар, ота-оналар балки кенг жамоатчиликнинг келгуси авлод баркамоллиги, ўғил- қизларимизнинг улуғ аждодларимиз меросига хос оқил инсон, бўлиб тарбияланишлари учун ҳам масъулдирлар. Ҳар қандай ҳуқуқнинг бузилиши замирида ахлоқий тарбиядаги нуқсон ётади, бу эса ёш авлоднинг тарбиясида вояга етмаганларнинг ҳуқуқ бузишига сабаб бўладиган омил ҳисобланади.

Инсон ҳеч қачон жиноятчи бўлиб туғилмайди. Шунингдек, бирданига тарбияли ва билимли бўлиб ҳам қолмайди.

Маълумки, узоқ ва бой тарихга эга бўлган ўзбек халқи ўзининг таълим-тарбияга оид улкан меросига эга. Бу мерос бугунги авлодни инсонпарварлик, меҳр-муҳаббат, оқибат, меҳнатсеварлик, ватанпарварлик, мардлик, юксак ахлоқ руҳида тарбиялашга хизмат қилади, Ўзбек халқининг мана шундай бой тарихий маънавий меросидан улуғ халқимиз, жумладан, ёшларимизнинг ҳам мунтазам ва тўлақонли баҳраманд бўлишлари, буюк ғояларни ёш авлод қалбидан ва юрагидан ҳам жой олиши уларнинг мана шундай маънавий муҳитда камол топишига барча шарт шароитлар яратилмоқда.

Ҳар бир инсон дунёга келар экан, у ўсиб, улғайиб камол топади. Унинг инсонийлиги, ахлоқ-одоби, хулқ-атвори даставвал, ўз оиласида шаклланади. Демак, оила тарбия масканидир. Шунинг учун доно халқимиз «Қуш уясида кўрганини қилади» дейди. Демак, инсонийликнинг илк ҳислатлари ота-она берган тарбия орқали шаклланади. Оила - тарбия маскани. Дунёга келган фарзанд ота-онадан ахлоқ-одоб қоидаларини, ҳалоллик, поклик, меҳнатсеварлик, инсонпарварлик каби қадриятларни ўрганади. Оилада бўш вақтни фаол ташкил этиш, маданият, саноат масканларига, тарихий обидаларга, қадамжоларга саёҳатлар уюштириш, ота-она фарзандлар билан спорт майдончаларида биргаликда машғулотлар олиб бориш, қишлоқ шароитларида ота онага кўмакчи сифатида томорқаларда ёрдам бериш - оила баркамоллигини таъминлашга хизмат қилади. Инсон маънавияти даставвал оила шароитида шаклланади ва жамият маънавиятини белгиловчи мезон сифатида намоён бўлади. Оилада фарзанднинг ота-она олдидаги бурчи ниҳоятда муҳимдир. Ноқобил фарзанд ота-онанинг қаддини букади, эл-юрт олдида уларнинг бошини ҳам қилади.

Ёш авлод қалбида Она Ватанга, унинг рамзлари - Давлат байроғи, Давлат герби, давлат мадҳиясига, Конституциясига бўлган муҳаббат ва ҳурмат ҳиссини тарбиялаш, «ватанпарварлик» туйғусини шакллантириш ҳар бир ота-онанинг, тарбиячи-мураббийларнинг, жамоатчиликнинг Ватан олдидаги бурчларидир.

Тарбия - ижтимоий ҳодиса. У кишилик жамияти пайдо булган даврдан бери мавжуд. Инсон ер юзидаги энг мукаммал зот бўлиши учун аввало тарбияланиши зарур.

Тарбия - кўп қиррали, узоқ давом этадиган жараён дир. Болани ўраб олган муҳитнинг ҳаммаси - одамлар, нарсалар, ходисалар уларнинг онгида, хулқ-атворида маълум из қолдиради, уни ўзгартиради ва ўстиради.

Ҳар бир ота-она тарбиянинг ўзига хос назарий ҳамда амалий қонун-қоидаларини ўзлаштириб, уларга амал қилиши лозим. Негаки, оилада бола тарбияси ғоят нозик, мураккаб масала бўлиб, ота-онадан педагогик билим, катта тарбиячилик маҳоратини талаб қилади.

Ота-она, авлод-аждодларимиз тажрибаси шуни кўрсатмоқдаки, ўғил-кизларни ёшлигидан меҳнатсевар, ҳар бир топширикни катта ёки кичиклигидан қатъий назар ўз вақтида, аниқ бажарадиган, умрининг ҳар бир дақиқасини қадрлайдиган қилиб тарбиялаш лозим. У ёки бу оиладаги тарбиянинг самарадорлиги, албатта, ота-онанинг қанчалик билимли, маданиятли бўлиши, бола тарбиясига масъулият билан қарашлари, фарзандлари келажагини чуқур ҳис этишлари, тажрибада синалган миллий урф-одат ва анъаналардан унумли фойдаланишларига боғлиқ. Тарбияда талабчанлик, ота-она ва катта ёшдаги кишиларнинг ўзаро ахилликлари, кичикларга ғамхўрлик, осуда турмуш ва ҳалол меҳнат фаолиятлари оилавий тарбиянинг асосини ташкил этади. Бундан ташқари ҳар бир оилада фарзанд тарбиясида аниқ бир мақсад бўлиши керак. Энг муҳими фарзандларимизни нафақат бўлажак ота-она ёки ака-ука, опа-сингил сифатида, балки жамиятнинг ҳақиқий фуқароси, келажагига ишонувчи, унга садоқат билан хизмат қилувчи инсон, ватанпарвар, посбон сифатида ҳам тарбиялашга эътибор беришимиз лозим. Оилавий омиллар ўз-ўзидан шаклланиб қолмайди. Ижобий сифатларни қарор топтириш учун ёшлар билан, айниқса юқори синф ўқувчилари билан мунтазам шуғулланиш лозим.

Лекин жамиятимизда ёшлар тарбиясида айрим бўшлиқлари вужудга келаётганини, дунёқараши паст, билими заиф, ёш бўлса-да, жиноятга қўл урган, гиёҳвандликка мойил, ичкилик ва чекишга ружу қўйишган, ўқишга қизиқмайдиган, тарбияси оғир болаларнинг борлиги ташвишли ҳолдир.

Кун сайин тараққий этиб, равнақ топаётган жамиятимизда юқоридагига ўхшаган тарбияси оғир, жиноятга қўл ураётган ўсмирлар қаердан пайдо бўлаяпти? Умумий ўрта таълим тизимида ўқитувчиларимиз етарли билим беришмаяптими? Турмуш ташвишлари билан ўралашиб, оилада фарзанд тарбиясига эътиборсиз қараётган ота-оналар айбдорми, ёки фарзандларимиз ўзлари лоқайд, бепарво, совуққон бўлиб қолаётганлари туфайлими?

Аввало, ўсмирларни тартиб бузарликка жалб этаётган қатор ижтимоий- руҳий омиллар мавжуд. Булар:

- ўсмирларда бўш вақтнинг кўплиги;
- катталар томонидан назоратнинг йўқлиги;
- бўш вақтни ўтказиш жойи ва вақтининг бетайинлиги;
- кўнгилочар ва зарарли одатлар ўтказишга имкон борлиги ва бошқалар.

Ўқувчи ёшларни «тарбияли бўлинг» деган билан тарбиялаб бўлмайди. Бунинг учун аввало ота-она шахсий наъмуна кўрсатмоғи лозим. Бола инсоний хислатларини, эзгуликни, одамийликни, яхшиликни ҳам, ёмонликни ҳам энг аввало оиладаги катталарнинг хатти-харакатларидан ўрганади. Ота-она ўз хулқ-атвори билан фарзанд хурматиغا сазовор бўлишлари, унинг ҳаёт йулида ўрнак бўлишлари лозим. Бу одат уларнинг онгига сингиши лозим.

Шундай оилада ўсган болагина, ота-онани, қолаверса ўз устозларини ҳурмат қиладиган, махалла куйда қзидан кичикни ҳурматлаш, катталарни иззат қилишни ўз ўрнига қўядиган, халқпарвар бўлиб етишади. Ҳар бир тарбиячи тарбия санъаткори бўлмоғи лозим. Бу болаларни севиш санъатидир.

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МОНТАЖ ЦЕНТРОБЕЖНЫХ НАСОСОВ

АННОТАЦИЯ: В статье рассмотрено монтаж центробежных насосов. При монтаже центробежного насоса без промежуточного вала сначала устанавливают насос и по нему центруют электродвигатель. Насосы небольшой производительности монтируют на общей раме. Это сокращает трудоемкость работ.

Ключевые слова: Двигатели, центробежных насосов, подача, Напор жидкост, Скорость вращения, Мощность на валу насоса, ротором, асинхронные или синхронные электродвигатели, шайбы.

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INSTALLATION OF CENTRIFUGAL PUMPS

ABSTRACT: The article discusses the installation of centrifugal pumps. When installing a centrifugal pump without an intermediate shaft, first install the pump and center the electric motor on it. Small-capacity pumps are mounted on a common frame. This reduces the labor intensity of the work.

Keywords: Motors, centrifugal pumps, flow, Liquid pressure, Rotation speed, Power on the pump shaft, rotor, asynchronous or synchronous electric motors, washers.

На магистральных трубопроводах для перекачки нефти и нефтепродуктов применяются в основном высокопроизводительные центробежные насосы с приводом от электродвигателей. Техническая характеристика и марки центробежных насосов приведены в табл. 1 [1].

Таблица 1. Техническая характеристика центробежных насосов

| Марки насосов | Подача, м ³ /ч | Напор жидкости | Скорость вращения, об/мин | Мощность на валу насоса, кВт | К.П.Д, % | Условное давление корпуса, кгс/м ² |
|---------------|---------------------------|----------------|---------------------------|------------------------------|----------|---|
| 811Д-10 X 5 | 320 | 425 | 2350 | 500 | 73 | 80 |
| 10НД-10 X 2 | 800 | 285 | 2950 | 720 | 86 | 80 |
| 12НД-10 X 2 | 1100 | 270 | 2950 | 930 | 87 | 80 |
| 16НД-10 X 1 | 2200 | 230 | 3000 | 1565 | 87 | — |
| 20НД-12 X 1 | 3000 | 210 | 2980 | 2100 | — | — |
| 24НД-14 X 1 | 4000 | 216 | 2980 | 2440 | 87 | — |
| 24НД-17 X 1 | 5000 | 210 | 2980 | 3300 | — | — |
| 24НД-19 X 1 | 6000 | 220 | 2980 | 3875 | — | — |
| 10НД-10 X 4 | 750 | 740 | 3000 | 2200 | 75 | — |
| 10Н-8 X 4 | 500 | 740 | 3000 | 1500 | 73 | — |
| 14Н-12 X 2 | 1100 | 370 | 3000 | 1500 | 75 | — |

В качестве привода центробежных насосов применяются асинхронные или синхронные электродвигатели. Наибольшее распространение нашли асинхронные электродвигатели с короткозамкнутым ротором серии АД.

Они выпускаются восьми типов и выполняются в трех габаритах:

I габарит-АД-500, АД-630, АД-800;

II габарит — АД-1000, АД-1250, АД-1600;

III габарит — АД-2000, АД-2750 (цифры обозначают мощность электродвигателя в киловаттах). Все электродвигатели работают от сети напряжением 6 кв, имеют скорость вращения 2950 об/мин и высокий к.п.д. (0,93—0,935).

Двигатели серии АД монтируются в общем зале с насосами, так, как они выполнены во взрывозащищенном исполнении (в их корпусе поддерживается избыточное давление воздуха 50—70 мм вод. ст., что предотвращает попадание внутрь загазованного, воздуха). Из синхронных применяются электродвигатели серии СТМ в нормальном исполнении с замкнутым циклом вентиляции, со специальным воздухоохладителем. Эти двигатели монтируют в отдельном зале, отгороженном от насосного зала герметичной промежуточной стеной.

Электродвигатели СТМ-750-2 и СТМ-1500-2 выполняются на общей фундаментной плите с возбудителями, а GTM-2500-2, СТМ-4000-2, СТМ-6000-2 — на отдельных фундаментных плитах под статор, под подшипники электродвигателя и под возбудитель.

Перед установкой на фундамент производят расконсервацию и ревизию насосов. Корпуса подшипников промывают керосином,

насаживают полумуфты на концы промежуточного вала и валов насоса электродвигателя. При монтаже центробежных насосов с промежуточным валом применяют следующую схему установки агрегата [2].

Ставят на фундамент электродвигатель и выверяют его в горизонтальной и вертикальной плоскостях. Смещение главных осей электродвигателя в горизонтальной плоскости от проектных не должно быть более 10 мм. При выверке в вертикальной плоскости определяют совпадение фактической высотной оси с проектной. Смещение не должно превышать 10 мм, а уклон — 0,15—0,20 мм. Между опорной поверхностью фундамента и подошвой фундаментной плиты для подливки оставляют зазор 40-80 мм.

Устанавливают промежуточный вал и центруют его по концу ротора электродвигателя. Горизонтальность промежуточного вала проверяют уровнем. При установке промежуточного вала между его торцами и торцами ротора электродвигателя оставляют зазор не менее 5 мм. Устанавливают и центруют насос по промежуточному валу.

Горизонтальность насоса проверяют уровнем, устанавливаемым на шейке вала переднего подшипника. Торцевой зазор между полумуфтами насоса и промежуточного вала должен быть 5 мм.

После того как будут установлены все три узла агрегата, к насосу подсоединяют предварительно опрессованные водой технологические трубопроводы и производят окончательную центровку. За базу принимают насос. Выверив и прицентровав электродвигатель, равномерно затягивают фундаментные болты. После этого монтажные плиты вместе с регулировочными болтами заливают цементным раствором. Применяют обычно раствор следующего состава: 1 часть быстротвердеющего цемента БТЦ марки 400 или 500 и 1,5 части крупнозернистого песка. Водоцементное соотношение принимают равным 0,55.

Синхронные двигатели большой мощности поступают на монтажную площадку в большинстве случаев в разобранном виде и монтируют их в такой последовательности. Вначале по главным осям фундамента устанавливают фундаментную плиту и выверяют ее в горизонтальной и вертикальной плоскостях. После выверки затягивают фундаментные болты. Для фиксации установленных под плиту клиньев и подкладок их сваривают вместе и приваривают коротким швом к фундаментальным плитам электродвигателя. На выверенную фундаментную плиту устанавливают статор электродвигателя и выверяют его в горизонтальной и вертикальной плоскостях. Перед вводом ротора в статор тщательно проверяют их состояние и продувают их сжатым воздухом. Шейки ротора очищают от консервационной смазки.

Выполняя такелажные работы при сборке и разборке электродвигателей, необходимо следить, чтобы стропы не касались поверхностей скольжения на роторе (шейка вала, поверхности под уплотнения) и лобовых частей обмотки статоров. При вводе и выемке ротора

пользуются удлинителями (оправками), крепящимися к концу вала со стороны приводного механизма. До ввода ротора со стороны возбuditеля собирают подшипник, затем ротор строят за середину и центруют его ось с осью статора. Горизонтальное перемещение ротора в статор производят плавно, без толчков. Когда удлинитель выйдет из статора, производят перестройку, во время которой один конец ротора будет опираться на собранный подшипник, а другой — на деревянные поперечные подкладки. Переставив строп на конец удлинителя, подтягивают ротор в осевом направлении до его рабочего положения, т.е. до совпадения вертикальных магнитных осей статора и ротора. Затем, опустив ротор на деревянные подкладки, заводят вкладыш подшипника со стороны приводного механизма и опускают ротор на оба вкладыша.

После сборки электродвигателя и выверки, его положения окончательно центруют агрегат. Сначала центруют ротор электродвигателя к ротору насоса (через промежуточный вал), затем якоря возбuditеля к ротору электродвигателя. Рамы и фундаментные плиты установленного и прицентрованного агрегатов подлежат подливке цементным раствором.

При монтаже центробежного насоса без промежуточного вала сначала устанавливают насос и по нему центруют электродвигатель.

Насосы небольшой производительности монтируют на общей раме. Это сокращает трудоемкость работ.

Насосы большой производительности с электродвигателями серии АД устанавливают на отдельных рамах, причем электродвигатель устанавливают не на раме, а на двух монтажных плитах. Для облегчения выверки электродвигателя и улучшения его центровки с насосом монтажные плиты устанавливают на фундаменте на болтах-домкратах (регулирующих болтах). Монтажные плиты имеют резьбовые отверстия, куда ввинчиваются регулировочные болты. Чтобы головки болтов не вдавливались в бетон фундамента, их упирают на металлические подкладки. По окончании монтажных работ производят наладку и опробование центробежных насосов.

При производстве наладочных работ насос вскрывают, вынимают ротор и проверяют состояние всех узлов. Для нормальной работы насоса должны быть установлены номинальные радиальные зазоры в уплотнениях (диафрагмах).

Величина радиального зазора в уплотнениях между вращающимся кольцом и невращающимся в пределах 0,20—0,25 мм. При сборке торцевых уплотнений необходимо проверить качество уплотняемых поверхностей и пружины. Уплотняемые поверхности вращающейся и неподвижной втулок должны быть тщательно притерты. Когда ротор устанавливают в корпус насоса, необходимо, чтобы пружина уплотнения не задевала корпус [3].

Установив ротор в корпус, проверяют полный осевой разбег ротора, сдвинув его до отказа в сторону упорного подшипника. Разбег должен быть

в пределах 8—12 мм, чтобы между вращающимися частями ротора и корпусом насоса оставался зазор 4—6 мм. Такой зазор предотвращает поломку насоса из-за неточностей при сборке или попадания вместе с нефтью механических примесей. Измерив величину полного осевого разбега, определяют ширину шайбы, устанавливаемой между упорным подшипником и буртом вала. Ширину шайбы принимают равной $a/2$ — $(0,10 \div 0,15)$, где a - полный осевой разбег (в мм).

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ПРОБЛЕМЫ РАЗВИТИЯ ПРЕДПРИНИМАТЕЛЬСТВА В АГРОПРОМЫШЛЕННОМ КОМПЛЕКСЕ

***Аннотация.** В статье рассматриваются основные проблемы развития предпринимательства в агропромышленном комплексе (АПК). Анализируются факторы, сдерживающие развитие предпринимательства в данном секторе, такие как недостаток финансовых ресурсов, несовершенство законодательной базы, проблемы сбыта продукции и низкий уровень инновационной активности. Особое внимание уделено роли государственного регулирования и поддержке малого и среднего бизнеса в АПК. Предлагаются меры по улучшению условий для развития предпринимательства, включая инвестиционную политику, модернизацию инфраструктуры и стимулирование инноваций.*

***Ключевые слова:** сельское хозяйство, предпринимательство, агробизнес, технология, предпринимательство, уровень предпринимательства.*

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THE PROBLEM OF ENTREPRENEURSHIP DEVELOPMENT IN THE AGRICULTURAL INDUSTRIAL COMPLEX

***Annotation.** The article examines the key problems of entrepreneurship development in the agro-industrial complex (AIC). It analyzes the factors hindering the growth of entrepreneurship in this sector, such as the lack of financial resources, an imperfect legislative framework, marketing issues, and a low level of innovation. Special attention is given to the role of government regulation and the support of small and medium-sized businesses in the AIC. Measures are proposed to improve conditions for entrepreneurship development, including investment policies, infrastructure modernization, and innovation promotion.*

***Key words:** agriculture, entrepreneurship, agribusiness, technology, entrepreneurship, level of entrepreneurship.*

Введение. Развитие агропромышленного комплекса в нашей республике является одной из стратегических задач современности. Только за счет усиления ее развития создастся возможность укрепить национальную экономику нашей страны исходя из требований рыночной экономики и использовать ее имеющиеся резервы для роста ее национального богатства. Развитие агропромышленного комплекса зависит от развития две основных изменений. Это зависит от увеличения производства, выпуска продукции домашнего хозяйства, развития промышленности по ее переработке на селе. Это направление решения этих двух проблем зависит от развития малого предпринимательства.

Агропромышленный комплекс требует, чтобы сельскохозяйственное производство и промышленная переработка создаваемой в нем продукции осуществлялись на основе интеграции сельского хозяйства и промышленности. Это обеспечивает удовлетворение потребности в сельскохозяйственной продукции в течение всего года. Часть производимой сельскохозяйственной продукции направляется на непосредственное потребление, а часть превращается в готовую продукцию путем переработки.

В Узбекистане и его регионах малое предпринимательство развивается на основе государственной программы независимо от отрасли национальной экономики. Потому что государство обеспечивает экономическую стабильность страны на основе поддержки малого бизнеса.

Проблему предпринимательства можно разделить на следующие направления на основе анализа природы предпринимательства на основе исследований современных экономистов: Первое направление - предпринимательство - это самостоятельная экономическая деятельность, направленная на получение прибыли.

Второе направление - целью предпринимательской деятельности является не отрицание прибыли, а достижение высокой эффективности производства, основанной на сумме отношений при реализации новых комбинаций ресурсов как определяющей сущности предпринимательства [4].

Третье направление заключается в том, что креативность необходима в управлении движением ресурсов в предпринимательской деятельности. Сюда можно отнести Д. В. Бусыгина [5], В. Д. Камаева [7], И. Н. Герчикову [6], Ф. М. Русинова [8] и других. В исследованиях этих ученых предпринимательство отражается не как простая трудовая деятельность, а как творческая деятельность.

По мнению А. Н. Асаула [1], предпринимательство – это специфический вид экономической деятельности, суть которого заключается в стимулировании спроса общества на конкретные нужды его членов посредством рыночного обмена. Предпринимательство в сельском хозяйстве предполагает участие отдельных субъектов и объектов

предпринимательской деятельности. И.В. По мнению Украинцевой [2], хозяйствующие субъекты – это предприниматели, которые осуществляют хозяйственную деятельность и несут полную ответственность.

Агропромышленный комплекс требует, чтобы сельскохозяйственное производство и промышленная переработка создаваемой в нем продукции осуществлялись на основе интеграции сельского хозяйства и промышленности. Это обеспечивает удовлетворение потребности в сельскохозяйственной продукции в течение всего года. Часть производимой сельскохозяйственной продукции направляется на непосредственное потребление, а часть превращается в готовую продукцию путем переработки.

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В целях развития субъектов малого предпринимательства в Узбекистане и его регионах были реализованы следующие задачи:

деятельность малого бизнеса и частного предпринимательства была организована на основе вовлечения в один вид деятельности крупного сообщества;

открытие новых рабочих мест в агропромышленном комплексе и повышение занятости населения, особенно в сельской местности;

широко развернуто развитие малых предприятий по переработке сельскохозяйственной продукции в сельской местности;

интенсивное развитие рыночных отношений создало условия для усиления инфраструктуры и конкуренции в сельской местности;

большое внимание уделялось развитию деятельности на основе результатов науки с целью вывести сферу услуг на уровень спроса;

в целях наполнения внутренних рынков потребительскими товарами, развития экспортоориентированного производства, повышения эффективности управления экономикой были введены предприятия малого бизнеса и частного предпринимательства.

Необходимо улучшить кредитование, учитывая, что сельскохозяйственное производство носит циклический характер. Если проблема кредитования связана с природными климатическими условиями, инвестиционный риск возрастает. Поэтому развитие малого предпринимательства в АПК связано не только с субъективными, но и объективными трудностями. Поэтому государство и органы местного самоуправления в зависимости от условий должны проводить политику, стимулирующую развитие малого бизнеса и создание интегрированного механизма.

При определении стратегического развития экономики региона, в процессе решения задачи по созданию новых рабочих мест, характерных для малого бизнеса, необходимо обратить внимание на следующие проблемы:

отсутствие в районах организаций рыночной инфраструктуры, поддерживающих предпринимательство, или отсутствие сервиса высокого уровня;

невыполнение основных параметров, определенных в региональных программах обеспечения занятости, конкуренции, поддержки и развития предпринимательства;

высокий процент субъектов хозяйствования, не работающих в регионах;

отсутствие сотрудничества между органами местного самоуправления и представителями малого бизнеса;

несоответствие условий строительства, отвода земель, газо- и электроснабжения субъектов предпринимательства для расширения производственной деятельности;

отсутствие организаций местной рыночной инфраструктуры, поддерживающих предпринимательство или не предоставляющих услуги высокого уровня.

Большинство людей, занятых физическим трудом, являются рабочими. Тех, кто занимается интеллектуальным трудом, можно разделить на две категории: люди, склонные к риску, и люди, не склонные к риску. К не склонным к риску относятся работники государственных предприятий, лица, занимающиеся научными исследованиями, техническими и проектными работами, к склонным к риску относятся учредители частных хозяйствующих субъектов, производящих товары, выполняющих работы, оказывающих услуги. и их партнеры. Эта рискованная группа использует творческое мышление, креативность и организаторские способности для мобилизации собственного имущества и имущества партнеров и принятия риска для достижения определенного результата.

В области и ее районах необходимо принять организационные и экономические меры в целях повышения показателей уровня развития предпринимательства и занятости. Также важно обеспечить мобильность субъектов предпринимательства и имеющихся трудовых ресурсов, повысить их профессиональную квалификацию, сохранить имеющийся опыт людей.

Для этого, на наш взгляд, формирование системы подготовки трудовых ресурсов по двум направлениям позволяет создать среду конкуренции между предпринимателями и трудовыми ресурсами на сельском рынке труда, а также между трудовыми ресурсами и предпринимателями. Для создания такой ситуации необходимо ввести механизм поэтапной подготовки и переподготовки кадров.

В частности, состояние сельского рынка труда и необходимость решения существующих проблем обеспечения занятости, которые заключаются в следующем:

высокая доля занятых в неформальном секторе экономики;

тот факт, что рост занятости во многом обусловлен созданием нестабильных рабочих мест, особенно в сфере предпринимательства, не имеющего статуса юридического лица;

сохраняются скрытые уровни безработицы;

наличие несоответствия между спросом и предложением квалифицированной рабочей силы;

Полагаем, что для решения этих проблем в ближайшее время необходимо решить следующие задачи:

повысить уровень занятости населения, особенно сельского населения, а также повысить уровень занятости социально-демографических групп, недостаточно конкурентоспособных на рынке труда;

совершенствование сетевой и региональной структуры занятости;

обеспечение пропорциональности спроса и предложения на рынке труда по количеству и качеству (профессиональной квалификации);

повысить качество рабочей силы, профессиональную и территориальную мобильность.

обеспечить тесную связь своих специальностей и направлений обучения в профессиональных училищах с происходящими структурными изменениями. Учитывая текущие потребности рынка труда и бурное развитие новых отраслей экономики, обрабатывающих производств, социальной и рыночной инфраструктуры, малого бизнеса и частного предпринимательства;

создание специализированных профессиональных колледжей, занимающихся подготовкой организаторов-менеджеров для организации производства в сфере малого предпринимательства, за счет изменения профиля профессиональных колледжей, осуществляющих подготовку младших специалистов по профессиям, не пользующимся достаточным спросом в региональные рынки труда во всех регионах;

развитие услуг бюро труда по обучению, переподготовке и повышению квалификации безработных. При этом большая часть обучения должна осуществляться на базе контрактных профессиональных колледжей.

Исследования показали, что внедрение промышленных предприятий в сельское хозяйство является основой развития других отраслей. Поэтому развитие малого предпринимательства в отрасли должно стать приоритетом экономики региона. В этой связи необходимо широко использовать иностранные и внутренние инвестиции. 25,2 процента инвестиций, привлеченных в область в 2022 году, будут соответствовать вкладу малого бизнеса.

Более широкое развитие инвестиционного сектора в АПК является основой развития малого предпринимательства в сельском хозяйстве и обеспечивает увеличение доли предпринимательства в объеме выпускаемой продукции, выполняемых работ и оказываемых услуг.

Определено, что темпы развития малых предприятий и частного предпринимательства в регионе составят 28,6 на 1000 человек в 2023 году, а в 2024-2025 годах - 35,5 - 41,6. По сравнению с другими регионами, в том числе Бухарской областью - 38,7, Навоийской областью - 31,2 и Самаркандской областью - 48,9, в регионе необходимо провести глубокие реформы в этой сфере.

С использованием метода экстраполяции скользящего среднего было спрогнозировано количество действующих в регионе субъектов хозяйствования по отраслям на ближайшие несколько лет. Согласно прогнозу, в 2024-2026 годах количество субъектов малого предпринимательства в регионе увеличится, то есть достигнет 76 819 и 77 471 соответственно. Ожидается, что в 2026 году их число увеличится до 33 176 по сравнению с 2015 годом.

Необходимо будет постепенно повышать уровень развития малых предприятий и частного предпринимательства на 1000 человек населения региона. Доведение этого уровня до 60-70 в 2025-2026 годах позволит решить проблему обеспечения занятости населения региона и сократить количество безработных почти вдвое.

Комплексная оценка уровня влияния организационно-экономических решений на эффективность путем классификации факторов повышения эффективности агропромышленного комплекса и предприятий, с другой стороны, требует определения взаимосвязей показателей эффективности. Исходя из указанных аспектов, основными принципами разработки факторов повышения эффективности промышленности и предприятий должны быть следующие: корреляция при разработке факторных классификаций по всем показателям эффективности; определение ресурсного потенциала и использование резервов для повышения экономической эффективности; необходимо обеспечить достоверность и обоснованность расчета прироста эффективности на основе группировки факторов.

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**МОДЕРНИЗАЦИЯ ИНЖЕНЕРНОГО ОБРАЗОВАНИЯ:
МЕТОДОЛОГИЧЕСКИЕ ПОДХОДЫ К ПОВЫШЕНИЮ
ЭФФЕКТИВНОСТИ ПОДГОТОВКИ СПЕЦИАЛИСТОВ В
УСЛОВИЯХ ЦИФРОВОЙ ТРАНСФОРМАЦИИ**

Аннотация: В статье рассматриваются методологические подходы к модернизации инженерного образования в условиях цифровой трансформации. Актуальность исследования обусловлена необходимостью адаптации образовательных программ к быстро меняющимся требованиям современного рынка труда и внедрению инновационных технологий. Автор анализирует существующие методики и их влияние на качество подготовки специалистов, выделяя ключевые аспекты, способствующие повышению эффективности образовательного процесса. Особое внимание уделяется интеграции цифровых инструментов и ресурсов в учебный процесс, что позволяет развивать у студентов навыки, соответствующие современным требованиям. Также рассматриваются примеры успешных практик реализации данных подходов в образовательных учреждениях. Выводы исследования подчёркивают важность комплексного подхода к реформированию инженерного образования, что в конечном итоге способствует подготовке квалифицированных кадров, способных к инновационной деятельности. Данная статья будет полезна преподавателям, администраторам учебных заведений и исследователям в области образования.

Ключевые слова: инженерное образование, цифровая трансформация, методологические подходы, эффективность подготовки, инновационные технологии.

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**MODERNIZATION OF ENGINEERING EDUCATION:
METHODOLOGICAL APPROACHES TO IMPROVING THE
EFFECTIVENESS OF TRAINING SPECIALISTS IN THE CONTEXT
OF DIGITAL TRANSFORMATION**

Abstract: *The article deals with methodological approaches to the modernisation of engineering education in the context of digital transformation. The relevance of the research is due to the need to adapt educational programmes to the rapidly changing requirements of the modern labour market and the introduction of innovative technologies. The author analyses the existing methodologies and their impact on the quality of specialist training, highlighting the key aspects that contribute to the efficiency of the educational process. Particular attention is paid to the integration of digital tools and resources into the learning process, which allows students to develop skills that meet modern requirements. Examples of successful practices of implementing these approaches in educational institutions are also discussed. The conclusions of the study emphasise the importance of an integrated approach to the reform of engineering education, which ultimately contributes to the training of qualified personnel capable of innovation. This article will be useful for teachers, administrators of educational institutions and educational researchers.*

Key words: *engineering education, digital transformation, methodological approaches, training efficiency, innovative technologies.*

Введение

Современный мир переживает бурную цифровую трансформацию, которая оказывает существенное влияние на все сферы человеческой деятельности, включая образование. Инженерное образование, традиционно ориентированное на фундаментальные знания и практические навыки, также подвергается значительным изменениям. Возникла острая необходимость в переосмыслении и модернизации образовательных программ, чтобы подготовить специалистов, способных эффективно работать в условиях цифровой экономики.

Актуальность исследования обусловлена тем, что традиционные методы обучения инженеров часто не соответствуют современным требованиям промышленности. Быстрые темпы развития технологий требуют от инженеров гибкости, способности к непрерывному обучению и владения широким спектром цифровых компетенций [1].

Целью данной работы является анализ существующих методологических подходов к модернизации инженерного образования и разработка рекомендаций по повышению эффективности подготовки специалистов в условиях цифровой трансформации. В рамках исследования будут рассмотрены следующие вопросы:

- Какие новые компетенции необходимо формировать у будущих инженеров?
- Какие образовательные технологии наиболее эффективно способствуют развитию этих компетенций?
- Как интегрировать цифровые инструменты в учебный процесс?

• Каким образом обеспечить связь между образовательным процессом и потребностями современного производства?

Для достижения поставленной цели будут использованы следующие методы исследования: анализ научной литературы, изучение опыта ведущих вузов мира, проведение опросов среди студентов и преподавателей, а также анализ данных о востребованности специалистов на рынке труда.

Результаты исследования позволят разработать рекомендации по совершенствованию образовательных программ, модернизации учебных планов и внедрению инновационных методов обучения. Полученные выводы будут полезны для вузов, предприятий реального сектора экономики, а также органов государственной власти, ответственных за развитие системы образования.

Методы исследования

Для достижения поставленных целей исследования были использованы следующие методы:

1. Анализ научной литературы:
 - Систематический обзор научных публикаций, посвященных проблемам модернизации инженерного образования, цифровизации учебных процессов и развития компетенций инженеров XXI века.
 - Анализ зарубежного опыта внедрения инновационных образовательных технологий в инженерных вузах.
 - Изучение нормативно-правовой базы, регулирующей деятельность высших учебных заведений в сфере инженерной подготовки.
2. Сравнительный анализ:
 - Сравнение образовательных программ различных вузов с целью выявления наиболее эффективных практик и подходов.
 - Сравнение требований работодателей к компетенциям выпускников с содержанием образовательных программ.
3. Опрос экспертов:
 - Проведение опросов среди преподавателей инженерных специальностей, студентов, представителей работодателей и выпускников с целью выявления их мнений о существующих проблемах и перспективах развития инженерного образования.
 - Использование экспертных оценок для определения наиболее актуальных направлений модернизации.
4. Качественный анализ:
 - Анализ результатов опросов и интервью для выявления качественных характеристик современных инженерных кадров и требований к ним.
 - Идентификация ключевых факторов, влияющих на эффективность подготовки инженеров.
5. Количественный анализ:

- Статистическая обработка данных, полученных в результате опросов и анализа учебных планов.

- Выявление количественных зависимостей между различными факторами, влияющими на качество подготовки инженеров.

Обоснование выбора методов

Выбор методов исследования был обусловлен следующими соображениями:

- **Комплексность:** Сочетание различных методов позволяет получить более полную и объективную картину исследуемого явления.

- **Репрезентативность:** Анализ научной литературы и экспертные оценки обеспечивают широкий охват различных точек зрения.

- **Надежность:** Количественные методы позволяют получить достоверные данные о количественных характеристиках исследуемых явлений.

- **Валидность:** Качественные методы позволяют глубже понять сущность изучаемых процессов и выявить скрытые взаимосвязи.

Анализ и результаты

В результате проведенного исследования были получены следующие результаты, позволяющие оценить эффективность современных подходов к модернизации инженерного образования в условиях цифровой трансформации.

Анализ существующего состояния инженерного образования

Анализ научной литературы и данных опросов показал, что традиционные модели инженерного образования сталкиваются с рядом проблем, связанных с несоответствием потребностям современного производства [2]. В частности, отмечается недостаточный уровень развития у выпускников таких компетенций, как:

- **Цифровые компетенции:** владение современными программными продуктами, умение работать с большими данными, навыки программирования.

- **Междисциплинарные компетенции:** способность интегрировать знания из различных областей науки и техники.

- **Креативное мышление и инновационность:** умение генерировать новые идеи и находить нестандартные решения.

- **Коммуникативные и межличностные навыки:** способность эффективно взаимодействовать в команде, презентовать свои идеи.

Оценка эффективности инновационных подходов

Исследование показало, что внедрение инновационных образовательных технологий, таких как онлайн-курсы, виртуальные лаборатории, проектная деятельность, способствует развитию необходимых компетенций у будущих инженеров. Однако, их широкое распространение сдерживается рядом факторов, включая недостаточную материально-техническую оснащенность вузов, отсутствие соответствующих

методических разработок и сопротивление части преподавательского состава.

Анализ результатов опросов

Опросы преподавателей, студентов Ферганского политехнического института и Международного института пищевых технологий и инженерии, а также работодателей позволили выявить следующие тенденции:

- Преподаватели отмечают необходимость обновления учебных программ и использования современных образовательных технологий.
- Студенты высоко оценивают возможность самостоятельной работы, доступ к онлайн-ресурсам и проектно-ориентированное обучение.
- Работодатели ожидают от выпускников не только глубоких теоретических знаний, но и практических навыков, умения работать в команде и адаптироваться к новым условиям.

Сравнительный анализ образовательных программ

Сравнительный анализ образовательных программ различных вузов показал, что наиболее успешные программы характеризуются следующими особенностями:

- **Интеграция теории и практики:** Сочетание теоретических знаний с практической работой, включая стажировки на предприятиях и участие в научных исследованиях.
- **Использование современных образовательных технологий:** Активное применение онлайн-платформ, виртуальной и дополненной реальности, симуляторов и других цифровых инструментов.
- **Развитие междисциплинарных компетенций:** Организация междисциплинарных проектов и курсов, способствующих формированию системного мышления.
- **Фокус на развитии soft skills:** Особое внимание уделяется развитию коммуникативных навыков, лидерских качеств и способности работать в команде [3].

Выводы и рекомендации

На основе проведенного исследования можно сделать следующие выводы:

- Модернизация инженерного образования является актуальной и необходимой задачей.
- Использование инновационных образовательных технологий способствует повышению эффективности подготовки специалистов.
- Необходима дальнейшая разработка и внедрение новых образовательных программ, ориентированных на развитие ключевых компетенций XXI века.
- Важно обеспечить тесное взаимодействие между вузами и предприятиями реального сектора экономики.
- Необходимо проводить регулярную оценку эффективности образовательных программ и вносить необходимые корректировки.

Для повышения эффективности подготовки инженеров рекомендуется:

- Разрабатывать и внедрять гибкие образовательные траектории, позволяющие студентам выбирать индивидуальные образовательные маршруты.
- Создавать современные учебные лаборатории, оснащенные новейшим оборудованием.
- Развивать онлайн-образование и использовать цифровые инструменты для поддержки учебного процесса.
- Стимулировать научную деятельность студентов и преподавателей.
- Усиливать взаимодействие вузов с промышленными предприятиями.

Современное развитие технического образования в Узбекистане требует внедрения компетентностно-ориентированного многоуровневого подхода, при котором основное внимание уделяется подготовке студентов в соответствии с меняющимися социально-экономическими условиями. Традиционные методы преподавания профессиональных дисциплин уже не отвечают требованиям рынка труда, где особое значение приобретают практические навыки и знания в области производства [1]. В настоящее время задача состоит в подготовке конкурентоспособных специалистов, которые смогут соответствовать потребностям национальной экономики и стать движущей силой инновационных изменений [2].

Оптимизация образовательного процесса в технических вузах невозможна без переосмысления методологической базы и системного подхода к преподаванию профессиональных дисциплин. Важно учитывать не только государственные образовательные стандарты, но и индивидуальные запросы предприятий, которые формируют требования к выпускникам, ориентируясь на конкретные профессиональные задачи [3,4].

При компетентностном подходе главная цель преподавателей состоит в развитии у студентов профессионального мышления, способности к анализу, интеграции знаний и их применению в практической деятельности. Создание учебных программ, направленных на формирование ключевых компетенций, становится приоритетной задачей образовательных учреждений, готовящих будущих инженеров и исследователей [5]. Однако на сегодняшний день в педагогической науке не в полной мере раскрыт потенциал профессиональных дисциплин для формирования необходимых компетенций у студентов технических вузов Узбекистана.

Исследования в области педагогики показали, что оптимизация образовательного процесса должна включать выбор эффективных методов и инструментов обучения, соответствующих целям подготовки специалистов [6]. Этот процесс включает постановку четких целей, разработку методологических средств, реализацию процесса обучения и оценку

полученных результатов. Важную роль при этом играют ценностные ориентиры, диктуемые требованиями общества и работодателей.

Оптимизация образовательного процесса должна учитывать социальный заказ, однако способы, методы и формы обучения могут варьироваться в зависимости от индивидуальных особенностей студентов, а также материально-технической базы вузов и потребностей предприятий. Альтернативность выбора подходов, методов и средств обучения является важной составляющей оптимизации, поскольку без этого невозможно достичь высокой эффективности процесса.

В условиях реформирования системы высшего образования Узбекистана особое значение приобретает оптимизация учебного процесса для обеспечения высокого качества подготовки специалистов в технических областях [7,8]. Оптимизация предполагает не только выбор эффективных методов и форм обучения, но и выстраивание скоординированного процесса взаимодействия всех участников образовательного процесса. Координирующая функция оптимизации помогает структурировать технологический компонент обучения, который включает целевые установки, содержательные и операционные элементы, что позволяет достигать высокой степени организованности и результативности в подготовке будущих специалистов.

Сравнительно-оценочная функция оптимизации подразумевает анализ и выбор наиболее эффективных образовательных решений на основе оценки альтернативных подходов. Эта функция является ключевой для создания диалоговой среды в обучении, где происходит обмен информацией, критический анализ и обоснование методов, применяемых для улучшения образовательного процесса [9,10,11].

В Узбекистане, с учетом специфики национальной системы образования, этот подход способствует более гибкому и адаптивному формированию учебных программ [12].

Обсуждение

Динамическая функция оптимизации выражается в процессуальной организации обучения, направленной на развитие профессиональных компетенций и стимулирование творческой активности студентов. Эта функция тесно связана с развитием мотивационной структуры учебного процесса, что позволяет активизировать студентов, формируя у них навыки самостоятельного мышления и творчества.

Функция целостности в оптимизации обучения заключается в рациональном подборе методов, их логическом синтезе и интеграции в учебный процесс. Для Узбекистана, где усилия направлены на повышение качества инженерного образования, эта функция имеет особое значение, поскольку она обеспечивает системный подход к формированию инженерных кадров, способных эффективно решать профессиональные задачи [13,14].

Таким образом, оптимизация обучения в технических вузах Узбекистана предполагает внедрение комплексного подхода, включающего координацию действий, сравнительно-оценочную деятельность, динамическое развитие и обеспечение целостности учебного процесса. Эти функции реализуются через технологические, диалоговые и мотивационные составляющие, что позволяет подготовить конкурентоспособных специалистов.

Кроме того, важным аспектом оптимизации образовательного процесса является учёт компетентностного подхода. В контексте модернизации системы образования Узбекистана компетентностный подход рассматривается как основа для создания оптимальных алгоритмов обучения, ориентированных на потребности рынка труда. Согласование содержания образовательных программ с требованиями работодателей способствует формированию инженерных кадров, обладающих необходимыми профессиональными компетенциями, что повышает их готовность к работе на производстве.

Заключение

Оптимизация обучения профессиональным дисциплинам также предполагает развитие многоуровневых образовательных технологий, направленных на повышение креативного потенциала студентов и их способности к самосовершенствованию. Это особенно важно для инженерного образования в Узбекистане, где основным показателем качества подготовки специалистов является их готовность к практической деятельности и профессиональному росту в условиях меняющейся экономической среды.

Проведенное исследование показало, что модернизация инженерного образования является сложным и многогранным процессом, требующим комплексного подхода. Реализация предложенных рекомендаций позволит подготовить специалистов, способных успешно решать задачи в условиях цифровой трансформации и внести значимый вклад в развитие экономики страны.

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СОВРЕМЕННОЕ СОСТОЯНИЕ СФЕРЫ ПРЕДПРИНИМАТЕЛЬСТВА НА МУНИЦИПАЛЬНОМ УРОВНЕ

Аннотация: В статье дана характеристика современного состояния сферы предпринимательства на муниципальном уровне на примере ГО город Октябрьский Республики Башкортостан. Даны основные показатели сферы предпринимательства ГО г. Октябрьский Республики Башкортостан, такие как промышленность по отраслям, оборот организаций и др. Особое внимание в статье уделено анализу показателей, характеризующих развитие малого и среднего бизнеса в муниципалитете. Даны данные о численности субъектов малого и среднего предпринимательства в городе Октябрьский Республики Башкортостан за период с 2020 по 2024 год.

Ключевые слова: предпринимательства, малое и среднее предпринимательство

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THE CURRENT STATE OF THE BUSINESS SECTOR AT THE MUNICIPAL LEVEL

Abstract: The article describes the current state of the field of entrepreneurship at the municipal level on the example of the city of Oktyabrsky of the Republic of Bashkortostan. The main indicators of the sphere of entrepreneurship of the year are given. Oktyabrsky of the Republic of Bashkortostan, such as industry by industry, turnover of organizations, etc. Special attention is paid to the analysis of indicators characterizing the development of small and medium-sized businesses in the municipality. Data on the number of small and medium-sized businesses in the city of Oktyabrsky in the Republic of Bashkortostan for the period from 2020 to 2024 are given.

Keywords: entrepreneurship, small and medium-sized enterprises

Развитие предпринимательства на уровне страны в целом зависит в первую очередь от состояния данной сферы на муниципальном уровне. Развитие предпринимательской сферы прежде всего связывают с ростом числа малых и средних предприятий, увеличением числа самозанятых, а также с элементами диверсификации экономики муниципального образования. Рассмотрим характеристику современного состояния предпринимательства на примере ГО г. Октябрьский Республики Башкортостан.

Городской округ город Октябрьский Республики Башкортостан (далее ГО г. Октябрьский) - современный и динамично развивающийся город. Его население составляет 116 282 человек. Численность трудоспособного населения: 66 838 человек. Территория городского округа 99 кв.км. Он известен в республике как крупный производитель нефтяного оборудования, керамики, фарфоровых изделий, пластмассы. В городе широко представлена пищевая, перерабатывающая промышленности, насыщен предприятиями торговли потребительский рынок⁵⁵.

Город имеет преимущества его географического расположения: рядом проходит Федеральная трасса М5; до ближайшей железнодорожной пассажирской станций Уруссу (Татарстан) - около 15 км, станции Туймазы (Башкортостан) - 25 км; ближайшие аэропорты расположены на расстоянии 60 км в г. Бугульма (Татарстан) и 188 км в г. Уфа; и город Октябрьский занимает благоприятное географическое положение, находясь на стыке республик Башкортостан, Татарстан, Самарской и Оренбургской областей. Другими словами город обладает неоспоримыми преимуществами для развития предпринимательства на его территории. Проанализируем основные показатели сферы предпринимательства ГО г. Октябрьский Республики Башкортостан, которые представлены в таблице 1.

Таблица 1 – Основные показатели сферы предпринимательства ГО г. Октябрьский Республики Башкортостан

| Показатели | 2020г. | 2021г. | 2022г. | 2023г. | Откл.отн. (%) |
|---|----------|----------|----------|----------|------------------|
| Промышленность, млн. руб. , в том числе: | 24 129,3 | 24 989,8 | 34 738,4 | 37 351,1 | 154,80 |
| - добыча полезных ископаемых | 6837,4 | 6 226,1 | 6 941,0 | 8 210,7 | 120,09 |
| - обрабатывающие производства | 13 549,2 | 14 736,9 | 23 483,1 | 24 153,4 | 178,26 |
| Оборот организаций, млн. рублей, из них: | 42 217,8 | 43 443,1 | 55 266,0 | 59 873,8 | 141,82 |
| - промышленность, млн. рублей | 26 472,7 | 26 771,7 | 36 730,6 | 39 230,7 | 148,19 |
| - строительство, млн. рублей | 15 708,2 | 16 630,6 | 1 330,5 | 1 234,8 | 7,86 |

⁵⁵ О городе/ [Официальный сайт городского округа город Октябрьский Республики Башкортостан – URL: https://oktadm.ru/city/index.php](https://oktadm.ru/city/index.php) (дата обращения 27.10.2024)

| | | | | | |
|--|------|------|----------|----------|----------|
| - торговля оптовая и розничная, ремонт автотранспортных средств, млн. рублей | 36,9 | 40,8 | 11 419,0 | 12 546,6 | 34001,63 |
|--|------|------|----------|----------|----------|

Анализ таблицы 1, сфера предпринимательства в Октябрьском демонстрирует общий рост, особенно в промышленности и торговле. Обрабатывающие производства и торговля показывают наивысшие темпы роста, в то время как строительный сектор сталкивается с серьезными проблемами.

Структура экономики городского округа город Октябрьский Республики Башкортостан характеризуется высокой долей промышленности, около 65% все экономики⁵⁶.

Приоритетное значение в последнее время имеет развитие малого и среднего предпринимательства, как на государственном уровне, так на уровне отдельных муниципальных образований. Развитие малого и среднего предпринимательства не только способствует созданию рабочих мест и увеличению доходов населения, но и стимулирует инновации, что в свою очередь ведёт к экономическому росту.

Рассмотрим состояние сферы малого и среднего предпринимательства городского округа город Октябрьский Республики Башкортостан. В таблице 2 представлена численность субъектов малого и среднего предпринимательства города.

Таблица 2 – Численность субъектов малого и среднего предпринимательства ГО г. Октябрьский Республики Башкортостан⁵⁷

| Показатели | 2020г. | 2021г. | 2022г. | 2023г. | 01.10.2024 | Откл.отн. (%) |
|--|--------|--------|--------|--------|------------|---------------|
| Количество субъектов малого и среднего предпринимательства, в том числе | 3 532 | 3666 | 3 674 | 3 990 | 4095 | 115,94 |
| Юридические лица, ед. | 1043 | 1035 | 1 142 | 1 133 | 1129 | 108,25 |
| Индивидуальные предприниматели, ед. | 2310 | 2449 | 2 532 | 2 857 | 2966 | 128,40 |
| Микропредприятия (количество работников до 15 человек и годовой оборот до 120 млн.руб.), ед. | 1043 | 1035 | 3 506 | 3 826 | 3934 | 377,18 |

⁵⁶ Предпринимателям и инвесторам / Официальный сайт городского округа город Октябрьский Республики Башкортостан – URL: <https://oktadm.ru/organizatsiyam-i-biznesu/predprinimateliam-i-investoram/> (дата обращения 27.10.2024)

⁵⁷ Предпринимательство / Официальный сайт городского округа город Октябрьский Республики Башкортостан – URL: https://oktadm.ru/organizatsiyam-i-biznesu/small-and-medium-business/section.php?SECTION_ID=1111 (дата обращения 27.10.2024)

| | | | | | | |
|---|-----|------|------|------|------|--------|
| Малые предприятия (количество работников от 16 до 100 человек и годовой оборот до 800 млн.руб.), ед. | 154 | 157 | 150 | 144 | 143 | 92,86 |
| Средние предприятия (количество работников от 101 до 250 человек и годовой оборот до 2 млрд.руб.) , ед. | 14 | 16 | 18 | 20 | 18 | 128,57 |
| Крестьянские (фермерские) хозяйства, ед. | 11 | 9 | 8 | 6 | 5 | 45,45 |
| В статусе «социальное предприятие» , ед. | - | - | 10 | 11 | 10 | - |
| Налогоплательщики налога на профессиональный доход (самозанятые), (по данным ФНС России) , ед. - физ.лица | 878 | 2052 | 3459 | 5018 | 6864 | 781,78 |
| - ИП | 100 | 113 | 149 | 216 | 223 | 100 |

Давайте проанализируем представленные данные о численности субъектов малого и среднего предпринимательства (МСП) в городе Октябрьский Республики Башкортостан за период с 2020 по 2024 год.

Наблюдается общий рост количества субъектов МСП: с 3532 в 2020 году до 4095 в 2024 году. Это соответствует увеличению на 115,94%. Количество юридических лиц остается относительно стабильным: 1043 (2020) до 1129 (2024) с небольшим приростом в 8,25%. ИП значительно увеличились с 2310 в 2020 году до 2966 в 2024 году, что составляет рост на 28,4%. Это свидетельствует о росте интереса к индивидуальной предпринимательской деятельности.

Важное увеличение микропредприятий: с 1043 до 3934, что представляет собой рост на 377,18%. Это может указывать на тенденцию к созданию небольших, но представительных предприятий в регионе.

Количество малых предприятий снижено с 154 в 2020 году до 143 в 2024 году, что составляет 92,86% от первоначальных данных. Это может быть связано с экономическими сложностями или изменением бизнес-структуры.

Число средних предприятий увеличилось с 14 до 18, что составляет рост на 128,57%. Это показывает, что средние предприятия могут становиться более устойчивыми и менее подверженными рискам.

Количество крестьянских хозяйств уменьшилось: с 11 до 5, что составляет снижение на 45,45%. Это может быть связано с различными экономическими и социальными факторами, влияющими на аграрный сектор.

Налогоплательщики налога на профессиональный доход (самозанятые): значительный рост среди самозанятых физических лиц: с 878 до 6864, что дает рост на 781,78%. Это может указывать на переход многих граждан к самозанятости, число самозанятых ИП выросло с 100 до 223, что дает рост на 100%.

Таким образом, данные показывают положительную динамику в сфере малого и среднего предпринимательства в Октябрьском, с особенно сильным ростом в секторах индивидуального предпринимательства и микропредприятий. Тем не менее, некоторые сегменты, такие как малые и крестьянские предприятия, показывают снижение, что требует дополнительного анализа причин и возможных мер по поддержке.

Таким образом, представленная характеристика развития сферы предпринимательства в ГО г. Октябрьский Республики Башкортостан позволяет выделить следующие конкурентные преимущества территории:

1. Стабильный производственный потенциал (в том числе наличие свободных производственных площадей с инженерным обеспечением, земельных участков с близостью к инженерным коммуникациям, наличие промышленного потенциала и действующих крупных предприятий промышленности).

2. Выгодное экономико-географическое положение города, для установления внешнеэкономических связей с соседними субъектами Российской Федерации.

3. Наличие развитых элементов транспортного узла - близость к федеральной трассе М5, железнодорожным станциям Туймазы, Урусу, наличие в городе железнодорожной грузовой станции, близость аэропорта города Бугульма.

Использованные источники:

1. О городе/ Официальный сайт городского округа город Октябрьский Республики Башкортостан – URL: <https://oktadm.ru/city/index.php> (дата обращения 27.10.2024)

2. Предпринимателям и инвесторам / Официальный сайт городского округа город Октябрьский Республики Башкортостан – URL: <https://oktadm.ru/organizatsiyam-i-biznesu/predprinimateliam-i-investoram/> (дата обращения 27.10.2024)

3. Предпринимательство / Официальный сайт городского округа город Октябрьский Республики Башкортостан – URL: https://oktadm.ru/organizatsiyam-i-biznesu/small-and-medium-business/section.php?SECTION_ID=1111 (дата обращения 27.10.2024)

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**РЕГИОНАЛЬНЫЕ ОСОБЕННОСТИ ПРОИЗВОДСТВА
ПРОДУКТОВ ПИТАНИЯ И ПУТИ ЕГО СОВЕРШЕНСТВОВАНИЯ
(НА ПРИМЕРЕ ФЕРГАНСКОЙ ОБЛАСТИ)**

Аннотация: В данной статье рассмотрены виды потребления населения, географические аспекты обеспечения населения продуктами питания. Также были проанализированы показатели самообеспеченности продуктами питания.

Ключевые слова: антропогенная нагрузка, коэффициент самообеспеченности, потребление населения, рациональная норма, физиологическая норма.

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**REGIONAL FEATURES OF FOOD PRODUCTION AND WAYS OF
ITS IMPROVEMENT (ON THE EXAMPLE OF FERGANA REGION)**

Abstract: This article examines the types of population consumption, geographical aspects of providing the population with food products. The indicators of self-sufficiency in food products were also analyzed.

Keywords: anthropogenic load, self-sufficiency coefficient, population consumption, rational norm, physiological norm.

Из мирового опыта известно, что важное значение имеет определение минимального набора продуктов, товаров и услуг, необходимых для поддержания жизни и здоровья человека на определенный период времени. Такие показатели отражаются в потребительской корзине стран.

Президент Шавкат Мирзиёев в своем Послании к Парламенту от 22 декабря 2017 года, касаясь приоритетных направлений развития социальной сферы отметил: «На основе передового зарубежного опыта нам нужно

закрепить в законодательстве и создать механизмы практического применения понятия "потребительская корзина", необходимого для выявления уровня доходов, достаточного для достойной жизни населения»³.

21 ноября 2019 года на совещании, посвященном обсуждению первоочередных задач в сфере социальной защиты населения, Президент пригласил экспертов международных организаций в Министерство финансов, Министерство экономики и промышленности, Государственный комитет по статистике, поставив перед ними задачу по разработке порядка расчета потребительской корзины и прожиточного минимума, а также норм потребления⁴.

Насыщение внутреннего потребительского рынка в первую очередь связано с производством товаров народного потребления. Комплекс отраслей, производящих товары народного потребления, включает легкую и пищевую промышленность, частично машиностроительную промышленность. В настоящее время ряд отраслей тяжелой промышленности также принимают участие в производстве товаров народного потребления.

Товары народного потребления, в частности, основная часть продуктов питания производится промышленностью. В настоящее время, несмотря на то, что среди отраслей народного хозяйства увеличивается доля сферы услуг, промышленность имеет ведущее положение среди отраслей народного хозяйства.

Факторы, влияющие на производство и потребление потребительской продукции, в том числе продукты питания, можно разделить на четыре группы (см.: рисунок 1):

- природно-географические
- социально-демографические
- уровень материального обеспечения
- политические и экономические (экспорт-импорт)

На различия в потреблении населения в определенной степени оказывают влияние природно-географические факторы. К этим факторам относятся климат, рельеф и другие факторы.

При оценке потенциала обеспечения территорий продуктами питания был использован метод баланса, разработанный и усовершенствованный Э.Н.Антамошкиной. Этот метод осуществляется следующим образом.

1. Выбор критерия оценки продуктовой безопасности региона (уровень продовольственной независимости региона - это состояние удовлетворения физиологической потребности населения потребляемой продукцией) 2. Наличие экономических возможностей для населения покупать продукты питания. 3. Определение показателей оценки по

³ Послание Президента Республики Узбекистан Шавката Мирзиёева Олий Мажлису от 22 декабря 2017 года. (<https://uz.fundamental-economic.uz/?p=1424>)

⁴ <https://www.gazeta.uz/uz/2019/11/22/social-protection>

каждому критерию (коэффициент самообеспечения продуктами питания и другое)

При оценке потенциала обеспечения территорий продуктами питания был использован метод баланса, разработанный и усовершенствованный Э.Н.Антамошкиной. Этот метод осуществляется следующим образом.

1. Выбор критерия оценки продуктовой безопасности региона (уровень продовольственной независимости региона - это состояние удовлетворения физиологической потребности населения потребляемой продукцией) 2. Наличие экономических возможностей для населения покупать продукты питания. 3. Определение показателей оценки по каждому критерию (коэффициент самообеспечения продуктами питания и другое)

Коэффициент самообеспечения продуктами питания определяется по следующей формуле:

$$K_{\text{о.з}} = Q / (n * Q_p)$$

Q – объем произведенных продуктов питания, n – численность населения, Q_p – рациональная величина потребления.

На основе предложенного метода была осуществлена оценка самообеспечения продуктами питания в административно-территориальных единицах области.

Критерий и значения показателя оценки самообеспечения продуктами питания

| Критерий | Значение показателя |
|---|--|
| Уровень продовольственной независимости региона (самообеспечение) | $K_{\text{о.з}} \leq 0,5$ низкий; |
| | $0,5 \leq K_{\text{о.з}} \leq 0,9$ – допустимый; |
| | $0,9 \leq K_{\text{о.з}} \leq 1,1$ – оптимальный |
| | $K_{\text{о.з}} > 1,1$ выше нормы |

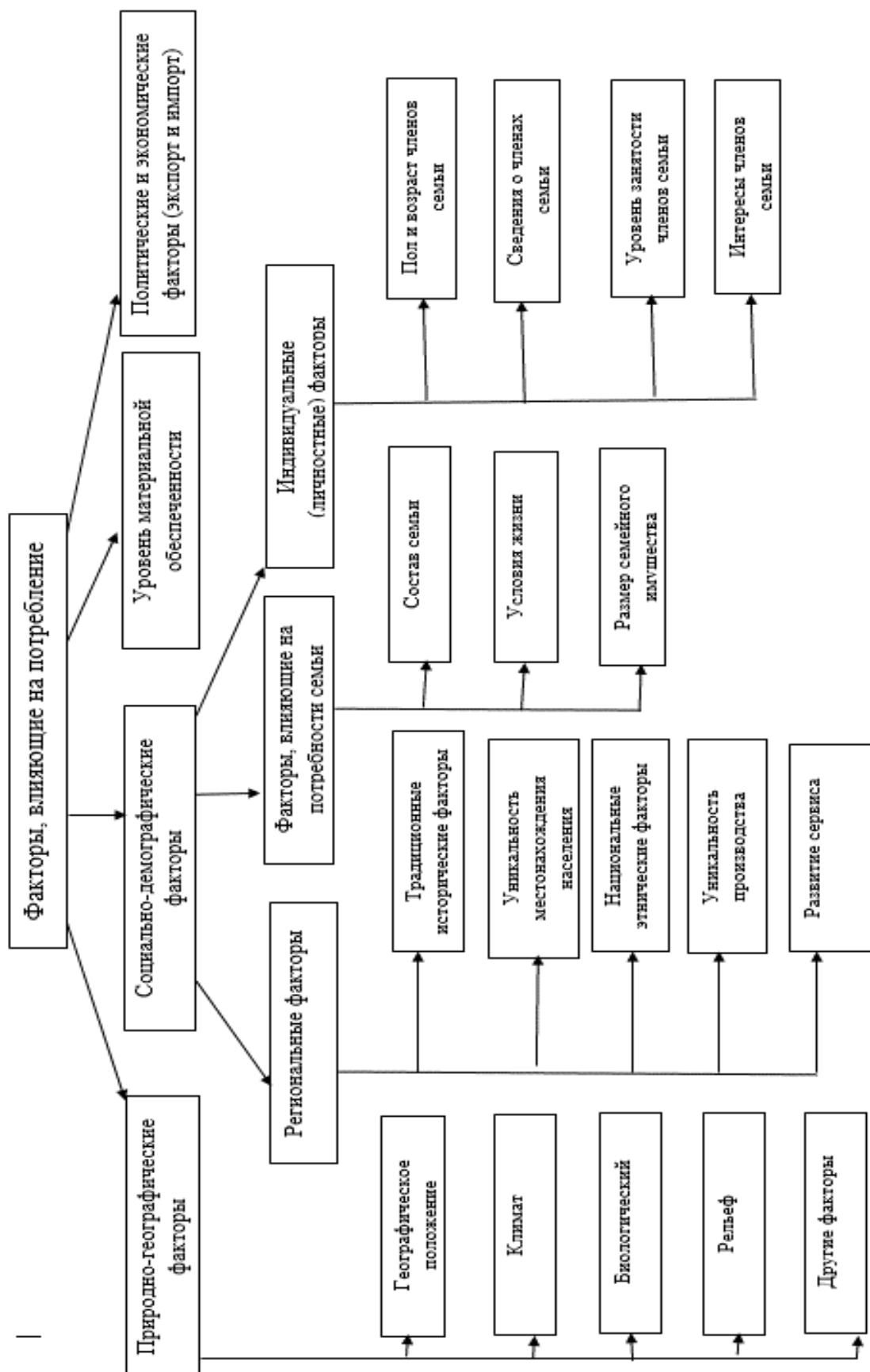


Рис. 1. Факторы, влияющие на потребление

*-Рисунок составлен автором на основе сведений сайта <https://lex.uz/docs/2222065>

В настоящее время в области зарегистрировано 1919 предприятий, производящих товары народного потребления. Из них 42,9% или 825 предприятия производят продукты питания. Территориальная структура предприятий, производящих продукты питания не одинакова. В частности, 15,3% пищевых предприятий расположены в городе Фергане, 13,5% - в городе Маргилане, 12% - в городе Коканде, в сельских районах больше всего предприятий, производящих продукты питания, расположены в Кувинском районе, что составляет 10,1% таких предприятий в области.

Основная часть предприятий, производящих продукты питания, в области являются предприятиями производящими муку и мучные изделия, их число составляет 528. В процентном соотношении предприятия, производящие муку и мучные изделия составляют 64% всех предприятий (см.: таблица 1). В структуре предприятий, производящих продукты питания, последнее место занимают предприятия, производящие молоко и молочные изделия. В области их число составляет 80, что соответствует 9,7% всех предприятий. В области хорошо развито производство кондитерских изделий, в период бывшего Союза область также занимала свое место в производстве кондитерской продукции.

Таблица 1.

Структура предприятий производства продуктов питания в Ферганской области (2021 год)

| № | Административно-территориальные единицы | Муха и мушчыле издегия | Масо и мясная продукция | Молоко и молочная продукция | Кондитерские изделия | Производство безалкогольных напитков (минеральная вода соевая) | Производство мякомолно-крупяной промышленности | Переработка и консервирование фруктов и овощей | Морепродукты | Алкогольная продукция | Специя и лекарственные издегия | Чай и кофе | Соль | Готовые продукты питания | Производство растительных и животных жиров и масел | Продукты питания другой категории | Всего |
|-----|---|------------------------|-------------------------|-----------------------------|----------------------|--|--|--|--------------|-----------------------|--------------------------------|------------|------|--------------------------|--|-----------------------------------|-------|
| | | | | | | | | | | | | | | | | | |
| 1. | г. Фергана | 89 | 4 | 10 | 13 | 1 | 1 | | | 1 | 3 | 1 | | 1 | 1 | 1 | 126 |
| 2. | г. Коканд | 60 | | 12 | 15 | | 2 | 2 | | 1 | | 3 | | 1 | 2 | 1 | 99 |
| 3. | г. Кувасай | 15 | 1 | | | 1 | 3 | 3 | | | | | | | | | 20 |
| 4. | г. Маргилан | 64 | 7 | 10 | 11 | 2 | 3 | 3 | | | 3 | 5 | | | | 3 | 111 |
| | <i>Районы:</i> | | | | | | | | | | | | | | | | |
| 5. | Багдад | 24 | 5 | 2 | 2 | | 5 | 3 | | | 1 | | | | | 1 | 43 |
| 6. | Бешарик | 31 | 3 | 3 | | | 1 | 3 | 1 | | | | | | | | 41 |
| 7. | Бувайда | 8 | | 2 | | | | | | | | | | | | | 11 |
| 8. | Дангара | 13 | 1 | 5 | | | | 1 | | | | 2 | | | | | 22 |
| 9. | Язьяван | 11 | | 1 | | | 1 | | | | | | | | | | 13 |
| 10. | Кува | 65 | 1 | 12 | 1 | | 1 | 2 | | | | | | | 1 | | 83 |
| 11. | Квштепа | 18 | 3 | 1 | 3 | | 4 | | | | 1 | | | 1 | | | 32 |
| 12. | Алтыарык | 31 | | 4 | | 5 | | 2 | | | | 1 | | | | 1 | 44 |
| 13. | Риштан | 28 | | 2 | 1 | | | 1 | 1 | | | | | | | | 33 |
| 14. | Сох | 2 | | | | | 1 | 1 | | | | | | | | | 5 |
| 15. | Ташлак | 16 | | 4 | 1 | | 4 | 1 | | | 1 | | | | | | 27 |
| 16. | Узбекистан | 16 | | 4 | | | 1 | 6 | | | 1 | | | | | 1 | 29 |
| 17. | Учкуприк | 7 | 1 | 2 | 4 | | 9 | 9 | | | 1 | 2 | 1 | | | 2 | 38 |
| 18. | Фергана | 19 | | 4 | 1 | | 1 | 5 | | | | | 1 | | | | 31 |
| 19. | Фуркат | 11 | 1 | 2 | 2 | | 1 | | | | | | | | | | 17 |

* - Таблица составлена автором на основе данных Управления статистики области.

В настоящее время функционирует 54 предприятий, производящих кондитерскую продукцию, что составляет 6,55% всех таких предприятий в области. Вместе с тем в области зарегистрировано 42 предприятия, связанных с переработкой фруктов и овощей, что составляет 5,9 % всех предприятий области. Отмечено, что в области зарегистрировано небольшое число предприятий, производящих морепродукты (2 предприятия) и соль (2 предприятия). Производство муки и мучной продукции хорошо развито, в основном, в городе Фергане (89), городе Коканде (60), городе Маргилане (64), в Кувинском районе (65). Наименьшее число таких предприятий расположены в таких районах, как Сох (2), Учкуприк (7), Бувайда (8).

На основе результатов исследования региональных особенностей и путей совершенствования производства продуктов питания в Ферганской области разработаны следующие предложения и рекомендации:

1. В природном, историческом, социально-экономическом географическом аспекте изучены и проанализированы проведенные за рубежом, в государствах СНГ и республике исследования, посвященные производству товаров народного потребления, в том числе продуктов питания. Дано определение понятия потребитель, потребительская корзина. Проанализирована региональная структура производства товаров народного потребления, в том числе продуктов питания, а также раскрыты географические аспекты и их классификации.

2. Определены современное состояние и проблемы производства продуктов питания в Ферганской области. Усовершенствована региональная структура производства продуктов питания с использованием природного, социально-экономического потенциала Ферганской области.

3. Осуществлено определение территориальных различий потребления продуктов питания и типология районов в Ферганской области, предложена региональная структура, обеспечивающая пропорциональность производства и потребления продуктов питания.

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ТЕОРЕТИЧЕСКИЕ ПРИНЦИПЫ И ПРОБЛЕМЫ РАЗВИТИЯ УМСТВЕННЫХ СПОСОБНОСТЕЙ ДЕТЕЙ ДОШКОЛЬНИКОВ

Аннотация: Умело используя качества эмоциональности дошкольника, чуткость детского сердца, настороженность и впечатлительность ребенка в его стремлении к знаниям, мы должны максимально стимулировать потенциальное развитие каждого ребенка на разных возрастных этапах. . Детей следует знакомить с «большим искусством» как можно раньше. Чтобы ребенок самостоятельно вошел в мир прекрасного, необходимо создать необходимые условия для постепенного восприятия языка изобразительного искусства, определив этапы этого пути: от простого к сложному, от частного к общему.

Ключевые слова: изобразительная деятельность , мультяшная графика, комикс, нестандартная техника рисования, способности, педагогический процесс, изобразительная деятельность, творческие способности, экспериментальное исследование.

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THEORETICAL PRINCIPLES AND PROBLEMS OF DEVELOPING THE MENTAL ABILITIES OF PRESCHOOL CHILDREN

Abstract: Skillfully using the qualities of a preschooler's emotionality, the sensitivity of a child's heart, the alertness and impressionability of a child in his quest for knowledge, we must maximize the potential development of each child at different age stages. . Children should be introduced to "great art" as early as possible. In order for a child to enter the world of beauty on his own, it is necessary to create the necessary conditions for the gradual perception of the language of fine art, defining the stages of this path: from simple to complex, from particular to general.

Keywords: visual activity, cartoon graphics, comics, non-standard drawing technique, abilities, pedagogical process, visual activity, creative abilities, experimental research.

Развитие творческих способностей педагог начинает с обучения «азбуке» изобразительной деятельности , постепенно расширяет арсенал

выразительных изобразительных средств. Эти первые элементарные шаги помогают детям овладеть технологичными, рациональными приемами изображения, без которых невозможен полет детской мысли и фантазии. Для совершенствования цветового вкуса ребенка применяют следующие приемы: 1. раскрашивая картинку, можно спросить ребенка (какие ассоциации возникают у него при выборе цвета, какой цвет пахнет, какой цвет теплый, холодный, гладкий, шероховатый или прозрачный? сравнить); 2. обратите внимание на соответствие ответов ребенка цвету нарисованного предмета, а затем снова дайте задание, но уже наоборот: нарисуйте прозрачный (или блестящий, холодный или ароматный предмет); 3. проверить устойчивость цветовой гармонии: как часто, например, гладкие вещи желтеют, шершавые – зеленеют, горячие – краснеют и т. д. На занятиях очень важно обсуждать с детьми, какие чувства и впечатления вызывает у них тот или иной цвет, ведь этот цвет вызывает у ребенка желание пользоваться карандашом, кистью, рисовать.

Алгоритм детской деятельности, способствующей развитию творческих способностей дошкольников на занятиях изобразительным искусством.

1. Знакомство с кистями и красками. Что такое кисти, как правильно держать кисть, сохранить ее. Какие краски (акварель, гуашь, масло), какие цвета (холодные, теплые).
2. Проверяем репродукции и картинки (оригиналы). Узнаем, какие краски использовал мастер, какие цвета он использовал.
3. Играем в дидактическую игру «Холодно – горячо». Словом, жестами, мимикой дети используют, чтобы показать холодный или теплый цвет.
4. Демонстрация педагогом и детьми приемов воздушной живописи.
5. Объяснение последовательности действий при рисовании красками: А) Кисть беру правильно: тремя пальцами, на железном ремне; Б) Окунаю кисть в банку с краской, удаляю с края лишнюю краску; В) рисуйте предмет плавными движениями, не прижимая кисть к концу бумаги, стараясь не выходить за линию эскиза; Г) промойте кисть в воде; Г) сушу на салфетке; Д) Ставлю кисть на подставку.
6. Дидактические упражнения «Раскрась лист теплым цветом», «Рисую холодный ветер», «Нарисуй веселого клоуна».
7. Знакомство с техникой ТРИЗ (напыление, рисование пенопластом, лепка).

При развитии творческих способностей детей на уроке изобразительного искусства следует соблюдать следующие правила: 1. ребенок должен иметь максимальную свободу проявления инициативы и необходимое для этого физическое и психическое пространство; 2. у ребенка не должно быть цветных карандашей, фломастеров и бумаги; 3. Сюжет рисунка не следует критиковать, наоборот, следует поощрять ребенка время от времени рисовать; 4. выбранные ребенком рисунки следует повесить в удобном месте в группе и попросить ребенка объяснить их; 5. следует предложить ребенку нарисовать все, о чем он любит говорить, и поговорить с ним обо всем, что он любит рисовать.

«Рисуем животных. Дельфин». Алгоритм работы с детьми на уроке рисования. 1. Рассмотреть дельфина в естественной среде дома, посмотреть передачу «Подводная одиссея команды Кусто», мультфильм «Девочка и дельфин», картинки изображение дельфина (внешний вид, повадки, движения, окраска, форма); 2. передача особенностей движения дельфина под музыку 4. знакомство с разными способами изображения одного и того же предмета (мультяшная графика, нестандартная раскраска) с использованием средств; методика); 5. Творческая работа на тему «Вот разные дельфины смотрят на тебя умными глазами»;

творческих работ и заданий в том, что они носят открытый характер, то есть столько ответов и решений они имеют, сколько детей их заполняют. Задача педагога – не только понимать и принимать различные решения, но и показывать детям правомерность этих решений и учить их отстаивать нестандартные решения. В этой главе объясняются самые основные концепции способностей. Рассмотрены и проанализированы условия наиболее эффективного развития творческих способностей у детей старшего дошкольного возраста. В этом нам помогли исследования зарубежных и отечественных психологов. В следующей главе мы постарались использовать его для наиболее точной оценки развития творческих способностей детей старшего дошкольного возраста.

На наш взгляд, для детского изобразительного искусства наиболее подходит определение, данное Р. Гутом: «Творчество (творческий процесс) есть действенная мысль – деятельность, дающая незначительный (качественно новый, неопределенный) результат, поскольку, когда ребенок рисует, фантазирует, при приобретении новых знаний и умений происходит качественный переход от уже известного к новому и появляется новый продукт. Г.С. Альтшуллер, А.В. Ассовская, Р. Арнгейм, В.А. Борзова, В.М. Воскобойников, Л.С. Выготский, Е.И. Игнатъев, А.Г. Ковалев, А.И. Копытин, И.Е. Кох, В.С. Кузин, Н.В.С. Лейтекс и другие Начальная школа, Н.В. В то же время анализ практики показывает, что многие учителя начальных классов сталкиваются с определенными трудностями при организации педагогического процесса по развитию творческих способностей младших школьников в изобразительной деятельности. В нашем исследовании теоретической основой создания экспериментальной модели технологии развития творческих способностей младших школьников в условиях изобразительной деятельности стали следующие понятия: Индивидуально-ориентированный педагогический процесс (Е.В. Бондаревская, Е.С. Белова, А.А. Вербицкий, Е.А. Голубева, В.В. Сериков, И.П. Ищенко, И.А. Колесников, Л.Г. Вяткин, Г.И. Железвская, Е.А. Венгер, Н.В. Высоцкая); Деятельностный подход к развитию творческих способностей (Л. С. Выготский, Д. Б. Богоявленская, А. Н. Леонтьев); Представление о таланте и творческих способностях (Ю. Д. Бабаева, Д.

Гилфорд, Н. С. Лейтес, Я. А. Пономарев, А. М. Матюшкин, П. Торренс, Т. М. Марютина);

Особенности изобразительной деятельности ребенка (В. М. Воскобойников, Р. Арнгейм, Н. М. Георгиев, Е. И. Банзелюк, Л. С. Выготский, Е. И. Игнатьева, Г. А. Голицын, В. С. Кузин, А. И. Копытин, В. С. М. Страхов, В. С. Мухинов, Т. В. Мухинов). . Основным компонентом технологии развития творческих способностей младших школьников в изобразительной деятельности является целеполагающий компонент, включающий ряд задач: социально-психологических, педагогических и методических. Социально-психологические задачи связаны с созданием благоприятных условий для развития творческих способностей учащихся с учетом индивидуальных психологических особенностей. Педагогические задачи направлены на развитие творческих способностей в ходе образовательного процесса. Методические задания направлены на использование комплекса форм, методов, учебных пособий в формировании творческих способностей младших школьников. Развитие творческих способностей младших школьников в контексте изобразительной деятельности осуществлялось путем решения следующих задач: усвоение программного материала начальной школы вместе с развитием образного образа и эмоционально-эмоционального опыта младшего школьника; Развитие познавательной активности, мышления, личностно-психологических особенностей детей;

Обеспечение оптимальных условий для развития позитивных межличностных отношений, коммуникативных качеств и мыслительных способностей ребенка. Содержательный компонент основан на знаниях о природе, законах, структуре и особенностях развития творческих способностей в изобразительной деятельности, которые определяют направление всего педагогического процесса.

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SHAKILLANTIRISHNING NAZARIY JIHATLARI //“TRENDS OF MODERN SCIENCE AND PRACTICE”. – 2023. – Т. 1. – №. 5. – С. 45-54.

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ОСНОВНЫЕ ФАКТОРЫ, ВЛИЯЮЩИЕ НА МИКРООРГАНИЗМЫ В ПРОЦЕССЕ ВОДООЧИСТКИ

***Аннотация:** В данной статье рассмотрен один из методов биологической очистки в процессах водоочистки – очистка микроорганизмами. В данной статье рассматриваются факторы, присутствующие в воде, и их математические модели, влияющие на рост микроорганизмов, их стабильное состояние и гибель. Влияние температуры, уровня рН, кислорода, расхода воды, субстратов и ингибиторов на эти факторы рассмотрено математически, построены графики и проиллюстрированы примерами.*

***Ключевые слова:** микроорганизмы, рост, гибель и стационарное состояние микроорганизмов, температура, рН, кислород, скорость потока воды, метаболизм, оптимальная температура, растворенный кислород, субстраты, ингибиторы. Азот, фосфор, тяжелые вредные металлы.*

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MAIN FACTORS AFFECTING MICROORGANISMS IN THE WATER PURIFICATION PROCESS

***Abstract:** This article discusses one of the biological treatment methods in water purification processes – treatment with microorganisms. This article examines the factors present in water and their mathematical models that affect the growth of microorganisms, their stable state and death. The influence of temperature, pH, oxygen, water flow, substrates and inhibitors on these factors is considered mathematically, graphs are constructed and examples are provided.*

***Keywords:** microorganisms, growth, death and steady state of microorganisms, temperature, pH, oxygen, water flow rate, metabolism, optimal temperature, dissolved oxygen, substrates, inhibitors. Nitrogen, phosphorus, heavy harmful metals.*

Введение

Сегодня в результате высокого уровня развития производства и промышленности и других факторов большая часть водных ресурсов на Земле подвергается загрязнению. Несмотря на то, что наша планета на 70% покрыта водой, не вся она пригодна для потребления человеком. Быстрая

индустриализация, потребление воды из дефицитных водных ресурсов и многие другие факторы играют важную роль в загрязнении воды. Ежегодно в мире образуется 400 миллиардов тонн отходов. Существует несколько методов очистки этих вод, один из которых – биологическая очистка. В процессе биологической очистки обычно используют несколько видов микроорганизмов. Многие факторы в воде влияют на активность микроорганизмов. Это может быть как полезно, так и вредно. Например, температура при ее оптимальном значении создает наиболее благоприятные условия для роста микроорганизмов, а чрезмерное тепло является основной причиной их гибели. Остальные факторы имеют тот же эффект. Математические модели поиска оптимальных значений этих факторов рассмотрены в следующей статье.

Метод

Влияние температуры

Температура воды является основным фактором, влияющим на кинетику роста микроорганизмов. Каждый микроорганизм имеет минимальную и максимальную температуру роста. Микроорганизмы не развиваются выше или ниже этого интервала. При низкой температуре оболочка организма затвердевает и питательные вещества не достигают клетки. При высокой температуре белки и ферменты перестают расти, и поэтому бактерии не растут.

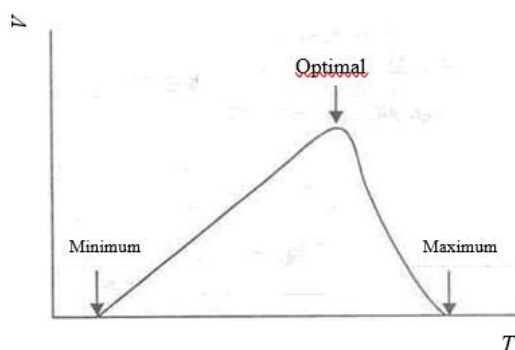


Рисунок 1. Зависимость скорости роста от температуры

В процессе очистки воды одновременно происходит популяция нескольких видов организмов. При изменении температуры воды рост одной группы микроорганизмов замедляется, а иногда и погибает, тогда как рост других групп ускоряется и становится доминирующим. Такое разнообразие популяции микроорганизмов сохраняется до 35-37 ОК. При более высокой температуре, как показано на графике ниже, способность к росту снижается и оптимальные условия в биологической системе исчезают..

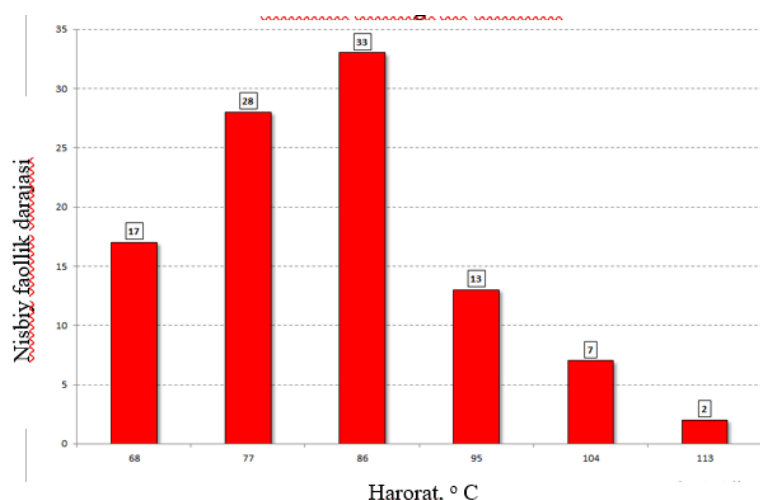


Рисунок 2. Зависимость активности микроорганизмов от температуры

Температура сильно влияет на время появления организма, а также на его латентный период. Скорость роста организма в данном диапазоне температур классически определяется как соотношение Аррениуса. Тот факт, что константа скорости роста микроорганизмов пропорциональна обратной величине абсолютной температуры, можно выразить следующим уравнением:

$$G = -\mu / 2.303 RT \quad (1)$$

Здесь G — логарифмическая константа скорости роста, m — температурная характеристика (постоянная для конкретного микроба), R — газовая постоянная, T — температура (°K).

Приведенное выше уравнение относится к линейной части Аррениуса. Однако при приближении температуры к максимуму для конкретного микроорганизма скорость роста снижается быстрее, чем при приближении температуры к минимуму для того же микроорганизма. Уравнение, которое более точно предсказывает скорость роста микроорганизмов при низких температурах, выглядит следующим образом:

$$\mu = b (T - T_0) \quad (2)$$

μ - скорость роста, b - наклон линии регрессии, T - температура (° K), концептуальная температура отсутствия метаболической значимости

Уравнение Аррениуса обычно используется для описания температурной зависимости скоростей реакций, которое можно адаптировать для моделирования скорости роста микроорганизмов, и его общая форма выглядит следующим образом:

$$\mu(T) = \mu_{max} \cdot \exp\left(\frac{-E_a}{R \cdot (T + 273.15)}\right) \quad (3)$$

$\mu(T)$ - скорость роста при температуре T , μ_{max} - Максимальная скорость роста (при оптимальных условиях), E_a - Энергия активации (постоянная), R - Универсальная газовая постоянная (8,314 Дж/моль·К), T - Температура в Цельсиях.

Влияние pH

Для системы биологической очистки рН является важным фактором окружающей среды, который может влиять на активность микроорганизмов. В целом оптимальный уровень рН для аэробных процессов находится в районе нейтрального значения (7–7,8), а для анаэробных процессов – в пределах 6,8–7,2. Это звено системы биологической очистки, которым сложно управлять из-за его нелинейности и большой временной задержки.

рН влияет на ионные свойства бактериальной клетки, поэтому влияет на рост бактерий. Большинство бактерий растут при нейтральном рН (6,5–7,5). Однако есть некоторые бактерии, которые лучше всего растут при кислом или щелочном рН..

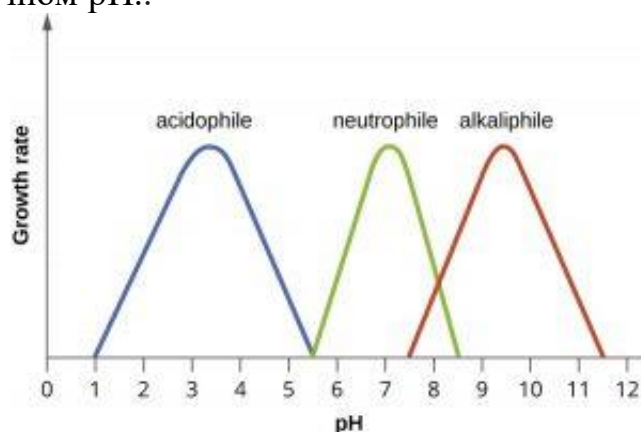


Рисунок 3. Виды микроорганизмов, которые процветают при разных значениях рН

рН относится к отрицательному логарифму концентрации ионов водорода. На рост микробов сильно влияет уровень рН окружающей среды. Резкие изменения рН цитоплазмы нарушают плазматическую мембрану или подавляют активность ферментов и мембранных транспортных белков.

Базовая модель роста Бараньи и Робертса (1994) часто используется в прогностической микробиологии. Эта модель используется здесь в качестве эталона для сравнения с другими моделями. Уравнения записаны с использованием натурального логарифма плотности клеток n и натурального логарифма физиологического состояния q :

$$\frac{dn(t)}{dt} = \mu_{\max}(pH) \left(\frac{1}{\exp(-q(t)) + 1} \right) (1 - \exp(n(t) - n_{\max})) \quad (4)$$

здесь $n(t=0) = n_0$

$$\frac{dq(t)}{dt} = \mu_{\max}(pH) \quad (5)$$

здесь $q(t=0) = q_0$

здесь μ_{\max} – максимальная удельная скорость роста при данном значении рН, n_{\max} – максимальная плотность клеток. Гамма-фактор, представляющий эффект стационарной фазы, основан на факторе продукта Р-модели, разработанной Ван Импе и др. (2005):

$$\frac{dN(t)}{dt} = \mu_{\max}(pH) \cdot \left(\frac{Q(t)}{Q(t) + 1} \right) \cdot \left(1 - \frac{P(t)}{K_p} \right) \cdot N(t) \quad (6)$$

$$N(t=0) = N_0$$

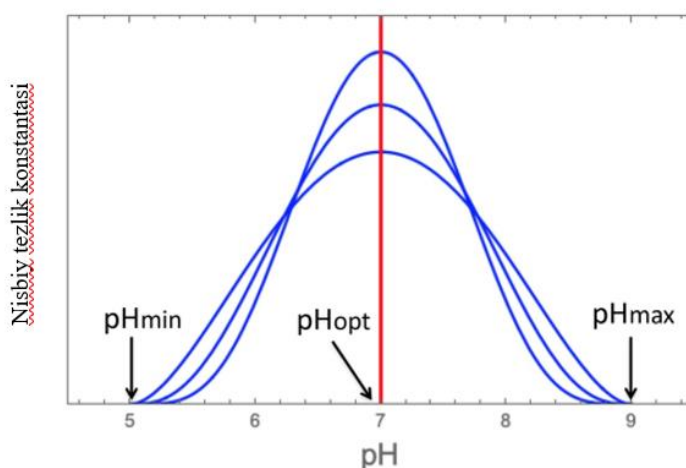
$$\frac{dQ(t)}{dt} = \mu_{max}(pH)Q(t) \quad (7)$$

$$Q(t=0) = Q_0$$

$$\frac{dN(t)}{dt} = Y_{P/N} \cdot \mu_{max} \left(\frac{Q(t)}{Q(t) + 1} \right) \cdot \left(1 - \frac{P(t)}{K_p} \right) \cdot N(t) \quad (8)$$

$$P(t=0) = P_0$$

Здесь N – плотность клетки, $Q(t)$ – безразмерное физиологическое состояние клетки, $P(t)$ – концентрация продуктов метаболизма, ингибирующих рост, K_p – максимальная концентрация продуктов метаболизма, ингибирующих рост, $Y_{P/N}$ – выход продуктов метаболизма, способствующих росту.



РисунСок 4. Влияние на рост микроорганизмов

Влияние растворенного кислорода на рост микроорганизмов

При биологической очистке сточных вод влияние кислорода на рост микроорганизмов является решающим фактором, существенно влияющим на эффективность процесса очистки.

Кислород необходим для аэробных биологических процессов при очистке сточных вод. Микроорганизмы, в первую очередь бактерии, используют кислород для расщепления органических веществ в сточных водах. Присутствие растворенного кислорода (РК) в системе очистки определяет рост и активность этих аэробных микроорганизмов.

Достаточное обеспечение DO имеет решающее значение в аэробных системах очистки сточных вод, таких как процессы с активным илом. Кислород поддерживает метаболическую активность аэробных бактерий, которые преобразуют органические загрязнители в углекислый газ, воду и биомассу. Оптимальные уровни растворенного кислорода способствуют росту полезных бактерий, которые эффективно расщепляют органические вещества.

Концентрацию DO в системе очистки следует тщательно контролировать. Низкий уровень растворенного кислорода может вызвать

полное разложение органического вещества, а избыток растворенного кислорода может вызвать чрезмерную оксигенацию, что может нанести вред некоторым микробным сообществам и увеличить эксплуатационные расходы.

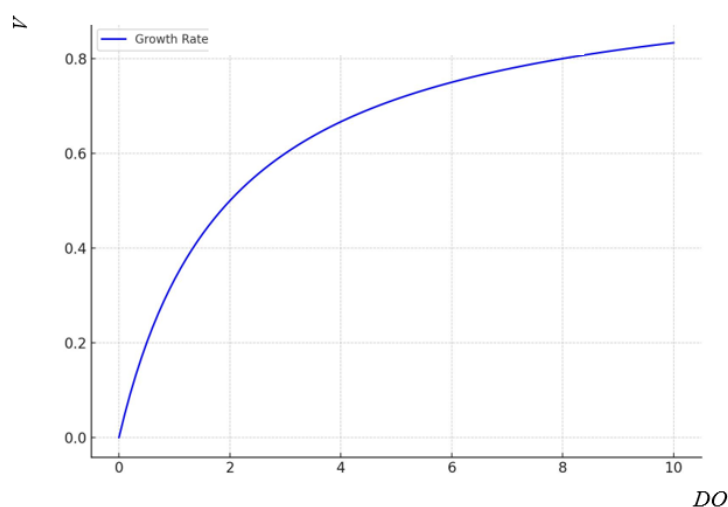


Рисунок 5. Связь между скоростью роста микробов и концентрацией растворенного кислорода

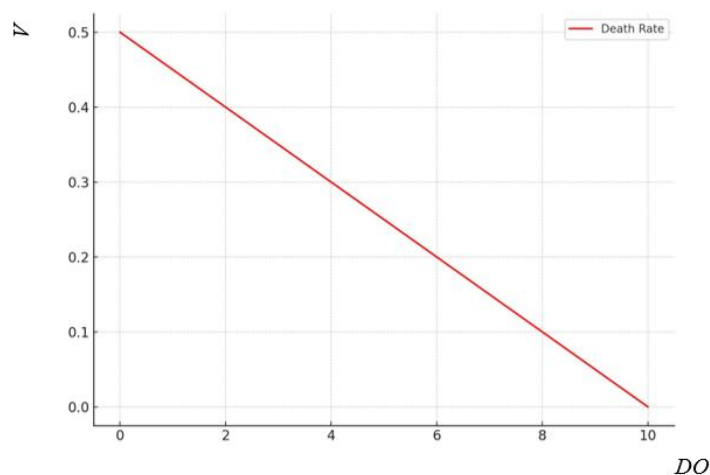


Рисунок 6. График связи растворенного кислорода с ростом и гибелью микроорганизмов

Аналогичным образом, уровень растворенного кислорода является важным фактором, влияющим на эффективность биологической очистки сточных вод. Это влияет на такие параметры, как скорость роста микробов и активность некоторых микроорганизмов. Следовательно, поддержание оптимального баланса растворенного кислорода важно не только для эффективного разложения органических веществ и предотвращения запаха, но также для оптимизации удаления питательных веществ и других ключевых биологических функций системы.

Субстраты и ингибиторы, влияющие на рост микроорганизмов

В сточных водах микроорганизмы в основном потребляют органические вещества и питательные вещества в качестве источников питания. Их основными компонентами являются:

Органические вещества (источник углерода). Микроорганизмы в системах очистки сточных вод питаются в основном органическими соединениями, такими как углеводы, белки, жиры и масла. Эти органические вещества распадаются на более простые соединения, которые микроорганизмы используют для получения энергии и роста..

$$\mu = \mu_{\max} \cdot \frac{S}{K_s + S} \quad (9)$$

Здесь μ – удельная скорость роста микроорганизма (в единицу времени, например, в часах), μ_{\max} – максимальная скорость роста (в единицу времени), S – концентрация источника углерода (мг/л), K_s — это половинная концентрация источника углерода, при которой абсорбция постоянна, а скорость роста равна половине μ_{\max} (мг/л).

Результаты

Модифицированная интерпретация уравнения Моно

Если концентрация источника углерода намного ниже K_s , скорость роста прямо пропорциональна S .

Уравнение упрощается следующим образом:

$$\mu \approx \mu_{\max} \cdot \frac{S}{K_s} \quad (10)$$

Если концентрация источника углерода намного превышает K_s , скорость роста приближается к максимальному значению μ_{\max} .

Уравнение упрощается следующим образом:

$$\mu \approx \mu_{\max}$$

$S = K_s$ bo'lsa, o'sish sur'ati μ_{\max} ning yarmiga teng:

$$\mu = \frac{\mu_{\max}}{2} \quad (11)$$

Азот является важным питательным веществом для микроорганизмов, обычно в форме аммония (NH_4^+), нитрата (NO_3^-) или органических соединений азота. Микроорганизмы используют азот для синтеза белков, нуклеиновых кислот и других клеточных компонентов..

$$\mu = \mu_{\max} \cdot \frac{N}{K_n + N} \quad (12)$$

Здесь N – концентрация источника азота (например, аммиака или нитрата, мг/л), K_n – константа полунасыщения азотом, концентрация, при которой скорость роста составляет половину от μ_{\max} (мг/л).

Фосфор является еще одним важным питательным веществом и часто встречается в сточных водах в виде фосфата (PO_4^{3-}). Микроорганизмам необходим фосфор для производства нуклеиновых кислот, АТФ (аденозинтрифосфата) и фосфолипидов для клеточных мембран..

$$\mu = \mu_{\max} \cdot \frac{P}{K_p + S} \quad (13)$$

Здесь P — концентрация фосфора (мг/л). K_p — константа полунасыщения фосфором, концентрация, при которой половина скорости роста равна μ_{\max} (мг/л).

Микроорганизмам требуются следовые количества таких элементов, как железо (Fe), магний (Mg), кальций (Ca) и калий (K) для различных ферментативных процессов и клеточных функций..

$$\mu = \mu_{max} \cdot \frac{TE}{K_{te} + TE} \quad (14)$$

TE – концентрация микроэлемента (мг/л), K_{te} – константа полунасыщения микроэлемента, концентрация, при которой скорость роста равна половине μ_{max} (мг/л).

В общем процессе все эти питательные вещества могут одновременно влиять на рост микроорганизмов. Структура их общей модели следующая.:

$$\mu = \mu_{max} \cdot \frac{S}{K_S + S} \cdot \frac{N}{K_n + N} \cdot \frac{P}{K_p + S} \cdot \frac{TE}{K_{te} + TE} \quad (15)$$

Здесь S относится к источнику углерода, а другие термины относятся к азоту, фосфору и микроэлементам.

Эта интегрированная модель показывает, как каждое питательное вещество действует как ограничивающий фактор, и если какого-либо из этих питательных веществ не хватает, общая скорость роста микроорганизмов снижается.

Эффект ингибиторов

Присутствие этих ингибиторов в сточных водах может привести к снижению микробной активности. Токсичные тяжелые металлы, такие как медь (Cu), свинец (Pb), ртуть (Hg), кадмий (Cd) и цинк (Zn), органические соединения, такие как фенолы, растворители, пестициды и хлорированные углеводороды, аммиак (NH₃) и высокие концентрации нитрита (NO₂⁻), высокая концентрация солей, таких как хлорид натрия (NaCl), температура, pH и высокие значения кислорода оказывают негативное влияние на рост микроорганизмов в процессах очистки воды. Существует несколько математических моделей, описывающих действие ингибиторов. Наиболее широко используемой из них является модифицированная модель Monod. Эта модель обычно используется для неконкурентных ингибиторов.:

$$\mu = \mu_{max} \cdot \frac{S}{K_S + S} \cdot \frac{1}{1 + \frac{I}{K_i}} \quad (16)$$

Здесь I – концентрация ингибитора (мг/л), K_i – константа ингибирования, концентрация ингибитора, при которой скорость роста снижается вдвое (мг/л).

Следующая модель используется для представления роста микроорганизмов под влиянием конкурентных ингибиторов:

$$\mu = \mu_{max} \cdot \frac{S}{K_S \left(1 + \frac{I}{K_i}\right) + S} \quad (17)$$

В этой модели присутствие ингибитора увеличивает кажущуюся константу полунасыщения K_S , а это означает, что для достижения той же

скорости роста без ингибитора требуется более высокая концентрация субстрата.

В целом можно использовать следующую модель:

$$\mu = \mu_{max} \cdot \frac{S}{K_S + S} \cdot \frac{1}{\sum \frac{I}{K_{i,j}}} \quad (18)$$

Влияние скорости потока воды на микроорганизмы

Скорость потока на биологических очистных сооружениях оказывает существенное влияние на рост, популяцию и гибель микроорганизмов. Эти факторы влияют на время пребывания и эффективность смешивания, что, в свою очередь, влияет на их общий рост и производительность.

$$\frac{dN(t)}{dt} = k(T, pH, a_w \dots) N(t) \left(1 - \frac{N(t)}{N_{asymp}} \right) \quad (19)$$

Учитывается указанная выше константа скорости $k(T, pH, a_w, \dots)$ или ее эквивалент в других моделях статического роста. Если другие остаются постоянными, то можно интуитивно сделать вывод об общем характере ее зависимости от одного фактора. Например, как показано на рисунке 1, ясно, что он достигает максимума при оптимальной температуре и приближается к нулю или даже становится отрицательным при температурах, достаточно далеких от оптимума в любом направлении.

То же самое очевидно из пороговой активности воды, при которой рост микробов не происходит, как схематически показано на рисунке 7, а также концентрации соли и других растворенных веществ, указанных выше, как схематически показано на рисунке 8..

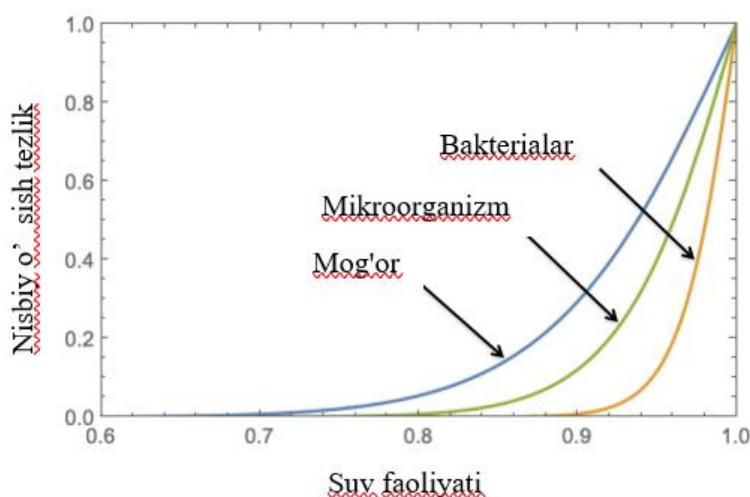


Рисунок 7. Влияние активности воды на рост микроорганизмов

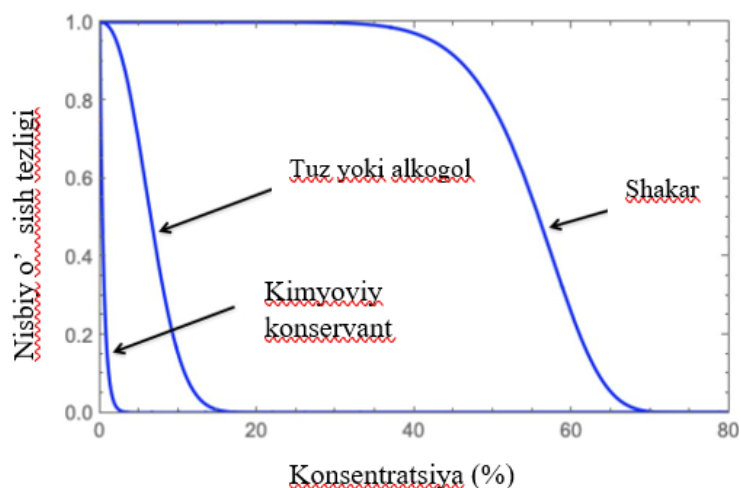


Рисунок 8. Влияние соли и других веществ на рост микроорганизмов

Аналогичным образом, как схематически показано на рисунке 6, считается, что растворенные вещества, такие как сахар, соли или спирт, или химические консерванты, такие как бензоат натрия или сорбат калия, имеют только максимальный уровень толерантности.

Как показано на рисунке 7, активность воды рассматривалась как фактор роста. Поскольку точное значение a_{wmin} нетрудно определить экспериментально, можно рассмотреть возможность замены уравнения 8 гибкой экспоненциальной моделью..

$$\gamma(a_w) = \frac{e}{e-1} (1 - \text{Exp}[-a_w^m]) \quad (21)$$

Здесь e — число Эйлера = 2,7182..., и это единственный регулируемый параметр, который заменяет a_{wmin} ..

$$\gamma(\text{conc}) = \frac{\text{conc}_{max} - \text{conc}}{\text{conc}_{max}} \quad (22)$$

здесь $0 \leq \gamma(\text{conc}) \leq 1$ va $\gamma(\text{conc} \geq \text{conc}_{max}) = 0$

Аналогичная проблема может возникнуть при экспериментальном определении точного значения conc_{max} независимо от химического вида растворенного вещества. Однако кривые, показанные на рисунке 6, отличаются. Тем не менее, они созданы на основе единой растянуто-экспоненциальной модели.:

$$\gamma(\text{conc}) = \text{Exp} \left[- \left(\frac{\text{conc}}{\text{conc}_c} \right)^m \right] \quad (23)$$

где conc_c — характерная концентрация, определяющая точку перегиба кривой, а m — константа, которая в первую очередь контролирует скорость потока, при $\text{conc} = 0$, $\gamma(\text{conc}) = 1$ по определению и практически стремится к нулю, $\text{conc} \gg \text{conc}_c$, $m = 1$, затухание $\gamma(\text{conc})$ экспоненциально, а при $m > 1$ затухание заметно только в конце кривой. Однако реалистично выглядящие кривые, показанные на рис. 6, основаны на $m=1$ и $\text{conc}_c=0,5\%$ для химического консерванта, $m=2,35$ и $\text{conc}_c=7,6\%$ для соли или спирта и смоделированы как $m=9,5$ и $\text{conc}_c=58\%$..

Заключение

Роль микроорганизмов в очистке сточных вод важна для эффективного удаления органических загрязнителей. Математическое моделирование факторов, влияющих на рост микробов, помогает оптимизировать процесс очистки. Важные факторы, такие как температура, концентрация растворенного кислорода, наличие питательных веществ (таких как фосфор, азот и микроэлементы) и скорость потока воды, существенно влияют на микробную активность и эффективность разложения загрязняющих веществ.

Математические модели, такие как уравнение Моно, позволяют нам понять, как концентрация субстрата влияет на скорость роста микробов, и помогают прогнозировать эффективность работы в различных условиях. Модели типа Аррениуса эффективно описывают влияние температуры на кинетику микробов, определяя оптимальные условия для максимальной биологической активности. Кроме того, воздействие растворенного кислорода моделируется с помощью кинетики насыщения, предлагая способ поддержания аэробных условий для оптимального микробного дыхания. Скорость потока воды, которая влияет на время удерживания микробов и контакт с субстратами, часто моделируется посредством анализа режима потока и напрямую влияет на производительность систем биологической очистки.

Интегрируя эти математические выражения в проектирование и эксплуатацию очистных сооружений, инженеры могут повысить эффективность системы, прогнозировать потенциальные проблемы и разрабатывать процессы очистки, которые максимизируют удаление загрязняющих веществ при минимизации энергетических и эксплуатационных затрат. Разработка и применение этих моделей очень важны для повышения устойчивости и эффективности современных систем очистки воды.

В заключение, математические выражения, отражающие взаимодействие факторов окружающей среды и микробных процессов, являются ключом к оптимизации биологической очистки сточных вод. Эти модели являются бесценными инструментами для повышения эффективности, принятия операционных решений и обеспечения максимальной эффективности работы систем очистки воды..

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ПРИМЕНЕНИЕ СОВРЕМЕННЫХ СИСТЕМ ДЛЯ ОПОВЕЩЕНИЯ НАСЕЛЕНИЯ В ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЯХ

Аннотация :в статье рассматриваются традиционные и современные системы оповещения населения в чрезвычайных ситуациях, их классификация и применение в реальных условиях. Особое внимание уделено цифровым технологиям и их преимуществам по сравнению с традиционными методами. В ходе исследования была проведена оценка эффективности различных систем оповещения, использованных в разных странах для предупреждения и управления рисками в условиях катастроф. Результаты показывают, что современные системы обладают значительным потенциалом для повышения безопасности населения, но требуют регулярного совершенствования и адаптации к местным условиям.

Ключевые слова: системы оповещения, чрезвычайные ситуации, цифровые технологии, искусственный интеллект, социальные сети.

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APPLICATION OF MODERN SYSTEMS FOR PUBLIC NOTIFICATION IN EMERGENCY SITUATIONS

Annotation - the article discusses traditional and modern public notification systems in emergency situations, their classification and application in real conditions. Special attention is paid to digital technologies and their advantages over traditional methods. The study assessed the effectiveness of various warning systems used in different countries to prevent and manage risks in disaster situations. The results show that modern systems have significant potential to improve public safety, but require regular improvement and adaptation to local conditions.

Keywords: *warning systems, emergencies, digital technologies, artificial intelligence, social networks.*

Введение. Чрезвычайные ситуации различного рода – природные катастрофы, техногенные аварии, террористические угрозы – представляют собой серьезную опасность для жизни и здоровья людей. Оперативное и эффективное информирование населения является одной из ключевых мер для минимизации последствий таких событий. В последние годы произошел значительный прогресс в развитии систем оповещения благодаря внедрению цифровых технологий, интернета и искусственного интеллекта. Однако несмотря на многочисленные улучшения, остаются вызовы, связанные с неравным доступом к технологиям, возможными нарушениями конфиденциальности данных и сложностью восприятия информации в условиях стресса. Целью данного исследования является подробный обзор традиционных систем оповещения и их недостатков, анализ современных систем оповещения, оценка их эффективности и рассмотрение будущих направлений развития.

Методы. Для анализа были использованы методологические подходы, включающие изучение научной литературы, отчетов международных организаций и правительств различных стран, а также данных о реальном применении систем оповещения в условиях чрезвычайных ситуаций.

В рамках исследования были выделены следующие основные категории систем оповещения:

- традиционные системы;
- цифровые системы (SMS, мобильные приложения);
- системы, использующие социальные сети;
- интеграционные решения на основе искусственного интеллекта и интернета вещей (IoT).

Каждая система оценивалась по критериям: скорость распространения информации, охват аудитории, персонализация сообщений, технические и финансовые затраты на внедрение и эксплуатацию.

Необходимо отметить, что в Великобритании система оповещения имеет около 1200 сирен. Это то, что осталось от системы предупреждения населения о воздушных налетах во время Второй мировой войны. Тогда сирены были в каждом населенном пункте. В настоящее время сирены используются для предупреждения о наводнениях, а также для предупреждения населения, проживающего вблизи газовых или атомных электростанций, баз атомных подводных лодок, нефтеперерабатывающих и химических заводов. Они проверяются один раз в год в период между августом и сентябрем.

Во Франции также имеется система оповещения населения о чрезвычайных ситуациях. Она унаследовала свои функции от системы

информирования о воздушных налетах, разработанной еще до Второй мировой войны. Она состоит из 4500 электронных или электромеханических сирен, расположенных по всей Франции. Система тестируется каждый месяц.

В Нидерландах по всей стране размещены 4200 сирен, которые также тестируются раз в месяц. Норвегия имеет около 1250 оперативных сирен, в основном расположенных в городах. Они предназначены для подачи трех различных сигналов: «Тревога», «Все ясно», «Критическое сообщение, слушать радио». Сирены проверяются дважды в год, во вторую среду января, в полдень, звучит сигнал «Критическое сообщение», а во вторую среду июня, в полдень, звучит сигнал «Тревога», после чего, через пять минут передается сигнал «Все ясно». Сигнал «Критическое сообщение» используется в мирное время, чтобы предупредить население о крупных авариях, больших пожарах и утечках газа.

Швейцария имеет сеть из 8500 мобильных и стационарных сирен гражданской обороны, которая может предупредить 99% населения. Есть также система из 700 сирен, расположенных вблизи плотин. Сирены Швейцарии проходят испытания каждый год. Во время этого теста работают системы общего предупреждения, а также сирены, расположенные возле плотин. Список тонов сирен публикуется на последней странице всех телефонных книг, а также в Интернете.

В Финляндии разработана электронная сирена большой мощности. Главным достоинством является то, что она может работать на батареях при нарушении централизованного электроснабжения.

В Германии система оповещения менее чем через 3 секунды после нажатия кнопки «тревога» с центрального командного пункта гражданской обороны способна уведомить всех граждан своей страны о чрезвычайной ситуации. Кроме того, в Германии используют сирены нового поколения — пневмосирены. Они отличаются большой мощностью: площадь эффективного озвучивания городской территории превышает 10 квадратных километров.

Израиль имеет более 3100 сирен предупреждения и большинство из них расположены в городских районах. Системы оповещения в виде сирен используются, как правило, для предупреждения о воздушных налетах и ракетных ударах, способных причинить вред гражданскому населению.

В Китае большинство населенных пунктов, особенно расположенных вблизи спорных территорий, оборудованы системой оповещения. Они должны использоваться при объявлении чрезвычайного положения из-за военной атаки, вторжения или очень высокого риска военного конфликта. Система сирен находится под контролем Народно-освободительной армии Китая.

Город-государство Сингапур имеет сеть из более, чем двух тысяч стационарных сирен общественной системы предупреждения, которая

предназначена для предупреждения населения о воздушных налетах, техногенных и природных катастрофах (за исключением подземных толчков). В первый день каждого месяца сирены в Сингапуре проходят испытания.

Исходя из вышеизложенного можно сделать вывод, что традиционные системы оповещения о чрезвычайных ситуациях в разных странах складывались исторически. Они постоянно развиваются, используя достижения современной техники.

Разработка новых систем раннего предупреждения населения о чрезвычайных ситуациях предполагает создание преимущественно автоматизированных систем гидрометеорологических наблюдений (наземных, авиационных, радарных и спутниковых), сопряженных с системами сбора и передачи данных по современным средствам связи, автоматической обработки данных наблюдений и выпуска прогнозов, своевременного доведения прогностической информации до различных потребителей, в первую очередь, до населения.

Классификация современных систем оповещения:

- технологии широкоэмиттерных систем: телевидение, радио, системы громкоговорителей;
- цифровые технологии: SMS-оповещения, мобильные приложения, геолокационные системы;
- социальные сети и интернет-платформы: использование социальных медиа для быстрого распространения информации;
- системы на основе искусственного интеллекта и машинного обучения: анализ данных и прогнозирование ситуаций для предупреждения;
- интеграция с IoT (интернетом вещей): умные датчики, автоматические оповещения через подключенные устройства.

Результаты исследования показывают, что современные цифровые системы оповещения обладают существенными преимуществами по сравнению с традиционными средствами. Например, использование геолокационных систем в Японии позволяет точно информировать население о предстоящих землетрясениях, а мобильные приложения для оповещения о лесных пожарах в Австралии показали высокую эффективность в плане скорости передачи информации.

Однако, существуют проблемы, связанные с доступом к таким технологиям, особенно в странах с низким уровнем развития цифровой инфраструктуры. Социальные сети играют все более важную роль, однако доверие к источникам информации в них остается критической проблемой. Системы на основе искусственного интеллекта и IoT показали высокие результаты в управлении информационными потоками, но требуют значительных инвестиций и регулярного обновления для поддержания их актуальности.

Основываясь на проведенном анализе, можно сделать вывод о том, что современные системы оповещения населения являются важным элементом стратегии управления рисками в чрезвычайных ситуациях. Их использование позволяет не только быстро информировать население, но и предоставлять персонализированные сообщения, учитывающие местоположение и другие параметры. Однако внедрение таких систем сопряжено с рядом вызовов. Цифровое неравенство, сложности в восприятии информации в стрессовых условиях, а также угрозы безопасности данных требуют внимания со стороны разработчиков и органов власти. Важно развивать интеграционные решения, которые будут учитывать особенности конкретных регионов и категорий населения. В дальнейшем, развитие сетей 5G и систем искусственного интеллекта может существенно повысить эффективность систем оповещения, но потребуются проведение дополнительных исследований, направленных на анализ долгосрочной устойчивости этих систем и их взаимодействия с существующими технологиями.

Заключение. Современные системы оповещения играют решающую роль в защите жизни и здоровья населения в условиях чрезвычайных ситуаций. Развитие технологий продолжает ускоряться, предлагая новые инструменты и подходы для более эффективного предупреждения и реагирования на катастрофы. Однако для успешной интеграции таких систем требуется комплексный подход, учитывающий как технические, так и социальные аспекты. Важным шагом станет усиление международного сотрудничества и обмена опытом по внедрению и эксплуатации передовых систем оповещения.

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МЕТОДИКА ПОВЫШЕНИЯ ПРОФЕССИОНАЛЬНОЙ ГРАФИЧЕСКОЙ КОМПЕТЕНТНОСТИ БУДУЩИХ УЧИТЕЛЕЙ ТЕХНОЛОГИЧЕСКОГО ОБРАЗОВАНИЯ

***Аннотация:** В статье рассматривается методика повышения профессиональной графической компетентности будущих учителей технологического образования. Описаны ключевые аспекты методики, такие как использование современных графических редакторов, развитие навыков визуализации технических решений и интеграция графических заданий в учебный процесс. Проведен педагогический эксперимент, результаты которого показали эффективность предложенной методики. В ходе исследования также было выявлено, что поэтапное усложнение заданий и индивидуальный подход способствуют улучшению графических навыков студентов.*

***Ключевые слова:** графическая компетентность, технологическое образование, графические редакторы, обучение, визуализация, профессиональная подготовка, педагогический эксперимент.*

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METHODOLOGY FOR IMPROVING PROFESSIONAL GRAPHIC COMPETENCE OF FUTURE TEACHERS OF TECHNOLOGICAL EDUCATION

***Abstract:** The article discusses a methodology for improving the professional graphic competence of future teachers of technological education. Key aspects of the methodology are described, such as the use of modern graphic editors, the development of skills in visualizing technical solutions and the integration of graphic tasks into the educational process. A pedagogical experiment was conducted, the results of which showed the effectiveness of the proposed methodology. The study also revealed that the gradual complication of tasks and an individual approach contribute to the improvement of students' graphic skills.*

***Keywords:** graphic competence, technological education, graphic editors, training, visualization, professional training, pedagogical experiment.*

Введение

Подготовка будущих учителей технологического образования требует не только освоения теоретических знаний, но и формирования практических навыков, в частности графической компетентности. Современные образовательные стандарты предусматривают, что учителя должны уметь работать с различными графическими инструментами, программами для создания чертежей и моделей, а также использовать визуализацию для объяснения сложных технических понятий. Это особенно актуально в условиях внедрения цифровых технологий в образование, где учителя выступают не только в роли преподавателей, но и разработчиков учебных материалов, создаваемых с применением компьютерных графических средств.

Однако практика показывает, что многие студенты педагогических вузов сталкиваются с трудностями при освоении этих навыков, что связано с недостаточной практической подготовкой и ограниченным использованием современных графических программ в учебном процессе. Следовательно, возникает необходимость в разработке и внедрении эффективных методик, направленных на повышение уровня графической подготовки будущих учителей технологического образования.

Целью данной статьи является анализ подходов к формированию профессиональной графической компетентности у студентов педагогических вузов, а также предложить методику, направленную на поэтапное развитие графических навыков с применением современных цифровых технологий.

Методы

Для достижения поставленной цели исследования использовались следующие методы:

1. **Анализ литературы.** Был проведен анализ научных публикаций, посвященных вопросам графической подготовки педагогов и использования информационных технологий в обучении.

2. **Анкетирование студентов.** С целью выявления уровня их графической подготовки и потребностей в обучении был разработан и проведен опрос среди студентов педагогических вузов.

3. **Педагогический эксперимент.** В рамках курса по технологическому образованию был реализован педагогический эксперимент, целью которого было определить эффективность предложенной методики.

4. **Метод наблюдения и анализа учебных продуктов.** Для оценки успешности обучения графическим навыкам проводилось наблюдение за выполнением практических заданий и анализ созданных студентами графических работ.

Результаты В ходе исследования была разработана и апробирована методика повышения профессиональной графической компетентности

будущих учителей технологического образования. В результате анализа литературы и практических данных были выделены основные компоненты успешного обучения графическим навыкам:

1. **Использование современных графических программ.** Студенты, участвовавшие в эксперименте, осваивали работу с AutoCAD, CorelDRAW и SketchUp. Эти программы оказались наиболее эффективными для создания учебных материалов, технических чертежей и трёхмерных моделей. По результатам тестирования, 85% студентов отметили значительное улучшение в умении пользоваться графическими инструментами после обучения по предложенной методике.

2. **Поэтапное усложнение заданий.** Введение системы, при которой задания постепенно усложнялись, позволило студентам развить навыки работы с графическими редакторами, начиная с простых схем и чертежей до создания сложных 3D-моделей. Анализ учебных продуктов показал, что 78% студентов продемонстрировали качественное выполнение графических заданий к концу эксперимента, что на 40% выше по сравнению с их начальным уровнем подготовки.

3. **Развитие навыков визуализации.** Важным результатом эксперимента стало повышение способности студентов визуализировать технические решения. 90% участников улучшили своё умение превращать абстрактные концепции в понятные графические изображения, что подтвердилось положительными отзывами студентов и качественными итоговыми работами.

4. **Интеграция графических заданий в общий учебный процесс.** Введение графических заданий в проектные и исследовательские работы позволило студентам видеть практическое применение графических инструментов в профессиональной деятельности. 82% студентов отметили, что выполнение графических проектов помогло им лучше понять учебный материал и применить его в будущей профессиональной деятельности.

5. **Положительное восприятие методики.** По результатам анкетирования, 88% студентов оценили предложенную методику как полезную и практичную, отметив, что она помогла им развить необходимые для будущей профессии навыки.

Таким образом, результаты эксперимента подтвердили эффективность предложенной методики. Было достигнуто значительное повышение уровня графической компетентности студентов, что позволило им лучше подготовиться к будущей профессиональной деятельности в сфере технологического образования.

Обсуждение Результаты эксперимента подтвердили важность систематического подхода к формированию профессиональной графической компетентности у будущих учителей технологического образования. Студенты, прошедшие обучение по предложенной методике,

продемонстрировали более высокий уровень владения графическими инструментами и умение применять их в учебных ситуациях.

Основными факторами, способствующими успешному обучению, стали:

- интеграция теоретических знаний и практических навыков;
- использование современного программного обеспечения для графической работы;
- индивидуальный подход к каждому студенту с учетом его начального уровня подготовки.

Тем не менее, стоит отметить, что успешность обучения во многом зависит от мотивации студентов и их готовности к самостоятельному изучению новых программ и технологий. Важно также предусмотреть возможности для дальнейшего профессионального развития учителей в этой области после окончания вуза.

Заключение

Исследование показало, что повышение профессиональной графической компетентности будущих учителей технологического образования требует системного и поэтапного подхода. Разработанная методика, основанная на использовании современных графических программ, поэтапном усложнении заданий и интеграции графических задач в общий учебный процесс, оказалась эффективной для развития графических навыков у студентов.

Результаты педагогического эксперимента показали, что значительное улучшение графической подготовки студентов способствует не только их уверенности в работе с графическими материалами, но и повышает общий уровень профессиональной компетентности. Студенты отметили, что выполнение графических проектов и визуализация технических решений помогли им глубже понять технологические процессы и подготовиться к будущей профессиональной деятельности.

Важным аспектом успешного обучения стало поэтапное усложнение заданий, которое позволило студентам постепенно развивать навыки, начиная с простых задач и переходя к более сложным проектам. Этот подход способствовал повышению мотивации студентов и уверенности в своих силах.

Методика также показала, что интеграция графических задач в проектную деятельность способствует лучшему пониманию учебного материала и его практическому применению. В связи с этим дальнейшая работа должна быть направлена на расширение применения графических технологий в учебном процессе и внедрение новых методов и инструментов для их освоения.

Таким образом, предложенная методика может стать основой для дальнейших разработок в области подготовки учителей технологического

образования, а также способствовать повышению качества преподавания в этой сфере.

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ОИЛАВИЙ БОЛАЛАР УЙЛАРИ ТАРБИЯЛАНУВЧИЛАРИНИ ОИЛАВИЙ ҲАЁТГА ТАЙЁРЛАШ - ДОЛЗАРБ ПЭДАГОГИК- ПСИХОЛОГИК МУАММО СИФАТИДА

Аннотатсия: Ушбу мақолада хорижий давлатлар олимларининг мэхрибонлик уйи ҳақида фикрлари, мэхрибонлик уйи тарбияланувчиларининг ижтимоийлашув жараёнлари, оилавий мэхрибонлик уйларини ташкил этилиши, болалар салбий ижтимоий ходисаларни юзага келтириши сабаблари, ота-оналар, миллий гвардия фаолияти, Вазирлар маҳкамаси қарорлари ва фармойишлари жамланган.

Калит сўзлар: Мэхрибонлик уйи, оила типидagi мэхрибонлик уйи, мэхр-мэрувват, ҳайр-саховат, инсонпарварлик.

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PREPARING CHILDREN FROM FAMILY CHILDREN'S HOMES FOR FAMILY LIFE - AS A TOPICAL PEDAGOGICAL AND PSYCHOLOGICAL PROBLEM

Abstract: This article summarizes the opinions of scientists from foreign countries about orphanages, the processes of socialization of children from orphanages, the organization of family children's homes, the reasons for the creation of negative social phenomena by children, the activities of parents, the National Guard, decisions and orders of the Cabinet of Ministers.

Keywords: House of kindness, kind family-type home, kindness, generosity, humanism.

Бугунги куннинг талаби ҳамда долзарб вазифаларидан бири бу етим ва қаровчисини юқотган болалар соғлигини, маънавий ахлоқий жихатдан нормал ривожланишини ижтимоий химоя қилишдан иборатдир. Олиб борилган илмий тадқиқотлар давомида тарбияланувчилар шахсий хужжатларидан шу нарса кўзга ташланадики.

65 фоиз миқдордаги болаларда сомантик ва рухий касалликлар борлиги кўрсатиб ўтилган. Организмнинг функционал чэкиниши 1-3

синфларда 10 фоизгача, ИВ-ВИИИ синфларда 30 фоиз, ИХ-ХИ синфларда 70 фоизгача бўлган сурункали касалликлар билан касалланган болалар учрайди. Юқоридаги 3 гуруҳдаги тарбияланувчиларни оилада тарбияланаётган болалар билан солиштириб корилганда бундай касалликка чалинган болалар нисбати 10 фоизни ташкил этади. бу хам бўлса. асосан организмнинг функционал бузилиши каби касалликлардан иборатдир. Республикамиз мустақилликни қолга киритгандан сўнг, инсон шахсига бўлган муносабат кэскин ўзгарди. Жамиятимиз аъзоси бўлган хар бир шахс тақдирига алоҳида эътибор бэрилмоқда. Айниқса. маълум бир сабаларга кўра, ўз ота-онасидан, яқин кишилари мэхридан махрум бўлган етим ва қаровсиз болаларга таълим ва тарбия бэриш. Пэдагогика ва психология, хамда ижтимоий психология фанларининг энг долзарб муаммоларидан бири эканлиги шубҳасиздир. Зотан. кэлажаги буюк давлатни бунёд қилиш учун хар қандай давлатнинг асосий бўгини бўлмиш оилаларнинг мустақамлигини. унинг жамият олдидаги асосий функтсияларидан бири бўлмиш тарбиявий функтсиясини тўла-тўқис бажаришга, унда дунёга кэлаётган болаларинг тўлиқ оилаларда. ота-она мэхрига эмин-эркин қониб жамиятнинг етук фуқароси сифатида шаклланиб улгайишга шароит яратиш лозим бўлади. Бунинг учун, энг аввало, болалар уйларида тарбияланувчилар сонини кэскин камайтириш. уларни мэхрибонлик уйларида эмас. балки ўз ота-оналари кучогида, ўз яқинлари атрофида улгайишини таъминлаш мустақил республикамизнинг истикболини ва маънавиятини таъминловчи асосий омиллардан хисобланади.

Шу боисдан бир қатор чэт эллик, ҳамдустлик давлатлари хамда Ўзбэкистон олимлари томонидан ушбу муаммо юзасидан бир қатор илмий тадқиқот ишлари ўтказилган. Хусусан. П. Андрэсян, А. Виноградова, П. Ким, А. Лобанов, Э. Сэмэнова, С. О. Турсунов, И. О. Хайдаров каби тадқиқотчилар ишларида етим ва қаровсиз болалар билан ишлаш. Уларнинг ўзига хос хусусиятларини аниқлаш ва уларни оилавий хаётга тайёрлаш. жамиятнинг тула қонли аъзоси сифатида тарбиялаш каби қатор масалалар кўриб чиқилган.

Бугунги куннинг талаби хамда долзарб вазифаларидан бири бу етим ва қаровчисини йўқотган болалар соғлигини, маънавий ахлоқий жихатдан нормал ривожланишини ижтимоий химоя қилишдан иборатдир. Олиб борилган илмий тадқиқотлар давомида тарбияланувчилар шахсий хужжатларидан шу нарса козга ташланадики.

65 фоиз миқдордаги болаларда сомантик ва рухий касалликлар борлиги корсатиб ўтилган. Организмнинг функционал чэкиниши 1-3 синфларда 10 фоизгача, ИВ-ВИИИ синфларда 30 фоиз, ИХ-ХИ синфларда 70 фоизгача бўлган сурункали касалликлар билан касалланган болалар учрайди. Юқоридаги 3 гуруҳдаги тарбияланувчиларни оилада тарбияланаётган болалар билан солиштириб корилганда бундай касалликка

чалинган болалар нисбати 10 фоизни ташкил этади. бу хам бўлса. асосан организмнинг функционал бузилиши каби касалликлардан иборатдир.

Мэхрибонлик уйларида таълим-тарбия ишларини олиб бориш давлат ҳамиятига эга бўлган долзарб масаладир. Ўзбекистон Республикаси Конституциясининг 39- моддасида шундай дэйилган: «Ҳар ким қариганда, мэхнат лаёқатини юқотганда, шунингдэк, боқувчисидан махрум болганда ва қонунда назарда тутилган бошқа ҳолларда ижтимоий таъминот олиш ҳуқуқига эга». Ўзбекистон Республикаси Конституциясининг 64-моддасида Юқоридаги қонунлар фикр юритишни янада ойдинлаштирилади. «Давлат ва жамият етим болаларни ва ота- оналарининг васийлигидан махрум бўлган болаларни боқиб, тарбиялаш ва оқитишни таъминлайди, болаларга бағишланган хайрия фаолиятларни рағбатлантиради» дэйилган.[4]

Дунё тажрибасини ўрганган ҳолда Ўзбекистон раҳбарияти Мэхрибонлик уйларида мавжуд ҳолатни ўрганиб чиқиб тубдан ислоҳ қилиш топшириги юклатилди.

Ўзбекистон Республикаси Президэнтининг 09.08.2021 йилдаги ПҚ-5215-сонли қарори. Эслатиб ўтамиз, куйида қайд этилган малумотлар президэнт Шавкат Мирзиёевнинг Тошкэнтдаги 21-сонли Мэхрибонлик уйига ташрифи ва ундан кэйин ўтказилган видеосэлэктор йигилишида таклиф этилган масалар.

Миллий гвардия мэхрибонлик уйларидаги болаларни оилага қайтаришга кўмаклаш топшириги бэлгилаб бэрилди. Миллий гвардия президэнт қарори билан ўзига бириктирилган Мэхрибонлик уйларидаги болаларни ота-оналарига қайтариш, васий тайинлаш ва фарзандликка олишга кўмаклашади. Ўқув-тарбия муассасаларида тарбияланувчиларнинг муаммоларини ўрганиш ва ҳал этиш учун «Мэхр дафтари» тизими жорий қилинади.

Президэнт 2021-йил 9 август куни «Етим болалар ва ота-она қарамогидан махрум бўлган болаларни тарбиялашнинг тубдан янгиланган тизимини жорий этиш чора-тадбирлари тўғрисидаги қарорни имзолаган эди. Шунга кўра,

«Мэхрибонлик» уйлари (16 та, 1 541 нафар бола), Болалар шаҳарчалари (4 та, 236 нафар бола), оилавий болалар уйлари (5 та, 46 нафар бола) ва Соғлиқни сақлаш вазирлиги тизимининг Болалар уйларини (13 та, 506 нафар бола) Миллий гвардияга бириктирилади. Бундан ташқари, ҳуқуқни муҳофаза қилувчи орган «СОС — Ўзбекистон болалар маҳаллалари» уюшмасининг болалар маҳаллалари билан ҳамкорлик ўрнатади.

Ушбу чора-тадбирлар етим болалар ва ота-она қарамоғидан махрум бўлган болаларни тарбиялашнинг тубдан янгиланган тизимини жорий этиш, уларнинг баркамол авлод сифатида шаклланиши ҳамда ижтимоий мослашувини таъминлаш учун зарур шарт-шароитлар яратиш мақсадида қабул қилинмоқда.

Миллий гвардияга қуйидаги қўшимча вазифалар юклатилган:

1. Ўқув-тарбия муассасаларининг тарбияланувчиларини ота-онаси ёки уларнинг ўрнини босувчи шахсларга қайтариш, васий ёки ҳомий тайинлаш, фарзандликка бэриш ва жойлаштиришнинг бошқа шаклларини қўллаш чораларини кўриш;

2. Етим болалар ва ота-она қарамогидан маҳрум бўлган болаларни моддий, ҳуқуқий ва психологик-педогогик қўллаб-қувватлаш;

3. Ўқув-тарбия муассасаларида сифатли талим ва тарбия жараёнини йўлга қўйишга, уларнинг маиший шарт-шароитлари яхшиланишига, шунингдек, тарбияланувчиларнинг бўш вақтини мазмунли ташкил этиш ҳамда уларнинг интэллектуал, жисмоний ва ижодий қобилиятларини ривожлантиришга кўмаклашиш;

4. Етим болалар ва ота-она қарамоғидан маҳрум бўлган болалар учун манавий-марифий ва маданий тадбирларни ташкил этиш;

5. Замонавий усул ва шакллардан фойдаланган ҳолда жисмонан соғлом, манавий етук ва дунёқараши кэнг ёшларни шакллантириш, етим болалар ва ота-она қарамоғидан маҳрум бўлган болаларни спорт турларига қизиқтириш ва жалб этиш.

Миллий гвардия таркибида тарбия муассасалари фаолиятини ташкил этишга масул бўлган Миллий гвардия қўмондонининг ўринбосари лавозими ва Жамоат хавфсизлиги унивэрситэтида ёшлар билан ижтимоий ишлаш кафэдраси ташкил этилди.

Оилавий болалар уйлари ва Болалар уйларига ҳамда васийликка, ҳомийликка ёки оилага тарбияга олинган (патронат) 25 ёшга тўлмаган етим болаларга Миллий гвардиянинг ҳарбий хизматчи ва ходимлари бириктирилади. Бириктирилган ҳарбий хизматчи ва ходимлар васийлик ва ҳомийлик органлари билан ҳамкорликда бир ойда камида бир маротаба етим болалар ва ота-она қарамоғидан маҳрум бўлган болалар билан суҳбатлар ўтказиш асосида уларнинг талим-тарбия олиш аҳволини ва маиший шарт-шароитларини ўрганади.

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РАЗВИТИЕ ИННОВАЦИИ В СЕЛЬСКОМ ХОЗЯЙСТВЕ

Аннотация. В данной статье говорится о внедрении и использовании инноваций в сельском хозяйстве сегодня.

Ключевые слова. Сельское хозяйство, растениеводство, производство, орошаемые земли, питание, агротехника.

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DEVELOPMENT OF INNOVATION IN AGRICULTURE

Abstract. This article talks about the introduction and use of innovations in agriculture today.

Keywords. Agriculture, crop production, production, irrigated lands, nutrition, agricultural engineering.

Разработка и применение агротехнических мероприятий с учетом биологических особенностей сортов является одним из основных условий получения высокого и качественного урожая сельскохозяйственных культур при возделывании сельскохозяйственных культур. В частности, на развитие корней, прорастание и последующие фазы развития влияют правильное размещение сортов пшеницы, оптимальные сроки посадки, нормы посадки, а также подкормка фосфорными и калийными удобрениями перед посадкой. Сегодня большое внимание уделяется выращиванию зерна на орошаемых землях нашей республики. Если посадить на орошаемых землях высокоурожайные сорта пшеницы и ухаживать за ними согласно агротехнике, урожайность можно повысить до 70-80 ц/. Одним из таких важных мероприятий является подкормка растений приемлемыми стандартами и методами. Внекорневая подкормка является одним из агротехнологических мероприятий по удовлетворению потребности озимой пшеницы в азоте и других питательных веществах. Поэтому в последние годы расширяется применение минеральных удобрений в виде суспензий. По данным литературы, подкормка растений таким способом имеет ряд преимуществ. В частности, в листьях растений увеличивается количество зерен хлорофилла, что положительно влияет на их рост и развитие. В течение вегетационного периода зерновые культуры требуют небольшого

количества микроэлементов, а большое количество макроэлементов обеспечивает рост и не накапливает вредные вещества в органах растений.

В настоящее время инновации и инновационная деятельность являются основой обеспечения конкурентного преимущества, а также повышения эффективности развития производства и сохранения рыночных позиций. По выводам ряда международных экспертов, около трети экономического роста обеспечивается за счет инновационных технологий.

В настоящее время сельское хозяйство борется с нехваткой или чрезмерным использованием минеральных удобрений и средств защиты растений, утратой биоразнообразия, засухой, опустыниванием и изменением климата, сталкиваясь со многими сопутствующими проблемами. По подсчетам специалистов, 33% урожая теряется при посадке, выращивании, хранении и транспортировке.

В последние годы принимаются системные меры по цифровизации экономики, постепенно внедряется система электронного документооборота в государственных органах и организациях, развиваются сферы электронных платежей и электронной коммерции, совершенствуется их нормативно-правовая база.

Мировой опыт экономически развитых стран показывает, что эффективность инновационной деятельности и уровень вовлеченности товаропроизводителей в инновационный процесс во многом определяют успех выхода на мировой аграрный рынок и конкурентоспособность сельхозпроизводителей. В мире разработано множество различных систем показателей и индексов, позволяющих оценить уровень инновационного развития разных стран и регионов. Например, для оценки уровня инновационного развития 14 стран мира на основе рейтинга Global Innovation, включающего 80 различных переменных, детально описывающих соотношение между затратами на инновации и полученным от них результатом, был разработан сотрудниками международной бизнес-школы INSEAD во Франции методика расчета индекса (The Global Innovation index). В 2022 году сфера этих исследований охватила 131 страну мира. В первую десятку этого рейтинга вошли: Швейцария (64,6), США (61,8), Швеция (61,6), Великобритания (59,7), Нидерланды (58,0), Корея (57,8), Сингапур (57,3), Германия (57,2), Финляндия (56,9), Дания (55,9), РФ в этом рейтинге 47 место, Узбекистан 82 место, Казахстан 83 место, Таджикистан занял 104 место. Анализ показывает необходимость реализации мер по скорейшему внедрению современных инновационных технологий во все отрасли нашего народного хозяйства, социальную и другие отрасли, с широким использованием научно-технических достижений в нашей стране. В результате интеграции Узбекистана в сообщество технологически развитых стран мира и выбора им пути инновационного развития стартовало участие в рейтинге Global Innovation Index, составляемом международными организациями, оценивающими

инновационные технологии. Ведущая аграрная экономика мира соответствует шестому технологическому укладу, ее развитие связано с результатами трансфера инноваций в области нано- и биотехнологий, альтернативной энергетики и новых информационных технологий. Большинство сельхозпроизводителей Узбекистана демонстрируют уровень производства по третьему или четвертому технологическому укладу. Это предъявляет возрастающие требования к модернизации и развитию отечественного АПК, внедрению и использованию инноваций в этой сфере, что делает его одним из основных принципов стратегического развития.

При эффективном развитии сельского хозяйства АПК усложняет управление инновационной деятельностью и ограничивает ее под воздействием ряда факторов. Среди них неопределенность экономической ситуации, жесткая конкуренция, инфляционные процессы, снижение спроса, диспропорция цен, недостаточные инвестиции в основные фонды предприятий, необходимость замещения импорта. Анализ текущей ситуации позволяет сделать вывод, что сельхозпроизводители Узбекистана реализуют отдельные инновационные проекты, но распространенность инноваций в целом не находится на том уровне, который необходим агропромышленному комплексу. Это создает необходимость повышения значения и вклада сельского хозяйства в инновационное развитие экономики Узбекистана. В рамках государственных программ научной деятельности на 2020-2022 годы общие расходы на высшие учебные и научные учреждения составляют 201,1 млрд.долл. Реализуется 137 сумов (в том числе 110 прикладных (148,3 млрд сумов), 10 инновационных (10,5 млрд сумов), 7 фундаментальных (26,9 млрд сумов) и 10 международных совместных проектов (15,4 млрд сумов).

Повышение инновационной активности и переход к инновационному типу развития определены в Стратегии инновационного развития Республики Узбекистан на 2019-2021 годы и в Стратегии инновационного развития на период до 2022 года, конечной целью которых является доминирующая роль знаний. в экономическом росте заключается в обеспечении. Однако, несмотря на множество реализуемых программ (принята Концепция развития сельского хозяйства на 2020-2030 годы, Закон «О науке и научной деятельности»), инновационная деятельность АПК имеет имеющиеся возможности и потенциал, созданные условия и преимущества. используются недостаточно, что во многом связано с эффективным созданием организационно-экономического механизма внедрения инноваций. Местные сельскохозяйственные предприятия отстают от своих аналогов в развитых странах по производительности, что обусловлено наличием менее развитых технических, технологических, научных кадров и управленческого потенциала. Состояние большинства из них находится на грани сохранения равновесия, позволяющего простое воспроизводство.

В заключение следует отметить, что одной из наиболее актуальных задач в современной действительности является создание условий для повышения инновационной активности агропромышленных предприятий аграрной экономики Узбекистана. Усилия и взаимное сотрудничество государственных органов для эффективного инновационного развития отечественного сельскохозяйственного производства (создание благоприятных экономических условий и прямая поддержка инноваций), развития науки, передовых технологий, образования (подготовка и переподготовка специальных кадров) и инвестиций в инновационный бизнес. Для перехода на инновационный путь развития АПК необходимо усовершенствовать нормативную базу инноваций, технического и технологического перевооружения сельскохозяйственных предприятий, разработать более совершенный механизм стимулирования инновационной деятельности, а для оказания соответствующей поддержки развитию сельского хозяйства необходимо использовать механизмы поддержки, развивать инфраструктуру, создать систему информационно-консультационного обеспечения производителей товаров, готовить и переподготавливать высококвалифицированные кадры, повышать эффективность научных исследований, углублять и расширить интеграцию сельскохозяйственной науки и производства. Повышение инновационной активности приводит к экономическому росту, развитию агропромышленного комплекса Узбекистана, повышению конкурентоспособности производителей товаров, развитию местного сельского хозяйства, производству высококачественной пищевой продукции, повышению экономического потенциала отрасли и ее конкурентоспособности в зарубежные рынки.

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ПЕДАГОГИК КАДРЛАРНИ КАСБИГА ҚЎЙИЛАДИГАН ЗАМОНАВИЙ ТАЛАБЛАР

***Аннотация:** Мақола ўқувчиларнинг билим ва амалий фаолият усулларини ҳар томонлама ривожлантиришига, уларнинг касбий-педагогик фаолиятнинг асосий йўналишларида муваффақиятли фаолият юритишини таъминлашга қаратилган компетенцияга асосланган ёндашув асосида касб-ҳунар таълимини ташкил этиш ва ривожлантириш концепциясига бағишланган.*

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MODERN REQUIREMENTS FOR THE PROFESSION OF PEDAGOGICAL PERSONNEL

***Abstract.** The article is devoted to the concept of organization and development of vocational training on the basis of a competency-based approach aimed at the comprehensive development of students' methods of knowledge and practical activities, ensuring their successful functioning in the main areas of professional and pedagogical activity.*

***Keywords:** information technology, personality, embodiment, quality.*

Замонавий педагог кадрларнинг маънавий-ахлоқий қиёфаси асосан уларнинг билим даражаси, дунёқараши ва тафаккур доирасининг кенглиги асосида шаклланади. Маънавий - ахлоқий сифат инсон шахсини асосан рухий-маънавий - ахлоқий жиҳатларини ўз ичига олади. Маънавий баркамол инсон комиллик сифатларини ўзида мужассамлаштиради лозим. Булар асосан эзгу фаолият, эзгу ният ва инсонпарварлик сифатларини қамраб олади [1]. Ҳар бир жамиятнинг келажаги унинг ажралмас қисми ва ҳаётий зарурати бўлган таълим тизимининг қай даражада ривожланганлиги билан белгиланади. Бугунги кунда мустақил тараққиёт йўлидан бораётган

мамлакатимизнинг узлуксиз таълим тизимини ислох қилиш ва такомиллаштириш, янги сифат босқичига кўтариш, унга илғор педагогик ва ахборот технологияларни жорий қилиш ҳамда таълим самарадорлигини ошириш давлат сиёсати даражасига кўтарилди [1].

Таълим тўғрисидаги Қонуннинг қабул қилиши билан узлуксиз таълим орқали замонавий кадрлар тайёрлашнинг асоси яратилди. Ҳозирги кун талабидан келиб чиққан ҳолда ўқитувчи шахсига қўйиладиган талаблар қуйидагилардан иборат [2]:

- инсонпарвар, ўқувчиларни севиши, уларга бирдек муносабатда бўлиши фарзандини эъзозлагандан эъзозлаши, фақат яхши нарсаларни раво кўриши;

- улғайиб келаётган ёш авлодни ҳар томонлама тушуниш, уларга бу борада амалий ёрдам бериш;

- ҳар бир талабани психологик хусусиятларини инobatга олиш уларнинг ёш хусусиятларини ҳисобга олиш (айниқса касб-ҳунар коллеж ўқувчиларни турли ёшда бўлишлари) ;

- ақлий, жисмоний, маънавий, рухий, эстетик жиҳатдан ёшларни фарқлайолиш;

- таълим - тарбия жараёнида ўқитувчи адолатли ва холисона ёндошиши;

- маънавий - ахлоқий сифатларда шахсий намуна кўрсатиш;

- ўқувчи ёшларнинг касб танлашларида амалий ёрдам ва маслаҳатлар бериш;

- жонқуяр, ташаббускор, ўз касбининг устаси ва фидойи бўлиши;

- ёшларнинг касбий - малака кўникмаларини тўғри шакллантириш, касбига бўлган эътиборини янада ошириш;

- таълим жараёнида замонавий ахборот технологияларни қўллай билиш;

- иқтидорли талабаларни замон талабига жавоб берувчи технологияларни яратишга қизиқтириш;

- келажакда мамлакатимизни ҳар томонлама ривожланишига талабаларни жалб этиш.

Юқорида кўрсатиб ўтилган талаблар билан чекланиб қолмасдан ҳар бир педагог - ўқитувчи ўз касбини севувчи жонқуяри, изланувчанлиги асосида иш олиб бориш муҳим ҳисобланади. Замонавий билимлар сари кенг йўл очиш, таълимни такомиллаштиришда инновацион технологиялардан унумли фойдаланиш бугунги куннинг энг асосий талабларидан биридир.

Республикамизда узлуксиз таълим тизимини ислох қилишни Давлат таълим стандартлари асосида таълим ва тарбия жараёнини ташкил этишга қаратилган ҳозирги кунда ўқитувчи фаолиятига, унинг педагогик маҳоратига алоҳида эътибор берилмоқда. Таълим жараёнида фаолият кўрсатаётган ўқитувчиларнинг педагогик фикрлашида ўрин ола бошлаган

инновацион технологияни дарс жараёнида қўллашга оид тавсиялар ўқитувчилар учун жуда зарур. Ўқитишда фойдаланиб келинаётган интерфаол методлар талабалар ўртасида рақобат муҳитини вужудга келтириб, талабалар ва ўқувчиларга ҳаракатчанликка бошлаб руҳлантиради натижада талабалар ҳамкорликка ўргана бошлайди. Ҳар қандай интерфаол метод тўғри ва мақсадли қўлланилганда талабаларни мустақил фикрлашга ўргатади [3].

Инновацион фаолият таълим тизимининг рационал йўллари ишлаб чиқарувчи жараён бўлиб, унда ўқитувчи асосий маъсул шахс ҳисобланади. Чунки унинг асосий вазифаси ахборотни талабалар ва ўқувчиларга тез, аниқ ва тушунарли тарзда етказиб беришидан иборатдир. Талабалар ва ўқувчиларни янгиликларни қабул қилишлари, ва бунга мойилликлари ҳамда феъл-атвори ҳар-хил бўлишига қарамай ўқитувчи талабалар ва ўқувчиларни мустақил фикрлаш, мушоҳада қилиш, хулоса чиқаришга ўргатиши лозим. Бунда талаба ва ўқувчиларни асосий ҳаракатланувчи куч бўлиб, ўқиш, мутоала қилиш, чизма чизиш, проекцияларни, формулаларни тушуниб, асбобларни ишлата олиши, бир - бирлари билан дўстона муносабатда бўлиб олдиларига қўйилган муаммоларни ечишда бир бирларига ёрдам бериш уларнинг асосий вазифалари ҳисобланади.

Таълим тизимида содир бўлаётган ўзгариш ва янгиланишлар ўқувчиларга янги билим, кўникма ва малакаларини бериш билан бир қаторда, ёшларимизни ўзига ва бошқа инсонларга, жамиятга, давлатга, табиатга нисбатан ўзгаришини, ватанпарварлик ғояларини онгига ва қалбига сингдиришини ҳам кўзда тутати.

Кадрлар тайёрлаш миллий дастури рақобатбардош кадрлар тайёрловчи педагогга қўйиладиган замон талаблари мажмуини белгилайди, бир бирига боғлиқ бўлган талабларнинг мажмуи, педагогнинг умумлаштирилган моделини ва унга асосан қуйидаги асосий талабларни ифодалайди [3]:

- таълим бериш маҳорати;
- тарбиялай олиш маҳорати;
- ўқув тарбия жараёнида инсон омилини таъминловчи шахсий фазилатлари;

- таълим оловчиларнинг билимларини холисона баҳолай олиш ва назорат қила олиш маҳорати;

Демак, ўқитувчи - педагог ўз олдига қўйилган мураккаб, маъсулиятли ва долзарб вазифаларни бажариш учун ҳамда таълим-тарбия жараёнига бўлган янгича қарашларни шакллантириши учун қуйидаги хислатларга эга бўлиши керак;

- замонавий, илмий ва маданий тараққиётнинг моҳиятини чуқур тушуна билиши;

- дунё ва инсон ҳақидаги билимлар тизимини чуқур ва кенг нуқтаи назарда англаши;

- ахборот таълим технологияларини ва ўқитиш воситаларини таълим беришда татбиқ этиши;

- интернет тармоғи тўғрисида тушунчага эга бўлиши ва ундан ўз билимини оширишда фойдалана олиши;

- педагогик меҳнатининг самарадорлигини таҳлил этиш йўллари билиши ва ўзига ўзи баҳо бера олиши;

- оилавий таълим тарбия муаммолари бўйича тассавурларини ривожлантириши;

- умуминсоний ҳамда миллий маданият ва қадриятлар;

- миллий ғоя ва миллий мафкура иқтисодий ислоҳатлар моҳиятини тушуниб олиши;

- дарс жараёнида инновацион технологиялардан унумли фойдаланиш йўллари билиши;

- ўқувчиларнинг фикрлашлари ва бир-бирлари билан фикр алмашишлари ҳамда дўстона муҳит яратиш учун шароит яратиши;

- дарснинг самарадорлигини ошириш учун лаборатория жиҳозларидан фойдаланиш ва машғулотлар ўтказишни ўзлаштириб олган бўлиши;

- талабаларнинг баркамол инсон бўлиб етишишида ўзининг изланишлари, ижодкорлиги, ташаббускорлиги ҳамда бетиним меҳнатлари орқали таълим-тарбия бериш кабилардир [3].

Юқорида келтирилган талабларни амалга ошириш учун ҳар бир ўқитувчи янгича фикрлаш тафаккурини ўстириши, инновацион технологияларни мустақил ўрганиши, унинг мақсад ва вазифалари нималардан иборат эканлини чуқур билиши замонавий таълим тизимининг долзарб вазифасидир.

Комил инсон ва етук малакали мутахассис махсус ташкил этилган педагогик фаолият жараёнида тарбияланар экан, ушбу жараёнда ўқитувчиларнинг ўрни бекиёсдир. Шу боис уларнинг шахсида бир қатор ижобий маънавий ахлоқий сифатлар намоён бўла олиши мақсадга мувоқиқдир.

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**УЛУЧШЕНИЕ ОТБОРА КЕРНА С ПРИМЕНЕНИЕМ
ИННОВАЦИОННЫХ РАЗРАБОТОК НА ПЛОЩАДЯХ АО
«УЗБЕКНЕФТЕГАЗ»**

АННОТАЦИЯ: В работе посвящена разработке нового керноотборного снаряда «КОС» с цилиндрической бурильной головкой типа «МСЗ», которая эффективно используются при бурении скважин на площадях АО «Узбекнефтегаз».

Ключевые слова: керн, инновационная разработка, керноотборный снаряд, бурильная головка, кернорватель, кернодержатель, импортозамещение.

ANNOTATION: This article substantiates the relevance of scientific research conducted by leading scientists, as well as the work devoted to the development of a new coring projectile "KOS" with a cylindrical drill head of the "MSZ" type, which is effectively used when drilling wells in the areas of JSC "Uzbekneftegaz".

При поисковых и разведочных работах имеет большое значение отбор керна из предполагаемых нефтяных и газовых пластов так как кернавый

материал дают объективную информацию о наличии продукта, ёмкостно-фильтрационных свойствах горной породы.

Отбор керн из глубокозалегающих отложений производится специальным инструментом, называемым керноотборным снарядом, который вращается ротором через бурильную колонну.

Исследования, проводимые учеными по созданию инновационных разработок, дающих эффект при отборе керна является актуальной задачей.

В настоящее время разработаны и используются несколько модификаций керноотборных снарядов: «Недра», «Силур», «Кембрий» и другие [1]. На всех керноотборных снарядах керн формируются бурильной головкой или коронкой, оснащенной зубцами из твердого сплава. Ранее керноотборные снаряды и бурильные головки приобретались по импорту, из России, Китая и США.

С целью оказания научно-технической помощи производителям в отборе керна и улучшения его выноса в научном-исследовательском центре АО «ИГИРНИГМ» создано лаборатория по совершенствованию инструментов и технологии отбора керна при бурении скважин.

Изучив состояние отбора керна нами разработан и изготовлен новый тип снаряд, названный КОС (керноотборный снаряд) диаметра 168/80мм с цилиндрической бурильной головкой 187,3/80 мм (рис.1) [2]. Этот снаряд и цилиндрические бурильные головки прошли испытания в реальных условиях на площадях АО «Узбекнефтегаз».

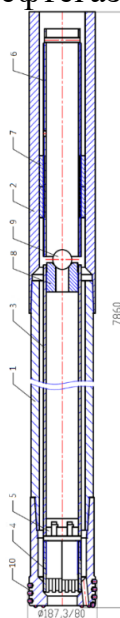


Рис. 1. Керноотборный снаряд (КОС) с цилиндрической бурильной головкой

1-корпус, 2-верхний переводник, 3-керноприемная труба, 4-цанговый держатель, 5-лепестковый рватель, 6-регулировочный винт, 7-регулировочная гайка, 8-гнездо для шара, 9-шар (Ø 50,8 мм), 10-цилиндрическая бурильная головка.

Результаты испытания приведены в таблице.

Разработанные керноотборные снаряды и цилиндрические бурильные головки позволило улучшить вынос керна до 80-100%. Получены авторские свидетельства [3,4]. Применение упомянутых разработок позволило сэкономить значительные валютных средств.

Таблица.

Отбор керна Бухара-Хивинского региона с использованием цилиндрической бурильной головкой типа МСЗ

| № п/п | Название площади | Интервал отбора, м | Диаметр бурголовки, мм | Параметра бурового раствора | | | | | Режим при отборе керна | | | | Выноса керна, % |
|-------|----------------------------|--------------------|------------------------|------------------------------|----------------------|-------------------------------------|-----------|----|------------------------|---------------|-------------|---------------------------|-----------------|
| | | | | Плотность, г/см ³ | Условная вязкость, с | Водоотдача, см ³ /30 мин | Корка, мм | РН | Обороты ротора, об/мин | Давление, МПа | Нагрузка, Т | Производительность, т/час | |
| 1 | Чордарбо за скв. № 3 | 2861-2862 | 158,7 | 1,10 | 50 | 4 | 1 | 10 | 40 | 35 | 3 | 8 | 100 |
| 2 | Андакли скв. № 2 | 2515-2520 | 152 | 1,12 | 35 | 5 | 1 | 9 | 40 | 15 | 2 | 7 | 80 |
| 3 | Жанубий Кулбешкак скв. № 3 | 2602-2606 | 158,7 | 1,12 | 35 | 5 | 1 | 9 | 40 | 15 | 3 | 8 | 100 |
| 4 | Дульгатапа скв. № 2 | 1217-1218 | 158,7 | 1,08 | 78 | 4 | 1 | 9 | 45 | 70 | 3 | 10 | 100 |
| 5 | Сулеймантепа скв. № 1 | 1661-1666 | 158,7 | 1,06 | 60 | 6 | 1 | 9 | 45 | 25 | 2 | 12 | 80 |
| 6 | Шоркум скв. № 2 | 2471-2475 | 152 | 1,12 | 41 | 6 | 1 | 9 | 50 | 20 | 3 | 12 | 87,5 |
| 7 | Сулеймантепа скв. № 1 | 1772-1777 | 158,7 | 1,06 | 60 | 6 | 1 | 9 | 45 | 25 | 2,5 | 16 | 90 |
| 8 | Тумарис скв. № 6 | 2060-2065 | 139,7 | 1,12 | 55 | 6 | 1 | 9 | 50 | 20 | 3 | 16 | 100 |

Таким образом, намеченные пути исследований по совершенствованию выноса керна при их отборе позволили изучить и выявить особенности работы бурголовки различных типов, тем самым позволило разработать обоснованные рекомендации по совершенствованию конструкции цилиндрических бурильных головок, которые будут работать эффективно при бурении мягких и средних горных пород.

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УСПЕХИ ВНЕШНЕЭКОНОМИЧЕСКОЙ ПОЛИТИКИ РЕСПУБЛИКИ СИНГАПУР

Аннотация. Приведена информация об успехах внешнеэкономической политики Республики Сингапур.

Ключевые слова: внешнеэкономическая политика, стратегия, Сингапур, развитие, торговля, инновации, инвестиции, проблемы, решения.

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SUCCESSSES OF FOREIGN ECONOMIC POLICY THE REPUBLIC OF SINGAPORE

Abstract. Information is provided on the success of the foreign economic policy of the Republic of Singapore.

Keywords: foreign economic policy, strategy, Singapore, development, trade, innovation, investment, problems, solutions.

Открытость и диверсификация внешнеэкономической деятельности придали силу экономике и подняла рейтинг Сингапура в мировой экономике. Выбранная экономическая политика способствовала переходу страны от традиционной торговли к торговле услугами с высокой добавленной стоимостью. Два основных фактора развития позволили стране получить необходимые ресурсы и внешние рынки. Торговля началась с соседними странами, такими как Малайзия и Индонезия, в основном сырьем и продукцией легкой промышленности. Постепенно партнерами стали фирмы Китая, Индии, других стран Юго-Восточной Азии. США, Китай и страны Европейского Союза также стали торговыми партнерами. Началось активное привлечение иностранных инвестиции и

транснациональных компаний. В результате ВВП (валовый внутренний продукт) Сингапура с 1980 по 2023 годы вырос более чем в 33 раза (с 22,2 млрд. долл. США до 759,5 млрд. долл. США).

Сегодня торговые отношения между Сингапуром и его основными партнерами являются важной частью экономического развития.

Китай является одним из крупнейших торговых партнеров Сингапура. Экспорт Сингапура в Китай в основном включает электронную продукцию, химическую продукцию, машины и оборудование, тогда как основной экспорт Китая в Сингапур включает электронную продукцию, нефть и химическую продукцию. Кроме торговли сырьевыми товарами, Сингапур также является одним из важных инвестиционных партнеров Китая. Сингапур активно участвует в китайской инициативе «Пояс и путь» и сотрудничает с Азиатским банком инфраструктурных инвестиций Китая и другими учреждениями в целях совместного продвижения региональной экономической интеграции и развития сотрудничества.

Соединенные Штаты являются вторым по величине торговым партнером Сингапура, объемы торговли между странами внушительные. Сингапур экспортирует в США электронную продукцию, химическую продукцию, машины и оборудование и импортирует из США авиационное оборудование, фармацевтическую продукцию, электронную продукцию и т.д. Важным направлением сотрудничества для США является инвестирование в экономику Сингапура.

Малайзия является соседом Сингапура и одним из его важных торговых партнеров. Торговые обмены между двумя странами в основном касаются сырья, сельскохозяйственной продукции, готовой продукции других отраслей. Торговое сотрудничество между Сингапуром и Малайзией не ограничивается торговлей товарами, но также включает двусторонние инвестиции, приграничное сотрудничество и другие области. Подписав двусторонние соглашения и соглашения о сотрудничестве, Сингапур и Малайзия укрепили сотрудничество в области упрощения процедур торговли, таможенного сотрудничества, защиты инвестиций и других аспектов, что еще больше способствует экономическому обмену между двумя странами.

Индонезия является еще одним важным соседом Сингапура. Обе стороны активно сотрудничают в торговле, инвестициях, энергетике, строительстве инфраструктуры и других областях. Сингапур является одним из крупнейших источников иностранных инвестиций в Индонезию. Инвестиции Сингапура принесли в Индонезию капитал, технологии и управленческий опыт, способствуя экономическому развитию Индонезии.

Филиппины, Вьетнам, Таиланд и другие соседние страны также поддерживают тесное экономическое сотрудничество с Сингапуром. Обе стороны имеют обширное сотрудничество в торговле, инвестициях, туризме, образовании и других областях. Благодаря сотрудничеству с

соседними странами Сингапур способствовал региональной экономической интеграции и общему развитию.

Европейский Союз (ЕС) является одним из важных торговых партнеров Сингапура, торговые обмены между ними становятся все более частыми. Экспорт Сингапура в ЕС в основном включает электронную продукцию, химическую продукцию, машины и оборудование и т. д., тогда как ЕС экспортирует в Сингапур автомобили, фармацевтическую продукцию, машины и оборудование и т. д. Помимо торговли сырьевыми товарами, Сингапур и ЕС также имеют обширное инвестиционное сотрудничество, включая сотрудничество в финансовой, технологической, энергетической и других сферах.

Анализ внешнеторгового оборота Сингапура показывает очень высокий рост объемов экспорта. За период с 2000 по 2022 годы экспорт вырос более чем в 4 раза и составил 880,8 млрд. долл. США. Причем положительный баланс торгового оборота увеличился с 2000 по 2020 годы в 14 с лишним раз (с 11,9 до 169,2 млрд. долл.США).

Динамика объемов экспорта и импорта Сингапура

| Год | Экспорт, млрд. долл. текущие цены | Экспорт на душу населения, долл. | Импорт, млрд. долл. текущие цены | Импорт на душу населения, долл. |
|------|-----------------------------------|----------------------------------|----------------------------------|---------------------------------|
| 2000 | 181.0 | 44 642.9 | 169.1 | 41 718.7 |
| 2005 | 287.8 | 66 235.2 | 249.6 | 57 442.8 |
| 2010 | 474.8 | 91 954.7 | 411.7 | 79 734.7 |
| 2015 | 549.4 | 97 242.8 | 456.3 | 82 362.0 |
| 2020 | 634.0 | 107 284.1 | 525.3 | 88 889.4 |
| 2021 | 781.1 | 131 470.3 | 631.6 | 106 314.2 |
| 2022 | 870.8 | 145 725.5 | 701.6 | 117 414.5 |

<https://be5.biz/makroekonomika/export/sg.html>

<https://be5.biz/makroekonomika/import/sg.html>

Следует отметить, что в период с 2000 г. по 2022 годы наблюдалось некоторое снижение доли экспорта Сингапура в общем объеме экспорта стран Азии с 7,6% до 7,0%. Это объясняется диверсификацией внешнеэкономических связей и расширением круга внешних партнеров (контрагентов) из стран Европы, США и Африки. В результате такой политики доля экспорта Сингапура в мире возросла с 2.3 до 2.8 процента. Несмотря на это Сингапур смог сохранить свои позиции в странах Юго-Восточной Азии – его доля экспорта стабильно держится на уровне 35,5 – 36,5 %.

Рост доли экспорта Сингапура, %

| Год | В мире | В Азии | В Юго-Восточной Азии |
|------|--------|--------|----------------------|
| 2000 | 2.3 | 7.6 | 35.6 |
| 2005 | 2.2 | 7.0 | 37.0 |
| 2010 | 2.5 | 6.8 | 37.1 |
| 2015 | 2.6 | 6.7 | 36.6 |
| 2020 | 2.8 | 7.2 | 36.9 |
| 2021 | 2.8 | 7.0 | 37.4 |
| 2022 | 2.8 | 7.0 | 36.5 |

<https://be5.biz/makroekonomika/export/sg.html>

Сингапур уверенно лидирует во внешнеэкономической деятельности среди стран своего региона. Например, доля экспорта таких стран как Индонезии или Малазии на 2022 год, несмотря на рост, едва достигал половины объема экспорта Сингапура: 43 и 46 процента соответственно. А в отношении стран мировых лидеров экспорт Сингапура составлял 37% от экспорта Китая, 46% - США, 62% - Германии, 93% - Великобритании и 0,95% - Франции.

Соотношения экспорта Сингапура к экспорту соседних стран и стран мировых лидеров

| Страна | 1970 | 1980 | 1990 | 2000 | 2010 | 2020 | 2022 |
|----------------|-------|--------|--------|-------|-------|-------|-------|
| Сингапур | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Индонезия | -0.26 | -0.004 | -0.33 | -0.41 | -0.41 | -0.54 | -0.43 |
| Малайзия | -0.14 | -0.24 | -0.32 | -0.21 | -0.33 | -0.48 | -0.46 |
| Китай | 0.049 | -0.060 | -0.098 | 0.19 | 0.54 | 0.63 | 0.63 |
| США | 1.4 | 1.1 | 0.90 | 0.78 | 0.59 | 0.53 | 0.54 |
| Германия | 1.1 | 0.86 | 0.77 | 0.52 | 0.48 | 0.43 | 0.38 |
| Великобритания | 1.1 | 0.79 | 0.56 | 0.37 | 0.18 | 0.10 | 0.072 |
| Франция | 0.99 | 0.78 | 0.59 | 0.33 | 0.17 | 0.057 | 0.044 |

<https://be5.biz/makroekonomika/export/sg.html>

Что касается объема экспорта на душу населения, то этот показатель на 2022 год у Индонезии составлял лишь 0,8% от показателя Сингапура, у Малайзии – 6,1%. Этих стран ненамного опережали мировые лидеры. У Китая – 1,8%, у США – 6,1%, у Германии – 17%, у Великобритании – 10% и у Франции – 9,9 % от уровня экспорта на душу населения в Сингапуре.

За период 1970-2022 гг. экспорт на душу населения в Сингапуре вырос в 124,2 раза и составил 145 725.5 долларов. Среднегодовой прирост экспорта на душу населения в текущих ценах был на уровне 2 779.8 долларов или 9.7%.

Если экспорт Сингапура в 1970 году составлял 2.4 млрд. долл. и страна занимала 29-е место в мире, то в 2022 году этот показатель составил 870.8 млрд. долл., страна заняла 8-е место в мире и приблизился к уровню Японии (912.9 млрд. долл.). Экспорт Сингапура в мир в 2022 году составил: интегральные схемы, рафинированное масло, машины и устройства, для производства полупроводников, золото (для не денежных целей), турбореактивный двигатель, телефон иное устройство для отправки или получения звука, изображений, полупроводниковые приборы, аппаратура автоматической обработки данных и ее части и др. В импорт со всего мира вошли: интегральные схемы, турбореактивный двигатель, золото (для не денежных целей), телефон иное устройство для отправки или получения звука, изображений или других данных, машины и устройства для производства полупроводников, аппаратура автоматической обработки данных и ее части, нефтяной газ и другие углеводородные газы, полупроводниковые приборы и др.

Торговая политика и стратегическая корректировка Сингапура являются важной частью его экономического развития. Сингапур активно продвигает либерализацию торговли и стремится разрушить торговые барьеры и снизить тарифы и нетарифные барьеры для содействия либерализации и упрощению процедур торговли. Сингапур участвует в ряде двусторонних, региональных и многосторонних торговых переговоров, включая соглашения о свободной торговле со странами всего мира. Сингапур является активным членом Всемирной торговой организации (ВТО) и участвует в других международных торговых организациях и механизмах сотрудничества. Участвуя в многосторонней торговой системе, Сингапур может использовать глобальные торговые правила и механизмы для содействия либерализации торговли и справедливой конкуренции, а также для защиты своих торговых интересов. Сингапур активно участвует в региональных организациях экономического сотрудничества, таких как АСЕАН и АТЭС, в целях содействия региональной либерализации торговли и экономической интеграции. Торговое сотрудничество между Сингапуром и соседними странами и регионами продолжает углубляться, а торговля и инвестиции поощряются за счет заключения региональных соглашений о свободной торговле и экономического партнерства.

В результате трансформации экономической структуры и модернизации промышленности Сингапур постепенно стал придавать большое значение развитию торговли услугами. Правительство приняло ряд мер по содействию развитию финансов, логистики, информационных технологий, образования, медицины и других отраслей услуг - для повышения доли и качества торговли услугами. Страна привержена инновационному развитию торговли, содействуя развитию новых отраслей, таких как цифровая экономика, искусственный интеллект и биотехнологии, а также сотрудничая с инновационными экономиками. Правительство

способствует повышению конкурентоспособности и позиции Сингапура в международной торговле, формулируя политику, поддерживающую инновации и обеспечивая соответствующую инфраструктуру. Торговая политика Сингапура отражает его открытую экономическую стратегию в контексте глобализации. Активно участвуя в международном торговом сотрудничестве и способствуя либерализации торговли, Сингапур продолжает укреплять свои позиции и конкурентоспособность в глобальной цепочке создания стоимости.

Прямые иностранные инвестиции (ПИИ) в Сингапуре играют важную роль в экономическом развитии. Они представляют охватывающий глобальный масштаб. Основные направления инвестиций включают Азию, Европу, Америку и Австралию, среди которых Китай, США, Великобритания, Австралия и другие страны являются основными объектами инвестиций Сингапура. Важнейшими направлениями инвестиционной деятельности выступают финансы, производство, недвижимость, услуги и т. д. Среди них финансовая индустрия и сфера услуг являются основными сферами, а финансовые учреждения и транснациональные компании Сингапура имеют обширное глобальное присутствие. Сингапурские компании имеют разнообразные мотивы для прямых инвестиций за рубежом, включая стремление к расширению рынка, приобретению ресурсов, технологическому сотрудничеству, снижению затрат, диверсификации рисков и т. д. Транснациональные компании в Сингапуре обычно имеют международное видение и стратегию и стремятся найти лучшие инвестиционные возможности и партнеров по всему миру. Правительство Сингапура поощряет и поддерживает предприятия в осуществлении прямых иностранных инвестиций посредством различных политик и мер. Поддержка, предоставляемая правительством, включает налоговые льготы, финансовые субсидии, инвестиционные гарантии и т. д., чтобы помочь предприятиям снизить инвестиционные затраты и риски. Прямые иностранные инвестиции Сингапура не только способствуют расширению рынка и росту прибыли отечественных предприятий, но также приносят существенный вклад в страну с точки зрения занятости, передачи технологий и других аспектов. В то же время прямые иностранные инвестиции Сингапура также способствовали взаимосвязи глобальной экономики и повысили эффективность распределения ресурсов.

За период с 2010 по 2019 г. средний темп прироста ПИИ составлял около 14% в год. Несмотря на некоторое сокращение притока ПИИ, Сингапур продолжает оставаться лидером в регионе Юго-Восточной Азии по стоимостным объемам накопленных ПИИ. За 10 лет стране удалось увеличить накопленный объем ПИИ более чем в три раза. Если в 2010 г. он составлял 633,4 млрд долл. США, то в 2020 г. достиг 1885,4 млрд долл. [World Investment Report 2021, www].

Приток и отток прямых иностранных инвестиций в Сингапуре

| Год | Приток (млрд. долл.) | Отток (млрд. долл.) |
|------|-------------------------|------------------------|
| 2000 | 154.3 | 122.5 |
| 2005 | 241.4 | 201.6 |
| 2010 | 520.9 | 289.9 |
| 2015 | 652.6 | 354.9 |
| 2020 | 905.6 | 323.8 |
| 2021 | 990.9 | 473.9 |
| 2022 | 1412.1 | 507.9 |

По данным Статистического бюро Сингапура, по состоянию на конец 2021 года Сингапур поглотил в общей сложности 2 478,99 миллиарда сингапурских долларов прямых иностранных инвестиций, что на 3 332,46 миллиарда сингапурских долларов больше, чем на конец предыдущего года. Иностранный капитал в основном поступал из США (доля 24,1%), Японии (доля 6,2%), Великобритании (доля 4,6%), Гонконга, Китая (доля 3,7%), Канады (доля 3,7%), Швейцарии (доля 3,4%), Люксембург (доля 3,1%), Нидерланды (доля 2,2%). Инвестиции были направлены в оптовую и розничную торговлю (14,3%), обрабатывающую промышленность (11,5%), профессиональные научно-технические услуги и деловые услуги (9,1%), транспорт (3,5%), недвижимость (1,7%). Согласно Отчету о мировых инвестициях за 2023 год, опубликованному Конференцией Организации Объединенных Наций по торговле и развитию, потоки иностранных инвестиций Сингапура в 2022 году составили 50,79 млрд долл, а объем иностранных инвестиций - 1 595,38 млрд долл. США.

Сегодня невозможно представить Сингапур без инноваций. В связи с бурным ростом потребностей мира в технологических новшествах - производство и экспорт программных продуктов стали визитной карточкой современного Сингапура. Цифровая экономика, компьютерные программы, информационно-коммуникационные технологии, искусственный интеллект и др. прочно вошли во все сферы деятельности общества. Высокотехнологичные продукты стали важнейшей статьей экспорта страны, в ВВП которой все больший удельный вес занимают услуги. Объем рынка программного обеспечения в 2020 году составил около 2 млрд долларов США. Это произошло благодаря росту финтеха и корпоративному ПО. Важным направлением развития инновации в 2021 году явился запуск программы RIE2025, ежегодные инвестиции которой составили 5 млрд SGD, в 2022 году - ускоренное развитие технопарков, а в 2023 - поддержка цифровой трансформации, акцент на ИИ и умное производство. Сотрудничая с экономикой всего мира, Сингапур играет важную роль в глобальных цепочках создания стоимости.

Сингапур является активным членом Всемирной торговой организации, одним из членов-основателей АСЕАН, членом Азиатско-Тихоокеанского экономического сотрудничества (АТЭС). Сингапур также участвует в других международных экономических организациях и механизмах сотрудничества, таких как Международный валютный фонд (МВФ), Всемирный банк, Азиатский банк развития (АБР) и др.

На фоне больших успехов Сингапур имеет проблемы внутреннего и внешнего характера. Такие факторы, как глобальная экономическая нестабильность, растущий торговый протекционизм и геополитическая напряженность, могут оказать негативное влияние на внешние экономические связи Сингапура. В условиях быстрого экономического развития соседних стран Сингапур сталкивается со все более жесткой конкуренцией в привлечении иностранных инвестиций и талантов. Недорогая и удобная бизнес-среда, предлагаемая другими странами и регионами, может поставить под угрозу привлекательность Сингапура. Промышленная структура Сингапура опирается на отрасли услуг с высокой добавленной стоимостью, а с изменениями в мировой экономике и технологиях некоторые традиционные отрасли могут столкнуться с давлением трансформации и корректировки извне. Старение населения и нехватка рабочей силы являются основными проблемами внутреннего характера. В этой связи Сингапуру необходимо решить проблемы промышленной реструктуризации и поддерживать экономическую конкурентоспособность и устойчивое развитие. В сотрудничестве с внешними экономиками Сингапуру следует адаптироваться к меняющейся международной политической и экономической среде, требуется гибкое реагирования и корректировки соответствующих стратегий. Необходимо совершенствование цифровой экономики, продвигать цифровую трансформацию, интернационализацию электронной коммерции, финансовых технологий и цифровых услуг, а также использовать новые технологии (такие как блокчейн и искусственный интеллект). Сингапуру необходимо обеспечить устойчивое развитие и «зеленую» экономику путем инвестирования в возобновляемые источники энергии и «зеленые» технологии, развития «зеленого» финансирования и привлечения международных компаний для реализации проектов, связанных с устойчивым развитием. В области инновации и НИОКР необходимо увеличение инвестиций в научные исследования и инновации, привлечение ведущих международных талантов и предприятий, содействие разработке новых продуктов и услуг. Требуется наращивать подготовку и внедрение талантов, укрепление системы образования и профессиональной подготовки, привлечение международных талантов.

Современные успехи Сингапура, который совершил переход от традиционной торговли к торговле услугами с высокой добавленной стоимостью были достигнуты в результате эффективной

внешнеэкономической политики правительства. Стабильный положительный внешнеторговый баланс стал нормой для экономики. Компьютерные программы, информационно-коммуникационные технологии, искусственный интеллект, зеленая экономика и др. прочно вошли во все сферы деятельности общества и стали важнейшей статьёй экспорта страны. На фоне больших успехов Сингапур имеет внутренние и внешние проблемы. Их решение связано с принятием эффективной политики поддержания экономической стабильности и устойчивого развития.

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**ЭПИДЕМИК АҲАМИЯТГА ЭГА БЎЛГАН
МИКРООРГАНИЗМЛАРНИ АНТИСЕПТИКЛАР ВА
ДЕЗИНФЕКЦИЯЛОВЧИ ВОСИТАЛАРГА ЧИДАМЛИЛИГИНИ
БАҲОЛАШ**

***Аннотация.** Тадқиқотда эпидемиологик аҳамиятга эга микроорганизмларга (*Staphylococcus aureus*, *Klebsiella pneumoniae* ва *Pseudomonas aeruginosa*) қарши ишлатилган антисептик ва дезинфекцияловчи воситаларга чидамлилиги қиёсий баҳоланади. Уларнинг сезгирлик динамикаси ўрганилди ва дезинфекцияловчи воситаларнинг энг самарали синфлари аниқланди.*

***Калит сўзлар:** микроорганизмларнинг резистентлиги, дезинфекцияловчи синфлар, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*.*

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**ASSESSMENT OF THE RESISTANCE OF MICROORGANISMS
OF EPIDEMICAL SIGNIFICANCE TO ANTISEPTICS AND
DISINFECTANTS.**

***Abstract.** In the study, resistance to antiseptics and disinfectants used against epidemiologically important microorganisms (*Staphylococcus aureus*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*) is comparatively evaluated. The dynamics of their sensitivity was studied and the most effective classes of disinfectants were determined.*

***Key words:** resistance of microorganisms, disinfectant classes, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*.*

***Кириш.** Ҳозирги вақтда микробларга қарши воситаларнинг назоротсиз ва кенг қўлланилиши, патоген бактерияларнинг антибиотиклар ва дезинфекцияловчи воситаларга резистент штаммларни ҳосил қилиб [1], юқумли касалликларнинг кўпайишига сабаб бўлмоқда [2,3]. Дезинфекция қилиш учун ишлатилган воситалар фаоллигини ва уларга микроорганизмларнинг резистентлик частотасини доимий равишда назорат қилиб бориш юқумли касалликлар [4], шу билан бирга госпитал инфекциялар кўзгатувчиларини профилактикаси учун муҳим чора ҳисобланади. Маълумки, шифохона ичи микроорганизмларнинг янги*

штаммларини ҳосил бўлиши терапевтик ва диагностика жараёнининг ўзига хос хусусиятларига, беморлар ва бошқаларга боғлиқдир [6,7]. Аммо энг кенг тарқалган патоген микроорганизмлар бу *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* ҳисобланади [5,8].

Ишнинг мақсади: Эпидемиологик аҳамиятга эга микроорганизмларга қарши дезинфекцияловчи ва антисептикларнинг самарадорлигини баҳолаш.

Тадқиқот материаллари ва усуллари. Тадқиқот учун Самарқанд давлат тиббиёт университети 1-сон клиникасида микроорганизмларга сезгирликни аниқлаш ўтқазилган лаборатория текширув натижаларидан фойдаланилди. Бир босқичли ретроспектив аналитик тадқиқот ўтказилди. Ўртача фаоллик даражаси Microsoft Office Excel 2007 да ҳисобланади, фарқларнинг статистик аҳамияти IBM SPSS Statistics 25 дастурида аниқланди.

Натижалар ва уларнинг муҳокамаси. Амалда қўлланиладиган антисептик ва дезинфекцияловчи воситалар *Staphylococcus aureus*га қарши бир хил фаолликка эга эканлигини кўрсатди (фаоллик индекси 16). *Klebsiella pneumoniae* антисептикларга сезгир бўлиб (фаоллик индекси 32), дезинфекцияловчи воситаларга эса чидамли бўлгани аниқланди (фаоллик индекси 8). *Pseudomonas aeruginosa* антисептикларга нисбан сезгирлиги юқори бўлиб (фаоллик индекси – 128), дезинфекцияловчи воситалар учун фаоллик индекси 32 ни ташкил қилди. 2021-2022 йилларда ўрганилаётган микроорганизмларнинг дезинфекцияловчи ва антисептикларга турли даражадаги сезгирлик кузатилган: *Staphylococcus aureus* учун қўлланиладиган дезинфекцияловчи воситалар, фаоллик индекси 13,3 % ошганлиги, *Klebsiella pneumoniae* ва *Pseudomonas aeruginosa*ларда пайсайганлиги кузатилган (пасайиш даражаси 33,3%). Худди шу даврда ўрганилган барча микроорганизмлар учун қўлланилган антисептикларга сезгирлик нисбатн кўпроқ: *Staphylococcus aureus*га қарши ишлатиладиган антисептиклар 9 дан 32 гача, Клебсиелла *pneumoniae* учун - 2 дан 32 гача, *Pseudomonas aeruginosa* учун - 4 дан 128 гача ошганлиги аниқланган. 2019-2022 йиллар учун ўрганилаётган микроорганизмларнинг сезгирлигининг динамикасини, уларга қарши ишлатиладиган дезинфекцияловчи воситаларнинг тенденцияси пасайганлиги аниқланди (пасайиш даражаси 50%), антисептикларда эса 3,2 баравар ошган. Эпидемиологик аҳамиятга эга микроорганизмларнинг дезинфекцияловчи воситаларнинг турли синфларига сезгирлигини таҳлил қилинганда *Staphylococcus aureus* ва Клебсиелла *pneumoniae* ТАБ ва алдегидларга асосланган комбинацияли дезинфекцияловчи воситаларга нисбатан, *Pseudomonas aeruginosa* эса аминлар ва гуанидинлар, кислородли фаол моддалар, кислоталар ва ТАБ бирикмасига асосланган дезинфекцияловчи воситаларга сезгир эканлигини кўрсатади.

Хулоса. Шундай қилиб, ўрганилган микроорганизмлар касалхонада ишлатиладиган дезинфекцияловчи воситаларнинг кўпчилигига сезгир, аммо уни камайиш тенденцияси мавжуд. Антисептикларга эса юқори даражадаги сезгирлик аниқланган. Микроорганизмларнинг эпидемиологик аҳамиятга эга штаммларининг резистент шифохона ичи штаммлари шаклланишининг олдини олиш муҳим чора-тадбирлардан бири ҳисобланади.

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ГЕНЕТИЧЕСКАЯ СТРУКТУРА ПОПУЛЯЦИЙ И ГЕНОФОНД КАРАКУЛЬСКИХ ПОРОДА ОВЕЦ СУРХАНДАРЬИНСКОГО СУРА

Аннотация. В статье приводятся исследования ученых-каракулеводов о структуре породы принципах ее формирования. Отмечено, что каракульская порода многообразна так как подразделяется на смушковые продуктивные конституциональные, внутривидовые, заводские и эколого-ландшафтные типы. Показан генетический потенциал каракульской породы овец ее современный генофонд как богатейшей генетической ресурс государства. Разработаны методы сохранения ценнейшего генофонда овец этой породы.

Ключевые слова: Каракульская овца, современная генетическая структура, породы, ценнейшие окраски и расцветки, генофонд каракульских овец, проблемы и методы сохранения уникальной части породы.

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GENETIC STRUCTURE OF POPULATIONS AND GENE POOL OF THE KARAKUL SHEEP BREED OF THE SURKHAN-DARYA SURA

Summary. The article presents the research of astrakhan scientists about the structure of the rock, the principles of its formation. It is noted that the Karakul breed is diverse as it is divided into smushkovye productive constitutional, breeding, factory and environmental-landscape types. The genetic potential of the Karakul sheep breed of its modern gene pool as the richest genetic resource of the state is shown. Methods have been developed for preserving the most valuable gene pool of sheep of this breed.

Key words: Karakul sheep, modern genetic structure, breeds, the most valuable colors and colors of the karakul sheep gene pool, problems and methods of preserving a unique part of the breed.

Введение. Среди специализированных пород овец по своей многогранной продуктивности ни одна порода животных не может сравниться с каракульской породой овец, в силу следующих обстоятельств: во-первых - эта порода является одной самой многочисленной из всего породного генофонда, которым располагает наша страна. Во-вторых,

каракульские овцы являются единственной и уникальной породой, от которой получают высококачественные шкурки различных окрасок и расцветок. И наконец, каракульские овцы служат основным источником производства шерсти, баранины и овчин.

Каракульское овцеводство является важной отраслью пустынного животноводства республик Центральной Азии и Казахстана. В настоящее время каракульская порода овец приобрела сложную структуру, то есть образовался внутривидовой генетический полиморфизм, вызванный эволюцией самой породы, с одной стороны и потребностями внутреннего и внешнего пушно-мехового рынка в другой стороны.

Исследования проведены на каракульских овцах разных окрасок и расцветок разводимые в различных пустынно - ландшафтных регионах. Ранее опубликованные отечественные и зарубежные источники посвященные структуре и генофонду сельскохозяйственных животных.

В процессе возникновения и формирования завитков, происхождении и эволюции каракульских овец принимали участие разные породы овец, которые передали свои биологические особенности и наиболее значимые с хозяйственно-полезные признаки и они были закреплены в каракульской породе.

В результате сформировалась порода с высокой гетерозиготностью признаков, что заметно отличает от других пород овец. Полиморфизм признаков непременно связан с адаптацией к различным экологическим условиям, в которых содержится вид. Вероятно, разные средовые условия вызывают изменение в регуляции физиолого-биохимических функций вида, что приводит к различному генетическому проявлению признаков Ю.А. Раушенбах [9].

Формирование таких группы животных, имеющих общее происхождение, целостное проявление биологических особенностей, эволюционно сложившаяся, генетически закрепленные морфологические признаки, передающиеся по наследству, формируют породу В.С.Жиликова [5]. Изучение породы (Е.В. Одинцова, [8]; М.А. Кошевой, [7]; Н.С.Гигинейшвили, [3]; К.Е. Елемесов, [4]; У.Х.Арипов, [1]; С.Ю.Юсупов [11] и др.) показано что, различие по биологопродуктивным признакам (окраска, расцветка, конституция, экологические, завитковые типы) и качеству получаемого каракуля (типы и формы завитков, блеск, шелковистость и др.).

В генофонд каракульских овец заложен генетический потенциал, который обеспечивает достаточную жизнеспособность, продуктивность и воспроизводство в разных экологических условиях. В этой связи можно констатировать что, каракульская порода овец едина ее развитие происходит по единым биологическим принципам. Но вместе с тем каракульская порода овец многообразно и подразделяется на смушковые, конституциональные, внутривидовые, заводские и экологические типы.

В настоящее время каракульские овцы, разводимые в Узбекистане имеют следующую структуру:

Эколого-ландшафтные (зональные типы): южной песчаной пустыни, предгорной полу пустыни, глинистой пустыни.

Внутрипородные типы - чёрные, серые, сур (Бухарский, Каракалпакский, Сурхандарьинский), коричневые (камбар), розовые (гулигаз), белые и др.

Шерстно-конституциональные типы крепкий - гузамой, грубый - окгуль, нежный - нозик.

Продуктивные (смушковые) типы - каракульчёвый (муаровый), плоский (плоскозавитковый), ребристый (ребристо-вальковатый), жакетный (с полукруглым завитком), кавказский (перерослый).

Заводские типы: по черной окраске - Каракумский, Улусский, Многоплодный, Мубарекский, Нишанский, Узбекистанский, Канимехский, Саржал, Аваз-чуль; по серой окраске - Гузарский, Южно-Узбекистанский, Боботагский, Нуратинский, Тамдынский; окраски сур Бухарский - Каракумский, Сведловский, Навойинский, Кызылкумский, Нуратинский, Сангузарский, Зармала, Бухарои-Шариф, Сурхандарьинский - расцветки (платиновая, янтарная, бронзовая, антроцитовая), Каракалпакский расцветки (урукгуль, шамчирокгуль, пулати), Узбекистанский, Шафриканский; Сарибельский; белой окраски - Самаркандский, Гагаринский, розовой окраски - Сайханский - бриллиантовой расцветки.

В настоящее время из вышеперечисленных популяций животных перестали существовать следующие заводские типы - Каракумский (сур и черной окраски), Сведловский, Улусский, Бабатагский, Гагаринский, Сайханский, т.е 25,8 %. На стадии исчезновения - Самаркандский белой окраски, Многоплодной черной окраски, Тамдынский и Нуратинский типы серой окраски - 16,1%. [2].

В каракульском овцеводстве под генофондом понимают стадо овец определенной генной структурой, общностью обитания, приспособленное к конкретным пригодно-климатическим условиям среды и размножающиеся путем скрещивания особей между собой.

Ряд исследований по каракулеводству в Узбекистане связан с деятельностью таких учёных как Н.С. Гигинейшвили, У.Х. Арипова. Ими выведены различные расцветки овец Сурхандарьинского сура, достигнуты высокие показатели в области роста и развития, плодовитости и волосяного покрова. [1.,3.]

Однако, полученные данные исследовательских работ не позволили в полном объёме сохранить породы редких и оригинальных овец и в первую очередь - сур, созданных селекционерами в течение многих лет, слава о которых широко известна на мировых пушно-меховых аукционах.

Таким образом, проблема сохранения, восстановления и размножения каракульского генофонда овец, в том числе животных ценнейшего овец

Сурхандарьинского сура, а также коренное улучшение качества редких и оригинальных каракульских шкур, разработка и совершенствование селекционных методов в хозяйстве и целенаправленное налаживание работы, имеет важное научно-практическое значение в сфере развития отрасли каракулеводства в Узбекистане.

Цель исследования является определение научно-обоснованных селекционно-генетических методов анализа, сохранения и разведения генофонда редких и уникальных расцветок каракульских овец сур Сурхандарьинского типа.

Задачи исследования:

обосновать и охарактеризовать степень уникальных и ценных окрасок сур, с редкой и оригинальной расцветкой овец сур Сурхандарьинского типа, с резким переливом расцветок и гладкостью окрасок;

установление и определение содержания меланина и его свойств в волосяном покрове ягнят различных расцветок;

выявление биологических и морфологических особенностей овец разных расцветок;

выявление биохимических показателей крови овец сур разных расцветок (ферменты, минеральные вещества и др.);

определение степени и характера наследственности расцветок при разных типах скрещивания;

выявление морфологических показателей шерсти и гистологического строения кожи овец разных расцветок и окрасок;

оценка роста и развития экстерьера, а также продуктивности племенных ягнят, оставленных на выращивание, определения качества расцветок, кожи ягнят и товарных особенностей каракульских шкур;

сохранение генофонда овец сур Сурхандарьинского типа, восстановление и воспроизводство стада редких расцветок, а также разработка селекционно-генетических методов повышения продуктивности овец и внедрение их в производство.

Методы исследования. В диссертации использованы общеприкладные, зоотехнические, биометрические, статистические и аналитические методы.

Исследования проведены в 2005-2020 гг. в ООО «Боботог сури коракулчилик» Кумкурганского района Сурхандарьинской области, Республики Узбекистан.

Данная исследовательская работа впервые в Узбекистане посвящена научным основам, направленным на сохранение редких и ценных расцветок овец Сурхандарьинского сура, на разработку селекционно-генетических методов их восстановления.

В целях восстановления ценной биологической продуктивности, исчезающих и сокращающихся по количеству и качеству овец Сурхандарьинского сура проведены исследования по строению шерстного

покрова, росту и морфо-биологическим показателям, связанными с особенностями различия, вариантами скрещивания, степенью передачи наследственных признаков редких и ценных расцветок сур, уровнями биохимического показателя состава крови (активность фермента, уровень калия) и изучение гистоморфологического строения кожи, связанных с продуктивностью животных и их жизнеспособностью.

На юге республики Сурхандарьинская область в условиях глинистой и предгорной полупустыни в племенном хозяйстве ООО «Боботог сури каракулчилик» Кумкурганского района сосредоточено уникальная часть генофонда породы.

Каракульские овцы этого хозяйства имеют 6 окрасок (черная, серая, сур, белая, коричневая, розовая) с большим числом расцветок. Генотип овец серой окраски представлен голубой, серебристой, жемчужной, свинцовой, седой, черно-серой, перламутровой, стальной, молочной расцветками. Платиновая, бронзовая, янтарная, антрацитовая, золотистая, сапфировая, песочная, лунная расцветки свойственны

Сурхандарьинскому внутривидовому типу каракульских овец окраски сур. Розовая окраска овец имеет бриллиантовую расцветку. В данном хозяйстве созданы оригинальный Сурхандарьинский сур, 6 заводских и породных типов каракульских овец различных окрасок (1 серой, 3 сур и по 1 белой и розовой).

Генофонд овец каракульский породы - национальное достояние наций Республики и должен охраняться государством. В связи с этим учитывая современное состояние генетических ресурсов (генофонда) каракульских овец в Узбекистане перспективными направлениями этой проблемы необходимо

- создать систему государственной поддержки и усилить государственный контроль за сохранением и использованием ценного генофонда;

- создать хранилища генофонда животных;

- создать информационный банк данных о генофонде сельскохозяйственных животных.

Для сохранения генофонда породных и заводских типов каракульских овец оригинальных окрасок и расцветок создать генофондные хозяйства (ферма, отара - коллекционарий) в племенных заводах и их дочерних хозяйствах.

В основе разведения генофондных стад должно быть замкнутое чистопородное разведение с аутбредным групповым типом подбора пар и ротацией линий. В стаде необходимо иметь 2–3 генеалогических линий. Инбридинг в замкнутых популяциях - нежелателен.

Важным путем сохранения ценных генофондов каракульских овец оригинальных окрасок и расцветок является организация генофондных хранилищ - на клеточном уровне с длительным хранением в сосудах Дьюара

глубокозамороженной семени, яйцеклеток, гамет и зигот; на организменном уровне - эмбрионов с последующим их восстановлением.

Термин популяция был предложен впервые в 1903 году Иоганссеном и означает совокупность генетически различных особей одного вида, обитающих совместно.

Основы учения о генетической структуре популяций были заложены выдающимся ученым-генетиком XX века С.С.Четвериковым. Его исследования по генетической теории эволюции легли в основу науки, получившей название - генетика популяции.

Основной задачей популяционной генетики является исследование генетического строения популяции в определенный период времени, путем математико - статических методов и изменение строения этих популяций под влиянием отдельных факторов (отбора, мутации, миграции). Для достижения определенной цели в селекции необходимо глубже изучить и определить генетические параметры популяции.

По мнению Ф.В. Ильева с генетической точки зрения при изучении популяции каракульских овец особый интерес представляет, во-первых, генетическая структура данной популяции в определенный отрезок времени, во-вторых, её динамика, то есть изменение генетической структуры популяции в ряде последующих поколений. [6].

При этом следует отметить, что под контролем естественного отбора в популяциях происходит постоянное изменение наследственности, т.е. одни генотипы, более приспособленные, спустя ряд поколений приобретают преимущества, а менее приспособленные подтверждены относительному сокращению. В результате за счет смены частот генов происходит длительная направленная перестройка генофонда.

Определив зависимость между генетическими параметрами популяции можно описать все происходящие в ней селекционно-генетические процессы, а, вот, определив характер и направление происходящих в структуре популяции, можно судить о количественных и качественных сдвигах в популяции за одно поколение и о взаимосвязях этих процессов. Генотипы каждого поколения возникают вследствие объединения гамет, образованных предшествующим поколением. В свою очередь, гаметы объединяются в процессы оплодотворения, образуя новый набор генотипов. Тем самым, при скрещивании между членами популяции происходит постоянный обмен генами. Следовательно, в каждом новом поколении происходит реконструкция генофонда.



Рис. 1. Каракульские овце сур с ягнятами на пастбище в хозяйствах ООО «Боботог сури коракулчилик» Кумкурганского района Сурхандарьинской области

Изучение генетической структуры популяции поможет в практической селекции выявить потенциальные генетические ресурсы селекционируемых стад, прогнозировать их совершенствование.

Генетическая структура популяции более четко выявляется при анализе качественных показателей, но значительно труднее провести генетический анализ популяции по количественным признакам, которые контролируются многими генами. Генетическая характеристика той или иной популяции по количественным признакам дается не по соотношению отдельных генов и генотипов, а по основным параметрам популяционной генетики (наследуемость h^2), корреляция (r), средняя арифметическая (M), и другие.

Если в популяции осуществляется отбор, происходит мутация, то ее генетическая структура изменяется. При этом прямые генные мутации приводят к изменению доминантного аллеля (A) в рецессивным (a). Мутация может быть и обратной, т.е. рецессивный аллель изменяется в доминантный.

Чем больше численность популяции, тем сильнее давление мутации на структуру популяции.

Роль отбора в каракулеводстве огромна, т.к. использование ее позволяет создать новые оригинальные расцветки каракульских смушек.

Отбор приводят к созданию гетерозиготных организмов, которые могут быть лучше или, наоборот, хуже приспособлены к условиям существования, т.е. в зависимости от условий среды эффект отбор бывает разным.



Рис. 2. Каракульские овец сур Сурхандарьинского типа

Показатель среднего арифметического признака позволяет решать ряд вопросов племенного дела. Ее используют для характеристики любой популяции сельскохозяйственных животных по уровню средней продуктивности или какому-либо другому зоотехническому или биологическому показателю. (Е.К. Меркурьева, 1970).

Пользуясь статистическим анализом, селекционеры и генетики могут выявить разную степень изменчивости основных селекционных признаков.

Следует отметить, что для получения продукции, удовлетворяющей потребности рынка и спроса населения, необходимо всегда учитывать комплекс количественных факторов. В современных экономических условиях важной задачей селекции является улучшение смушковой продуктивности каракульских овец. Здесь, наряду с объективно устанавливаемыми количественными признаками, примерно равное значение имеют качественные показатели. Но различные признаки качества каракульских шкурок по-разному связаны между собой. Поэтому, знание этих связей позволяет, как в результате селекционного изменения одного признака могут изменяться другие признаки. Для анализа об эффективности селекции по конкретному признаку необходимо заранее предвидеть, какой эффект будет получен у потомства, если в отношении родителей применен тот или иной уровень отбора, т.е. для селекционера очень важно поставить хотя бы приближенный прогноз, какое количество животных из стада будет удовлетворять запросы воспроизводства, сколько лет потребуются для доведения продуктивности до желательного уровня. Эти вопросы могут быть в определенной степени разрешены с использованием метода генетического анализа.



Рис. 3. Генофонд каракульских порода овец сур Сурхандарьинского типа (разной окрасок и рацветок).

Из популяции генные мутации исчезают сразу, если гетерозиготные особи с новой аллельной мутацией не оставляют потомства. При этом рецессивные мутации, находясь у гетерозиготных особей в скрытом состоянии, создают потенциальную генетическую изменчивость популяции. В то же время следует отметить, что в большой популяции давление мутационного процесса приводит к закреплению аллеля или к сбалансированному равновесию.

Аномалия хромосом является одной из причин, которая приводит к ранней смерти и низкой жизнеспособности животных. В связи с этим изучение цитогенетических характеристик каракульских овец в различных генетических группах имеет важное значение.

Результаты изучения количества и морфологических групп хромосом у каракульских овец разных окрасок сур и чёрных ягнят приводятся в таблице 1.

Таблица 1
Состав кариотипа каракульских овец черной и суровой окрасок

| Группа | Окраска | Учтено (голов) | Состав кариотипа | | | | |
|--------|---------|----------------|------------------------------|-------------------|---------------------------------|--------------|-------------------|
| | | | Количество диплоида хромосом | Количество элизов | Морфологические группы хромосом | | |
| | | | | | Метацентрика | Акроцентрика | Половые хромосомы |
| I | Черная | 6 | 54 | 60 | 6 | 48 | XX |
| II | Сур | 6 | 54 | 60 | 6 | 48 | XX |

Из таблицы видно, что ягнята расцветки сур и чёрной окрасок, имеют диплоидное число хромосом равное 54, из них 3 пары - крупные мегацентрические, 24 - акроцентрические хромосомы и одна пара состоит из половых хромосом (XX, XY).

Гомогенное спаривание овец сур Сурхандарьинского типа способствует передаче наследственности родительских пар сур расцветок, укреплению потомства, повышению коэффициента наследственности. Это послужит воспроизводству редких и ценных расцветок.



Рис. 4. Каракульские шкурки окраски сур оригинальных расцветок Сурхандарьинского типа

Сохранение и дальнейшее развитие популяции происходит благодаря получению нового поколения. Следует иметь в виду, что не все особи участвуют в получении следующего поколения. Одни исключаются заранее в результате естественного отхода, другие выбраковываются. Поэтому эффективная численность популяции определяется числом участвующих в размножении особей.

В племенном хозяйстве ООО «Боботог сури каракулчилик» Кумкурганского района были изложены селекционно-генетические методы организации коллекционных отар по сохранению генофонда редких и ценных расцветок овец сур Сурхандарьинского типа.

Гомогенное спаривание желательно для получения точных селекционных признаков и формирования отдельных отар овец разных расцветок. Это позволило стабильному окоту ягнят оригинальных и ценных расцветок. В следующем этапе селекционер в своей работе решает вопросы увеличения поголовья овец сур Сурхандарьинского типа, на основе широкого использования племенных баранов с целью консолидации с типичным для оригинальных и уравненных: платиновой, янтарной, бронзовой и антрацитового расцветок.

Заключение.

1. Установлено, что в современных условиях каракульская порода овец многообразна и имеет сложную структуру.

2. Особенность каракульских овец сур Сурхандарьинского типа своеобразными биологическими свойствами, в частности, высокой и качественной продуктивностью, производством уникальных и ценных разноцветных каракульских шкурок сур, жизнестойкостью, адаптацией к круглогодичному содержанию и выпасу в пустынных, полупустынных, сухих степях, горах и предгорных пастбищах, к резко континентальным климатическим условиям Сурхандарьинского оазиса являются ценными показателями.

3. Скрещивание системным способом «хорошо х хорошо» при создании Сурхандарьинского сура, постепенная передача наследственных и качественных признаков последующим поколениям посредством целенаправленной селекции, закономерности длительной изменчивости своим созданием при помощи гомогенного скрещивания имеют историческое значение.

4. При исследовании гомогенного скрещивания сур Сурхандарьинского типа, закономерностей продолжительной изменчивости, передачи наследственных родительских расцветок, в варианте спаривания платиновая х платиновая составила 71,6%, янтарная х янтарная - 68,5%, бронзовая х бронзовая - 71,5% и антрацитовая х антрацитовая - 92,1%. На этой основе было выявлено, что гомогенное спаривание по расцветкам сур овец привело к усовершенствованию и укреплению редких и ценных качеств. Показано, что генофонд овец этой породы уникален и может подвергаться влиянию как пара - так и генотипических факторов.

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ПРИНЦИПЫ КАРАКУЛЕВОДСТВА И МОНИТОРИНГ ИХ БИОПРОДУКТИВНЫХ ПРИЗНАКОВ В ПУСТЫННО - ЛАНДШАФТНОЙ ЗОНЕ

Аннотация. В статье приводятся исследования разных ученых о происхождении каракульских овец, показан мониторинг биопродуктивности животных разводимых в различных пустынно-ландшафтных (экологических) зонах от пустыни: Кара - Кум, Кзыл - Кум, предгорной полупустыни и до зоны северной пустыни. Установлена модель ландшафтного отбора в формировании северной казахской атырауской каракульской породы. Показана, что каракульская овца как уникальная порода является не только как материальное богатство государства, но и его культурно- духовное богатство.

Ключевые слова: Каракульские овцы, история происхождения каракульской овцы, пустынно - ландшафтные зоны, экологические типы овец, мониторинг биопродуктивности животных, морфологические признаки, ферменты крови.

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PRINCIPLES OF KARAKUL FUR BREEDING AND MONITORING THEIR BIOPRODUCTIVE CHARACTERISTICS IN THE DESERT- LANDSCAPE ZONE

Abstract. The article presents the research of different scientists on the origin of Karakul sheep, shows the monitoring of the bioproductivity of animals bred in various desert-landscape (ecological) zones from the desert: Kara-Kum, Kyzyl-Kum, foothill semi-desert and to the northern desert zone. A model of landscape selection in the formation of the northern Kazakh Atyrau Karakul breed is established. It is shown that the Karakul sheep as a unique breed is not only the material wealth of the state, but also its cultural and spiritual wealth.

Key words: Karakul sheep, history of the origin of the Karakul sheep, desert-landscape zones, ecological types of sheep, monitoring of animal bioproductivity, morphological features, blood enzymes.

ВВЕДЕНИЕ. Каракулеводство, как отрасль пустынного животноводства занимает важное место в экономике Центрально - Азиатских государств - Узбекистана, Казахстана, Туркменистана и Таджикистана. Только в Узбекистане 40% её территории около 20,0 млн. га относится к пустынно ландшафтной зоне, где благосостояние коренного населения в основном связано с каракулеводством. Среди пород овец, созданных человеком, особое место занимает каракульская порода овец, дающая изумительную по красоте, разнообразную по завиткам и окраскам каракульские шкурки, именуемых в мире как «Бухара – каракуль», Боголюбский С.Н [3] этот же исследователь отмечает, что родиной этой уникальной породы является Узбекистан.

Арабской путешественник побывший в Туркестане ещё в X века Ибн Хаукал писал о наличии прототипа такой породы. Первое употребление слова каракуль находим в книге Абу Бакр Мухаммад ибн Жафар Ан – Наршахий «История Бухары» написанной в 943 – 944 годах, где говорится, что на базарах близ Бухары торговали шубами, изготовленными из овчин и каракулевых шкурок. Достаточно благородные завитки имеются у новорожденных ягнят пород Санди и Мальпура, разводимых в Индии, штат Раджастхан. При скрещивании их с каракульскими баранами, ягнята первого поколения F₁ по качеству каракуля мало чем отличались от чистопородного каракуля. Тем не менее, каракульская овца появилось в районе треугольника Хива - Бухара-Чарджоу, вдоль Амударьи великого шелкового пути.

Материалы и методы. Материалом для исследований служили каракульские овце разводимые в различных пустынно - ландшафтных регионах. Температура воздуха, сумма осадков за год получены из материалов гидрометеорологических станций. Качественные и количественные признаки смушек ягнят оценивались по общепринятой Инструкции по бонитировке каракульских ягнят. Урожайность кормов на пастбищах, суточный отгон овец и другие по Л.С. Гаевской [5]. Материалы обработаны по методике Н.А. Плохинского [8].

Результаты и обсуждение. Общеизвестно, что Азия, в том числе Центральная Азия и Иран, являются одним из основных очагов происхождения и одомашнивания животных где овцы были одним первых прирученных животных. Но становление любой породы, в особенности древних, к которым относится и каракульская, накладывает свой отпечаток культура, быт, нравы обитающих на данной территории народов. Частые переселения, смешение народов, происходившиеся в разные исторические периоды приводило также к перемещению прирученных человеком животных в новые районы, в результате чего происходило смешение с другими аборигенными животными. Каракульская овца как продукт пустынного животноводства создавалась именно в таком сложном круговороте истории и впитала их в себя. Изучение и обобщение

материалов о происхождении каракульских овец дает нам основание полагать, что это порода являясь одним из древнейших, вместе с тем как смушковой овцой в современном понимании стала в последние 300 – 400 лет, что падает на период бурного развития торговли между Западом и Востоком, туркестанских ханств с Россией, а через нее и Западом, так как только возникновение широкого спроса на такой товар могло стимулировать овцеводов на производство каракуля высокого качества.

Большинство ученых, изучавших каракульскую овцу, считали, чтобы воспроизвести эту породу заново, требуется не одно столетие. По нашему мнению каракульскую породу возможно воспроизвести в течение 4–5 поколений, для этого курдючных овец туркестанских популяций, прежде всего порода джайдара следует скрестить тощехвостыми или жирнохвостыми овцами разводимых в Иране, такие породы ныне в Среднеазиатских государствах не существуют. В настоящее время каракульская порода овец, разводимая в Центрально - Азиатских республиках имеет сложную структуру. Породы дифференцированы на породные, заводские, продуктивные экологические типы, включая животных разных окрасок и расцветок. Сложность структуры каракульской породы создает ей определенные преимущества, так, различные пустынно – ландшафтные зоны разведения этих животных от южной песчаной пустыни «Кара – Кумы», (Республика Туркменистан), Южно–гипсированной зоны «Кзыл – Кумы» (Республика Узбекистан) горно–равнинная зона (Республика Таджикистан) до зоны северной пустыни (Республика Казахстан).

В результате ландшафтного отбора (термин и модель отбора впервые предложил американский биолог С.Райт в 1931 г.) [9]. в том числе пустынно - ландшафтного отбора каракульская порода приобрела эластичность, высокую приспособляемость к различным ландшафтно - экологическим - пастбищно – кормовым условиям все это позволило путем применения внутривидового скрещивания обеспечить высокую жизнеспособность и продуктивность животных. Каракульские овцы разводимые в различных пустынно – ландшафтных зонах приобретают особые черты и различаются по размеру и массе шкур, завиткам, длине волоса, плодовитости и т.д. В этом проявляется своеобразие природно – климатических условий каждой зоны, то есть ландшафта (почва, растительность, сумма осадков, температура, продолжительность зимнего периода и т.д.). (1-таблицу). К материалом представленном к таблице необходимо добавить следующие:

- южно – песчаная пустыня – разводимая в этих условиях каракульская овца хорошо развитая, сильная с крепкими связками конечностей, выносливая и подвижная. Овцы долго сохраняют пигментацию шерсти;
- гипсированная пустыня – овцы некрупные, гармонично сложены, сильнососедеющие с большой жиропотностью;
- предгорная полупустыня – овца более крупная, многошерстная. Ягнята относительно крупные;

- северная пустыня – в формировании приспособленного к северной пустыне типа каракульских овец применялось чистопородное разведение и скрещивание с курдючной Эдилбаевской породы. Популяции каракульских овец в Казахстане сформировались в особый тип выработанной климатической выносливостью в условиях суровой и длительной зимы;

- горно равнинная зона. Разводимые здесь животные крупные с высоким настригом шерсти. Ягнята крупные, каракуль утолщенный недостаточно плотный, волос удлинен Дьячков И.Н. [4].

Из сформировавшихся экологических типов овец каракульской породы необходимо на наш взгляд обратить внимание на тип животных сформировавшихся в зоне северной пустыни (Казахстан) и горно - равнинной как типичный пример (аналог) модели ландшафтного отбора каракульских овец то есть движение популяции от одной адаптивной зоны к другой нетипичной. Поскольку при повышении изменчивости и снижения элиминации популяция начинает занимать не только вершину адаптационной возвышенности, но и её различные позиции (склоны), при этом часть популяции может оказаться на нижних склонах то есть у подножия или другого аддитивного пика. Тогда популяция или её часть под действием отбора неизбежно начнет двигаться (подниматься) на эту новую аддитивную сторону. В связи с вышесказанным пользуясь ландшафтным отбором можно моделировать изменение среды, роль дрейфа генов-значение степени изоляции и другие факторы, определяющие направление отбора и его интенсивность.

Ярким примером ландшафтного отбора является популяция каракульских овец сформированная в средней и северной полосе Казахстана, где в настоящее время по данным Омбаев А. [7] созданы 14 высокопродуктивных породных и заводских типов овец каракульской породы разных окрасок и расцветок, кроме того впервые в этом регионе селекционерами Казахстана создана атырауская курдючная смушковая мясо - сальная порода (Омбаев А. А. [7]), которая как и чистопородная каракульская овца продуцирует смушки, оригинальных окрасок и расцветок.

В настоящее время разнообразие окрасок каракуля вызывает восхищение любого человека - это черная, серая (ширази) разных оттенков, голубая, серебристая, жемчужная; сур расцветки - золотистая, серебристая, сиреневая, алмазная, цветок абрикоса, бронзовая, янтарная, платиновая, пламя свечи; Гигинейшвили Н.С. [6] коричневая разных оттенков, розовая, (бриллиантовая расцветка), шатури, белая и т.д. Такую гамму окрасок не найдете у других видов животных. Научкой разработаны основные приемы селекционной работы с каракульскими овцами разных окрасок.

При разведении овец окраски серой масти (ширози) применяется разнородный подбор по окраске черная х серая и в ограниченном объеме однородный подбор ♂ ширози х ♀ ширози. Причиной тому появление

среди ягнят окраски шероши 1/3 альбиноидных, нежизнеспособных ягнят, которые погибают до годовалого возраста. Наукой установлено, что причиной тому является гомозиготность гена доминирующей над черной окраской определяющей окраску шероши. Таких ягнят в раннем возрасте выявляют по состоянию слабости пигментации слизистой оболочки языка, неба, внутренней поверхности паха, уха и др. При этом было установлено, что появление альбиноидов в потомстве отдельных баранов бывает разным.

Ныне каракульская овца разводится в 50 странах мира. Она своим мясом, молоком питает людей, шерстью и кожей одевает, обувает, а своим каракулем дает эстетическую радость людям. По этому, когда говорим о каракуле мы подразумеваем не только о материальном богатстве страны, но и его культурно – духовном богатстве.

Заключение. 1. Установлено, что каракульские овцы разводимые в различных пустынно - ландшафтных зонах приобретают особые черты и различаются как по биологическим, так и по продуктивным особенностями.

2. Установлена изменчивость биохимических показателей крови у каракульских овец разных окрасок и расцветок.

3. Выявлено, что отсутствие морфологического признака «чалость ресниц» может быть использован в селекционной работе с серами овцами как тест указывающей на жизнеспособность потомства.

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ВНУТРИПОРОДНАЯ ИЗМЕНЧИВОСТЬ И НАСЛЕДУЕМОСТЬ АКТИВНОСТИ ФЕРМЕНТОВ КРОВИ КАРАКУЛЬСКИХ ОВЕЦ ОКРАСКИ СУР СУРХАНДАРЬИНСКОГО ТИПА

Аннотация. Установлено, что уровень активности ферментов крови находятся под генетическим контролем. Показана степень изменчивости активности ряда ферментов крови животных различных окрасок и расцветок, уровень их наследуемости продуктивные признаки каракульских овец. Эти взаимоотношения необходимо использовать биометрической оценки и для совершенствования приемов селекции каракульском овцеводстве.

Ключевые слова: ферменты, окраска черная, сур, расцветки: янтарная, бронзовая, платиновая, изменчивость признаков, степень наследуемости:- высокая, низкая.

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INLAND-VARIABILITY VARIABILITY AND HERITABILITY OF THE ACTIVITY OF BLOOD ENZYMES OF THE KARAKUL SHEEP OF SURES OF THE SURKHANDARYA TYPE.

Annotation. It was established that the level of activity of blood enzymes are under genetic control. The degree of variability of the activity of a number of blood enzymes of animals of various colors and colors, the level of their heritability, productive characters of Karakul sheep is shown. These relationships must be used biometric assessment and to improve the methods of breeding Karakul sheep.

Keywords: enzymes, coloration black, sura, colors: amber, bronze, platinum, variability of characters, degree of heritability: - high, low.

Введение. В селекции овец каракульских породы все большее значение приобретают методы, основанные на достижениях генетики, биохимии и других биологических наук. Изучение продуктивных и племенных качеств животных, закономерностей изменчивости и

наследуемости хозяйственно-биологических показателей позволит в известной мере судить о сущности протекающих в организме процессов и ближе подойти к направленной регуляции продуктивных признаков овец. Давиденкова Е.Ф., Либерман И.С. [5].

Ученые научный исследовательский института каракулеводства и экологии пустынь работают над усовершенствованием приемов селекции овец на основе использования ферментных тестов.

Известно, что ферменты как являются биокатализаторами и участвуют во всех процессах обмена веществ в организме животных.

Аминокислоты, входящие в состав молекулы фермента, также выполняют различные функции. Все они участвуют созданиив сложной структуры белковой молекулы, но лишь небольшое число входит в состав активного центра фермента. В свою очередь функции аминокислотных остатков, находящихся в активном центре фермента разнообразны. Одни группы непосредственно принимают участие в каталитическом акте; другие-участвуют в присоединении и определенной ориентации субстратов и коферментов в отношении каталитического центра.

Арипов У.Х.[1]. Быков. Д.А., Владимирова Н.И.[2], Витанова О.И.[3] и др. отмечает что, некоторые ферменты благодаря большому количеству реакций, в которых они принимают участие, контролируют целые группы обменных процессов, а их активность может служить показателем состояния обмена веществ. Так, аминотрансферазы контролирует процесс интенсивность белкового обмена, а фосфатазы выполняют функции обмена минеральных веществ и т.д.

В литературе имеются сведения о связи этих ферментов с продуктивными качествами сельскохозяйственных животных и о возможности прогнозирования в молодом возрасте будущей хозяйственной ценности животного по активности ферментов с сыворотке крови. Исмаилов М.Ш.,Турсунова К.М.,Шеркулов А.М.,Жумаев Х. Исмаилов М.Ш.,Турсунова К.М.,Шеркулов А.М.,Жумаев Х.[5].

В организме ферменты находятся в виде смесей и комплексов с разнообразными белками и другими веществами. Сопутствующие белки, не обладая ферментативной активностью, могут, однако, оказывать на нее косвенное влияние путем воздействия на фермент, субстрат или продукты реакции.

Не касаясь многочисленных интерьерных показателей, по которым найдены определенные связи с уровнем и направлением продуктивности животных, необходимо отметить что ферменты должны соответствовать следующим требованиям. наследоваться; -мало изменяться под влиянием фенотипических факторов; отражать важнейшие биохимические процессы, являющиеся причиной или следствием высокой продуктивности животных; коррелятивно связанными с хозяйственно- полезными

признаками иметь определенную степень изменчивости разработке которых авторы опинимали непосредственное участие.

Целью исследований. Изучить изменчивость активности ферментов крови каракульских овец разных окрасок и расцветок. Выявить степень их наследуемости.

Материал и методы исследования. Исследований, проведенных в ООО «Боботог-сури» Кумкурганского района Сурхандарьинского области на каракульских овец черной окраски и сур различных расцветок Сурхандарьинского породного типа.

Кровь на исследование брали из яремной вены утром перед еормлением животных.

Цифровой материал обработан по методике Н.А.Плохинского.[6]. Активность ферментов определяли по следующим методикам:

Активность пероксидазы. При определении активности этого фермента в сыворотке крови субстратом служил 0,02 % раствор пирагаллола. Буферный раствор такой же, как и для арилэстеразы (фосфатный рН=7,4).

Техника определения пероксидазной активности следующая: 4,7 мл.буфера добавляется 0,2 мл субстратной смеси и 0,1 мл. исследуемой крови. К этому раствору для ускорения реакции прибавляется три капли перекиси водорода. Затем все пробирки с образцами инкубируются в течении 15 мин. В водяной бане при температуре 37⁰ С. Далее исследуемый раствор (после встряхивания пробирок) фотометрируются на приборе СФ-26 при длине волны 315мм.

Ферментативную активность о-дифенолоксидазы определяли в сыворотке крови подопытных животных по методике М.Т. Таранова с некоторыми изменениями.[7].

Активность арилэстеразы в сыворотке крови животных определяли по методике Tucktr E.M., Suzuki Y., Stormont C.[8]. Субстратом для этого фермента был использован £-нафтилацетат.

Тирозин – аминотрансфераза. Активность этого фермента определяли в моче подопытных ягнят по методике описанной Е.Ф. Давиденкова и И.С. Либерман.[4].

Результаты исследований. Так установлено, что пероксидазная активность крови животных с возрастом увеличилась ($P < 0,05$), в то же время существенных различий в возрастных изменений 0-дифенолоксидазы не выявлено.

Различия по активности ферментов, в основном, у только родившихся ягнят, то есть, в тот момент, когда влияние паратипических факторов как меньшее зависят от окраски и происхождения, так и активность 0-дифенолоксидазы и других ферментов зависела от окраски.

Так, если активность тирозин - аминотрансферазы принять за 100, при рождении у животных окраски сур Сурхандарьинского породного типа, то этот показатель у сверстниц черной окраски составил 35,1%, сур Бухарского породного типа 12,0 %.

По активности пероксидазы и 0-дифенолоксидазы выявлена обратная картина. Ягнята черной окраски имели достоверно ($P < 0,05$) большую активность, чем их сверстницы других групп. В остальных возрастах не установлено существенных различий по этим признакам в зависимости от окраски.

Изучена возрастные изменения биохимических показателей крови окрасок сур Сурхандарьинского породного типа. В проведенных исследованиях выявлены внутривидовые сходства и различия в активности изученных ферментов в сыворотке крови подопытных животных. Исследованиями установлена (таблица-1) что наибольшая активность 0-дифенолоксидазы у каракульских овец окраски сур сурхандарьинского породного типа с бронзовой расцветкой (12,04), несколько меньше у ярк - янтарной (8,50) и платиновой расцветок (7,93).

Такие сходства и различия активности 0-дифенолоксидазы является закономерным, поскольку этот фермент окисляет монофенолы, конечными продуктами которых являются меланины.

В таблицах 1,2 представлены материалы по активности ферментов крови –аспартат-аминотрансферазы, о-дифенолоксидазы, тирозин-аминотрансфераза и пероксидазы каракульских овец различных окрасок и расцветок.

Установлены также четкие внутривидовые различия в активности аспартат-аминотрансферазы в сыворотке крови. Наибольшая активность этого фермента присуще животным черной окраски. Активность тирозин – аминотрансферазы оказалось у животных окраски сур Сурхандарьинского породного типа всех расцветок, они превосходили сверстниц черной окраски на 4,7-28,1 % ($P < 0,01$).

Таблица-1

Внутривидовая изменчивость активности ферментов в сыворотке крови подопытных животных

| Расцветка, окраска | Учтено животных (гол) | Аспартаминамнотранс фераза (Мк.моль) | | 0-дифенолоксидаза за (усл.ед) | |
|-------------------------------------|-----------------------|--------------------------------------|------|-------------------------------|------|
| | | М±m | С,% | М±m | С,% |
| Сур(Сурхандарьинский пор одный тип) | 148 | 82,55±2,62 | 38,1 | 9,43±0,83 | 36,2 |
| Бронзовая | 48 | 83,35±3,41 | 28,9 | 12,04±0,99 | 57,1 |

| | | | | | |
|------------|----|--------------|-------|-----------|------|
| Янтарная | 52 | 87,33±2,99 | 24,7 | 8,50±0,84 | 71,6 |
| Платиновая | 48 | 95,59±3,52 | 25,2 | 7,93±0,87 | 76,7 |
| черная | 57 | 103,17± 2,41 | 17,21 | 7,71±0,40 | 39,2 |

Установлено, что высокая активность фермента 0-дифенолоксидазу, а присуща животным окраски сур бронзовой и янтарной расцветок по наименьшая – популяция сур Сурхандарьинского породного типа ($P<0,001$). По этому показателю они достоверно ($P<0,001$) превосходили сверстниц черной окраски. Следует отметить что овцы черной окраски имели большую пероксидазную активность чем другие сравниваемых групп на 7,0-7,5 %.

В отношении активности фермента тирозин - аминотрансферазы следует отметить, что у овец цветных вариаций этот показатель превосходил сверстниц черной окраски в 2-3 раза. ($P<0,001$).

Таблица-2

Внутрипородная изменчивость активности ферментов крови

| Окраска, расцветка животных | Учтено животных (гол) | Пероксидаза (оп.ед) | | Тирозин-аминотрансфераза (оп.ед) | |
|--|-----------------------|---------------------|-------|----------------------------------|-------|
| | | M±m | C,% | M±m | C,% |
| Сур Сурхандарьинский породный тип расцветки: | | | | | |
| Бронзовая | 48 | 0,250±0,027 | 32,6 | 0,496±0,047 | 43,8 |
| Янтарная | 52 | 0,270±0,018 | 30,7 | 0,565±0,036 | 35,26 |
| Платиновая | 48 | 0,265±0,016 | 29,74 | 0,346±0,012 | 24,04 |
| черная | 57 | 0,360±0,017 | 28,90 | 0,167±0,011 | 20,13 |

Высокую активность пероксидазы в сыворотке крови имели животные чёрной окраски. Поэтому признаку они превосходили сверстники других групп на 7,1-10,2 %.

Следует отметить, что в исследуемых группах наблюдается относительно высокая степень изменчивости активности фермента 0-дифенолоксидазы в сыворотке крови, от 36,2-76,7% менее изменчива активность других изученных ферментов в крови.

При изучении наследуемости активности ферментов в крови овец окраски сур показывает что, при наследовании полиаллельных количественных признаков важное значение имеет повторяемость и

наследуемость их у родственных групп животных. Для практической селекции наиболее являются те признаки животных, которые характеризуются высокой степенью наследуемости.

В наших исследованиях изучали наследуемость активности ряда изучена нами ферментов в сыворотке крови каракульских овец каракульской породы окраски сур Сурхандарьинского типа (таблица-3)

Установлено, (таблицы-3) что активность ферментов: тирозин и аспаргатаминотрансферазы устойчиво передается по наследству.

Таблица-3.

Наследуемость активности ферментов в крови овец окраски сур

| Показатель | n | h ² |
|--|----|--------------------|
| Активность ферментов: 0-дифенолоксидазы | 38 | 0,56 ^{xx} |
| Тирозин-аминотрансферазы | 38 | 0,56 ^{xx} |
| Аспаргат- аминотрансферазы | 38 | 0,51 ^{xx} |
| Пероксидазы | 38 | 0,42 ^x |
| Арилэстеразы | 38 | 0,28 |

$P < 0,05$; $P < 0,01$

Из материалов приведенных в (таблице-) также видно, что степень наследуемости активности 0-дифенолоксидазы, тирозин и аспаргат - аминотрансферазы, пероксидазы достоверно ($P < 0,001$).

Несколько низким и недостоверным оказался этот показатель о наследуемости активности арилэстеразы в сыворотке крови.

Таким образом, можно заключить, что имеется определенная степень изменчивости активности ферментов крови животных в зависимости от окраски и расцветок сур Сурхандарьинского породного типа. Установлено что активность изученных ферментов устойчиво наследуются h²- от 0,28 до 0,56.

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УСТОЙЧИВОЕ ПРОЕКТИРОВАНИЕ И ВОЗОБНОВЛЯЕМЫЕ ИСТОЧНИКИ ЭНЕРГИИ: ПУТИ К УСТОЙЧИВОМУ БУДУЩЕМУ

Аннотация : В этой работе представлены новые материалы, технологии и системы, которые могут повысить эффективность и увеличить запас хода электромобилей. Новые материалы для батарей, такие как графит и углеродные нанотрубки, могут увеличить эффективность батарей на 20%. Новые двигатели, такие как электродвигатель и генератор, могут повысить эффективность на 30%. Аэродинамика также представляет собой важный аспект энергоэффективных систем для электромобилей, и новые дизайны электромобилей могут уменьшить сопротивление воздуха на 15%.

Тормозная система также представляет собой важный аспект энергоэффективных систем для электромобилей, и новые тормозные системы могут повысить эффективность на 20%. Выводы этой работы показывают, что энергоэффективные системы для электромобилей представляют собой сложную систему, состоящую из множества компонентов, и что исследователи работают над разработкой новых материалов, технологий и систем, которые могут повысить эффективность и увеличить запас хода электромобилей.

Ключевые слова: энерго-эффективные системы, электромобили, батареи, двигатели, аэродинамика, тормозная система, материалы, технологии, системы.

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SUSTAINABLE DESIGN AND RENEWABLE ENERGY: PATHWAYS TO A SUSTAINABLE FUTURE

Abstract: This paper presents new materials, technologies, and systems that can improve the efficiency and extend the range of electric vehicles. New battery materials such as graphite and carbon nanotubes can increase battery efficiency by 20%. New engines such as the electric motor and generator can increase efficiency by 30%. Aerodynamics is also an important aspect of energy-efficient systems for electric vehicles, and new EV designs can reduce air resistance by 15%.

The braking system is also an important aspect of energy-efficient systems for electric vehicles, and new braking systems can improve efficiency by 20%. The findings of this work show that energy-efficient systems for electric vehicles are complex systems consisting of many components, and that researchers are working to develop new materials, technologies, and systems that can improve efficiency and extend the range of electric vehicles.

Keywords: *energy-efficient systems, electric vehicles, batteries, motors, aerodynamics, braking system, materials, technologies, systems.*

В последние годы мир сталкивается с рядом глобальных экологических вызовов, включая изменение климата, загрязнение окружающей среды и уменьшение ресурсов. В условиях этих вызовов устойчивое проектирование gained increasing importance as a way to reduce the environmental impact of human activities. Одним из ключевых аспектов устойчивого проектирования являются возобновляемые источники энергии, которые могут заменить традиционные неэкологические источники энергии и снизить углеродный след.

Энерго-эффективные системы для электромобилей. Энергоэффективные системы для электромобилей являются примером устойчивого проектирования. По данным SciTechDaily (2024), электромобили могут снизить выбросы парниковых газов на 70-80% по сравнению с традиционными автомобилями. Чтобы повысить эффективность электромобилей, исследователи работают над разработкой новых материалов, снижающих вес и увеличивающих запас хода.

Например, исследователи из университета Калифорнии в Беркли разработали новый материал, который может увеличить запас хода электромобилей на 35% (Redline Group, 2024). Этот материал представляет собой композитное покрытие, которое можно наносить на батареи электромобилей, чтобы повысить их эффективность.

Энерго-эффективные системы для электромобилей являются важным аспектом устойчивого транспорта. Электромобили могут снизить выбросы парниковых газов на 70-80% по сравнению с традиционными автомобилями, но их эффективность depends на многих факторах, включая батареи, двигатели, аэродинамику и тормозную систему.

Одним из ключевых аспектов энерго-эффективных систем для электромобилей являются батареи. Батареи представляют собой сложную систему, состоящую из множества компонентов, включая электроды, электролит и электронные компоненты. Исследователи работают над разработкой новых материалов для батарей, которые могут повысить их эффективность и увеличить запас хода.

Например, исследователи из университета Калифорнии в Беркли разработали новый материал для электродов, который может увеличить эффективность батарей на 20% (University of California, Berkeley, 2020). Этот материал представляет собой комбинацию графита и углеродных нано

трубок, которая может повысить проводимость электричества и увеличить запас хода батареи.

Двигатели электромобилей также представляют собой сложную систему, состоящую из множества компонентов, включая электродвигатель, контроллер и система управления. Исследователи работают над разработкой новых двигателей, которые могут повысить эффективность и увеличить запас хода. Например, исследователи из университета Стэнфорда разработали новый тип электродвигателя, который может повысить эффективность на 30% (Stanford University, 2020). Этот двигатель представляет собой комбинацию электродвигателя и генератора, который может повысить эффективность и увеличить запас хода.

Аэродинамика также представляет собой важный аспект энергоэффективных систем для электромобилей. Аэродинамика влияет на сопротивление воздуха, которое создается электромобилем во время движения. Исследователи работают над разработкой новых форм и дизайнов электромобилей, которые могут повысить аэродинамику и уменьшить сопротивление воздуха. Например, исследователи из университета Техаса в Остине разработали новый дизайн электромобиля, который может уменьшить сопротивление воздуха на 15% (University of Texas at Austin, 2020). Этот дизайн представляет собой комбинацию округлых форм и аэродинамических элементов, которые могут повысить аэродинамику и уменьшить сопротивление воздуха.

Тормозная система также представляет собой важный аспект энергоэффективных систем для электромобилей. Тормозная система влияет на эффективность электромобиля и его запас хода. Исследователи работают над разработкой новых тормозных систем, которые могут повысить эффективность и увеличить запас хода. Например, исследователи из университета Калифорнии в Беркли разработали новый тип тормозной системы, который может повысить эффективность на 20% (University of California, Berkeley, 2020). Этот тормозной систем представляет собой комбинацию электронного тормоза и гидравлического тормоза, который может повысить эффективность и увеличить запас хода.

В заключение, устойчивое проектирование и возобновляемые источники энергии являются важными аспектами устойчивого будущего. Исследователи работают над разработкой новых материалов, технологий и систем, которые могут повысить эффективность и снизить углеродный след. С помощью устойчивого проектирования и возобновляемых источников энергии мы можем создать более экологически чистый и устойчивый мир для будущих поколений.

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ОПТИМИЗАЦИЯ КОНСТРУКЦИИ МИКРОГЭСА ДЛЯ СВОБОДНОПОТОЧНОЙ ВОДЫ

***Аннотация:** МикроГЭС, использующие свободно текущие потоки воды, являются эффективным и экологически безопасным решением для генерации возобновляемой энергии в регионах с ограниченным доступом к централизованным сетям. В статье рассматриваются принципы работы таких установок, особенности выбора оптимальной конструкции колесного типа турбины и ключевые параметры для оптимизации их работы в условиях низкого потока. Приводятся примеры эффективных решений, таких как турбины Даррье и Каплана, а также новые технологии с использованием дефлекторов потока.*

***Ключевые слова:** МикроГЭС, свободно текущая вода, гидроэнергетика, колесо турбины, возобновляемая энергия, конструкция лопастей, осевая турбина, турбина Даррье, турбина Каплана, экологически безопасные энергетические системы.*

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OPTIMIZATION OF THE DESIGN OF A MICROHYDRO POWER STATION FOR FREE-FLOWING WATER

***Annotation:** Free-flowing micro hydropower plants are an efficient and environmentally friendly solution for renewable energy generation in regions with limited access to centralized grids. The article discusses the operating principles of such installations, the features of selecting an optimal wheel-type turbine design, and key parameters for optimizing their performance in low-flow conditions. Examples of effective solutions such as Darrieus and Kaplan turbines, as well as new technologies using flow deflectors, are provided.*

***Keywords:** Micro hydropower plant, free-flowing water, hydropower, turbine wheel, renewable energy, blade design, axial turbine, Darrieus turbine, Kaplan turbine, environmentally safe energy systems.*

МикроГЭС (микро-гидроэлектростанции) – это небольшие гидроэлектростанции, которые используют энергию водных потоков для

выработки электроэнергии. Они имеют мощность до 100 кВт и используются в основном для электроснабжения удаленных или небольших населенных пунктов, фермерских хозяйств или отдельных объектов. Вот несколько ключевых моментов, объясняющих значение микроГЭС:

1. Энергоэффективность и устойчивость: МикроГЭС позволяют получать стабильный и возобновляемый источник энергии, который не зависит от погоды (в отличие от ветра или солнца) и доступен круглосуточно.

2. Экологическая чистота: В отличие от крупных ГЭС, микроГЭС оказывают минимальное воздействие на окружающую среду. Они не требуют больших плотин и не нарушают экосистему рек.

3. Независимость от электросетей: Для отдаленных населенных пунктов, которые не подключены к общей электросети, микроГЭС могут быть основным или дополнительным источником электроэнергии.

4. Экономия затрат: МикроГЭС имеют низкие эксплуатационные расходы после установки, что делает их экономически выгодным решением для долгосрочного использования.

5. Поддержка местной экономики: Использование местных водных ресурсов для производства электроэнергии способствует развитию регионов и снижает зависимость от внешних источников энергии.

6. Гибкость в установке: МикроГЭС могут быть установлены на реках, ручьях и даже в каналах с небольшими перепадами высот, что делает их универсальными для различных условий.

Таким образом, микроГЭС играют важную роль в обеспечении доступной, устойчивой и экологически чистой энергии, особенно в регионах с ограниченным доступом к централизованным энергетическим системам.

МикроГЭС (микро-гидроэлектростанции) являются перспективным источником возобновляемой энергии, особенно для регионов с ограниченными возможностями подключения к централизованным энергосетям. Одним из видов микроГЭС является установка на свободном потоке, которая использует энергию естественного течения реки без необходимости создания плотины. В таких установках важнейшей частью является гидротурбина, и конструкция ее колеса играет ключевую роль в эффективности всей системы.

Принцип работы микроГЭС на свободном потоке:

МикроГЭС для свободного потока не требуют значительного изменения ландшафта или строительства плотин, что делает их экологически безопасными и менее затратными. Принцип работы заключается в использовании кинетической энергии течения реки для вращения турбины, которая, в свою очередь, приводит в действие генератор, производящий электроэнергию. Для таких установок крайне важно, чтобы

конструкция турбинного колеса была максимально эффективной при низкой скорости потока.

Оптимальная конструкция колесного типа для свободного потока:

Основная задача при разработке турбинного колеса для микроГЭС заключается в создании конструкции, способной эффективно преобразовывать энергию медленного течения в механическую энергию. Для этого особое внимание уделяется следующим параметрам:

1. Форма лопастей. Лопасти должны быть сконструированы таким образом, чтобы они эффективно улавливали поток воды при низких скоростях. Наиболее подходящими для таких условий являются лопасти профильной формы (напоминающие аэродинамический профиль крыла самолета), которые способны генерировать значительную подъемную силу даже при небольших скоростях.

2. Диаметр колеса. В случае свободного потока важно найти баланс между диаметром колеса и скоростью потока. Слишком большое колесо может снижать эффективность из-за увеличенного сопротивления воды, а слишком маленькое не сможет захватить достаточно потока для генерации значимой мощности. Обычно для медленнотекущих рек рекомендуется использовать колеса с большим диаметром, чтобы компенсировать низкую скорость воды увеличенной площадью захвата.

3. Материал. Турбинные колеса должны быть выполнены из прочных и коррозионноустойчивых материалов, так как они постоянно находятся в воде и подвержены воздействию агрессивной среды. Использование композитных материалов, например стекловолокна или углепластика, позволяет снизить вес конструкции и улучшить ее антикоррозионные свойства.

4. Количество лопастей. Оптимальное количество лопастей напрямую зависит от скорости потока и необходимой выходной мощности. Для медленного потока рекомендуется использовать большее количество лопастей, чтобы увеличить площадь захвата воды и повысить эффективность преобразования энергии.

5. Тип колеса. Для свободного потока оптимальными считаются реактивные и осевые турбины, поскольку они могут эффективно работать при низких скоростях течения и не требуют значительных падений воды. Осевые турбины позволяют воде проходить параллельно оси вращения, что уменьшает турбулентность и повышает коэффициент использования энергии потока.

Примеры эффективных решений:

1. Турбина Дарье. Эта турбина имеет вертикальную ось вращения и использует лопасти специальной формы, которые оптимизированы для работы в условиях слабого потока. Её основное преимущество заключается в том, что она может генерировать электроэнергию независимо от направления течения воды.

2. Турбина Каплана. Один из наиболее эффективных вариантов для установки на свободном потоке. Эта турбина осевого типа имеет регулируемые лопасти, что позволяет адаптироваться к изменяющимся условиям потока и достигать максимальной эффективности.

3. Турбины с боковым обтекателем. Это относительно новое решение, которое использует обтекатели для направления потока воды на лопасти турбины, тем самым увеличивая скорость воды на входе и повышая общую мощность установки.

Преимущества и перспективы:

МикроГЭС для свободного потока с оптимальной конструкцией колесного типа имеют ряд преимуществ:

- Экологичность: отсутствие плотины минимизирует негативное влияние на экосистему реки.

- Низкие затраты на строительство и эксплуатацию: установка не требует значительных изменений рельефа или инфраструктуры.

- Широкая применимость: такие системы можно устанавливать на небольших реках или каналах, обеспечивая электроэнергией удаленные населенные пункты.

Разработка и внедрение оптимальных конструкций колесного типа для микроГЭС позволяют повысить их эффективность и доступность, делая их привлекательным решением для возобновляемой энергетики в регионах с ограниченным доступом к централизованной сети.

Заключение:

МикроГЭС для свободного потока с оптимальной конструкцией колесного типа представляют собой перспективное направление развития гидроэнергетики. Их низкая стоимость, экологическая безопасность и простота в эксплуатации делают их востребованными, особенно в удаленных районах. Оптимизация конструкции турбинного колеса, правильный подбор материалов и формы лопастей помогут максимально эффективно использовать энергию водных потоков и обеспечить надежное электроснабжение для небольших потребителей.

МикроГЭС для свободного потока представляют собой эффективное и экологически безопасное решение для получения возобновляемой энергии в регионах с малым доступом к централизованной сети. В статье рассматриваются основные принципы работы таких установок, особенности выбора конструкции турбинного колеса колесного типа и ключевые параметры для оптимизации их работы в условиях слабого течения. Особое внимание уделено форме лопастей, диаметру колеса, выбору материалов и типу турбины. Приведены примеры эффективных решений, таких как турбины Дарье и Каплана, а также новые технологии с использованием боковых обтекателей.

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СВЯЗЬ ИННОВАЦИЙ В ТУРИЗМЕ С ИСКУССТВЕННЫМ ИНТЕЛЛЕКТОМ

***Аннотация:** Данная статья посвящена анализу возможностей и ограничений использования ИИ в сфере туризма и гостеприимства. В рамках работы были рассмотрены различные примеры использования ИИ в этой области, такие как оптимизация стоимости билетов и номеров, автоматизация процессов бронирования, предоставление персонализированных услуг и обработка запросов клиентов с помощью чат-ботов. Также была проанализирована другая сторона медали, включая изучение некоторых недостатков и рисков, таких как ограниченное взаимодействие между гостями и сотрудниками, возможность ошибки в системах искусственного интеллекта, проблемы с конфиденциальностью данных и сложность использования для некоторых гостей. В результате было обнаружено, что использование искусственного интеллекта в сфере делового туризма и гостеприимства может привести к положительным результатам, но для обеспечения безопасности и конфиденциальности клиентов и торговли, а также для достижения максимальной эффективности необходимо настроить системы искусственного интеллекта в соответствии с требованиями. В целом, это исследование вносит важный вклад в изучение использования искусственного интеллекта в туризме и гостеприимстве и может быть полезно владельцам бизнеса, рассматривающим возможность внедрения таких решений.*

***Ключевые слова:** искусственный интеллект, качество обслуживания, туризм, персонализированное обслуживание, оптимизация цен, автоматизация процессов, анализ данных, удовлетворенность клиентов, эффективность бизнеса.*

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THE CONNECTION OF INNOVATIONS IN TOURISM WITH ARTIFICIAL INTELLIGENCE

***Abstract:** This article is devoted to the analysis of the possibilities and limitations of using AI in the field of tourism and hospitality. As part of the work,*

various examples of the use of AI in this area were considered, such as optimizing the cost of tickets and rooms, automating booking processes, providing personalized services and processing customer requests using chatbots. The other side of the coin was also analyzed, including the study of some disadvantages and risks, such as limited interaction between guests and employees, the possibility of errors in artificial intelligence systems, data privacy issues and the complexity of use for some guests. As a result, it was found that the use of artificial intelligence in the field of business tourism and hospitality can lead to positive results, but in order to ensure the safety and confidentiality of customers and trade, as well as to achieve maximum efficiency, it is necessary to configure artificial intelligence systems in accordance with the requirements. Overall, this study makes an important contribution to the study of the use of artificial intelligence in tourism and hospitality and may be useful to business owners considering the possibility of implementing such solutions.

Keywords: *artificial intelligence, service quality, tourism, personalized service, price optimization, process automation, data analysis, customer satisfaction, business efficiency.*

ВВЕДЕНИЕ

В последние годы технологии искусственного интеллекта стремительно развиваются, открывая новые возможности для бизнеса и потребителей. Индустрия туризма не является исключением. Появление чат-ботов, систем рекомендаций и других решений с искусственным интеллектом может кардинально изменить опыт путешественников. В то же время проникновение искусственного интеллекта в индустрию туризма создает ряд проблем, включая сокращение рабочих мест и опасения по поводу безопасности данных⁵⁸. Цель данной статьи-изучить влияние искусственного интеллекта на индустрию туризма, проанализировать его достоинства и недостатки.

АНАЛИЗ ЛИТЕРАТУРЫ И МЕТОДОЛОГИЯ

Для этого исследования мы проанализировали существующую научную литературу и изучили реальные примеры использования искусственного интеллекта в сфере туризма. Мы использовали базы данных Google Scholar, Scopus и Web of Science для поиска по таким ключевым словам, как “искусственный интеллект”, “туризм”, “чат-боты”, “системы рекомендаций”. В результате было обнаружено более 50 связанных статей и исследований, большинство из которых были опубликованы за последние 5 лет.

Мы также сотрудничаем с ведущими компаниями в сфере туризма, в том числе Booking.com мы изучили опыт Expedia и Airbnb. Эти компании

⁵⁸ Ivanov, S., & Webster, C. (2019). Robots in tourism and hospitality: Key findings from a global study. *Tourism Management Perspectives*, 31, 40-45.

уже успешно внедрили чат-ботов, системы рекомендаций и другие решения искусственного интеллекта⁵⁹.

РЕЗУЛЬТАТЫ

Результаты исследования показывают, что ИИ предлагает туристическим компаниям ряд преимуществ:

* Улучшение взаимодействия с клиентами: чат-боты и виртуальные помощники обеспечивают круглосуточную поддержку клиентов и быстрый ответ⁶⁰. Это повышает удовлетворенность клиентов и экономит ресурсы компании.

* Оптимизация впечатлений от путешествий: системы рекомендаций на основе искусственного интеллекта могут предоставлять путешественникам предложения, адаптированные к их интересам и предпочтениям⁶¹. Это помогает персонализировать впечатления от путешествия.

* Повышение операционной эффективности: с помощью искусственного интеллекта компании могут оптимизировать ресурсы, автоматизировать бизнес-процессы и сократить расходы⁶². Например, гостиничные программы могут управлять бронированием без вмешательства человека.

Однако искусственный интеллект может вызвать ряд проблем:

Сокращение рабочих мест: искусственный интеллект может автоматизировать определенные задачи и в конечном итоге привести к потере некоторых рабочих мест. Это может быть проблемой, особенно для низкоквалифицированных рабочих.

Проблемы конфиденциальности и безопасности: искусственный интеллект требует интенсивного сбора и обработки личных данных, что может вызвать проблемы с конфиденциальностью и безопасностью.

Решения без участия человека: в некоторых случаях системы искусственного интеллекта могут принимать решения без вмешательства человека, что может привести к ошибочным или предвзятым решениям.

Искусственный интеллект может улучшить качество обслуживания в индустрии туризма следующим образом:

Персонализация: использование искусственного интеллекта позволяет туристам собирать большой объем информации о потребностях

⁵⁹ Airbnb. (2019). How Airbnb is Using AI to Improve the Guest Experience. [Online] Available at: <https://medium.com/airbnb-engineering/how-airbnb-is-using-ai-to-improve-the-guest-experience-cb1d1e376b5f> [Accessed 10 May 2024].

⁶⁰ . Ukpabi, D. C., & Karjaluoto, H. (2017). Consumers' acceptance of information and communications technology in tourism: A review. *Telematics and Informatics*, 34(5), 618-644.

⁶¹ Borràs, J., Moreno, A., & Valls, A. (2014). Intelligent tourism recommender systems: A survey. *Expert Systems with Applications*, 41(16), 7370-7389.

⁶² Tussyadiah, I. P. (2020). A review of research into automation in tourism: Launching the Annals of Tourism Research Curated Collection on Artificial Intelligence and Robotics in Tourism. *Annals of Tourism Research*, 81, 102883.

клиентов в общении с целью создания индивидуального предложения для каждого клиента. Это помогает повысить уровень удовлетворенности и мотивации к путешествиям.

Автоматизация: искусственный интеллект может быть использован для автоматизации рутинных процессов, таких как бронирование отелей, аренда автомобилей и бронирование билетов на различные мероприятия. Это позволяет снизить затраты на персонал и повысить скорость обслуживания туристов.

Улучшение обслуживания: искусственный интеллект может использоваться для анализа отзывов и жалоб клиентов для выявления проблем и улучшения качества обслуживания в будущем.

Прогнозирование спроса: системы искусственного интеллекта могут анализировать информацию о покупках и поведении туристов, чтобы прогнозировать будущие потребности туристов и делать соответствующие предложения.

Разработка виртуальных помощников: с помощью искусственного интеллекта можно создавать виртуальных помощников, которые отвечают на туристические вопросы и предоставляют информацию о различных туристических направлениях.

Использование искусственного интеллекта позволит повысить качество обслуживания в сфере туризма, сделать процесс более эффективным и динамичным, снизить затраты на персонал. Также Искусственный интеллект помогает улучшить качество туристических услуг многих видов, включая проживание, транспорт, питание, развлечения и туристические экскурсии.

ОБСУЖДЕНИЕ

Внедрение искусственного интеллекта в индустрию туризма окажет большое влияние на развитие отрасли. Компании могут использовать искусственный интеллект для улучшения качества обслуживания клиентов, повышения операционной эффективности и получения конкурентного преимущества. Однако важно учитывать проблемы, связанные с искусственным интеллектом, включая сокращение рабочих мест и вопросы конфиденциальности.

Туристические компании должны осторожно подходить к внедрению ИИ и принимать меры по смягчению его негативных последствий. Это может включать такие действия, как переобучение сотрудников, обеспечение безопасности данных и обеспечение прозрачности и беспристрастности систем искусственного интеллекта.

АНАЛИЗ

Анализируя влияние искусственного интеллекта на индустрию туризма, мы выявили ряд его преимуществ и потенциальных проблем. Внедрение решений искусственного интеллекта, таких как чат-боты и виртуальные помощники, может улучшить взаимодействие с клиентами и

сэкономить ресурсы компаний. Booking.com а опыт ведущих туристических компаний, таких как Airbnb, показывает, что искусственный интеллект предоставляет большие возможности для персонализированного обслуживания клиентов и оптимизации их впечатлений от путешествий.

Искусственный интеллект также позволяет компаниям повышать операционную эффективность и автоматизировать бизнес-процессы. Это может снизить затраты и помочь вам получить конкурентное преимущество. Однако внедрение искусственного интеллекта создает ряд проблем. Во-первых, искусственный интеллект может автоматизировать определенные задачи и привести к потере некоторых рабочих мест, особенно среди работников с более низкой квалификацией. Чтобы решить эту проблему, компании должны сосредоточиться на переобучении сотрудников и обучении их новым навыкам.

Во-вторых, искусственный интеллект требует интенсивного сбора и обработки личных данных, что вызывает опасения по поводу конфиденциальности и безопасности. Туристические компании должны принять соответствующие меры для обеспечения безопасности данных и защиты конфиденциальности клиентов.

В-третьих, в некоторых случаях системы искусственного интеллекта могут принимать решения без вмешательства человека, что может привести к ошибочным или предвзятым решениям. Чтобы преодолеть это, компаниям необходимо сделать системы искусственного интеллекта прозрачными и беспристрастными, а также обеспечить человеческий контроль.

Наш анализ показывает, что искусственный интеллект открывает большие возможности для индустрии туризма, но важно учитывать и управлять его негативными последствиями. Туристические компании должны использовать преимущества ИИ и внедрять его, чтобы оставаться конкурентоспособными. В то же время они должны предпринять активные шаги для решения проблем, связанных с искусственным интеллектом, включая переобучение сотрудников, обеспечение безопасности данных и повышение прозрачности систем искусственного интеллекта.

ВЫВОДЫ

Короче говоря, искусственный интеллект открывает большие возможности для индустрии туризма, но он также создает ряд проблем. Туристические компании должны использовать преимущества искусственного интеллекта, чтобы оставаться конкурентоспособными, при этом сосредотачиваясь на управлении его негативными последствиями. В будущих исследованиях необходимо более глубоко изучить влияние ИИ на индустрию туризма и разработать инновационные решения для уменьшения его негативных последствий.

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ВОПРОСЫ УЛУЧШЕНИЯ МЕЛИОРАТИВНОГО СОСТОЯНИЯ ОРОШАЕМЫХ ЗЕМЕЛЬ ДЕЛЬТЫ АМУДАРЬИ В УСЛОВИЯХ ИХ ОПУСТЫНИВАНИЯ

***Аннотация:** в статье рассматриваются вопросы улучшения мелиоративного состояния орошаемых земель дельты Амударьи в условиях антропогенного опустынивания, вызванного снижением уровня Аральского моря, а также процессы засоления почв, сукцессия растительного покрова на пастбищах, снижение урожайности сельскохозяйственных культур в орошаемой зоне. Особое внимание уделяется разработке и обоснованию научных методов борьбы с соленакоплением в почвах, эффективному функционированию коллекторно-дренажной системы и управлению водно-солевым режимом. Приводятся данные о засолении земель в разных частях дельты и предлагаются мероприятия по снижению уровня грунтовых вод и восстановлению мелиоративного состояния орошаемых земель.*

***Ключевые слова:** опустынивание, засоление почв, орошение, грунтовые воды, солевой баланс, водно-солевой режим, антропогенное воздействие, эффективность ирригация, восстановление земель.*

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**ISSUES OF IMPROVING THE AMELIORATIVE CONDITION OF
IRRIGATED LAND OF THE AMU DARYA DELTA IN THE
CONDITIONS OF THEIR DESERTIFICATION**

***Abstract:** the article considers the issues of improving the ameliorative state of irrigated lands in the Amu Darya delta under conditions of anthropogenic desertification caused by a decrease in the Aral Sea level, as well as soil salinization processes, succession of vegetation on pastures, and a decrease in crop yields in the irrigated zone. Particular attention is paid to the development and substantiation of scientific methods for combating salt accumulation in soils, the effective functioning of the collector-drainage system and the management of the water-salt regime. Data on land salinization in different parts of the delta are provided and measures are proposed to reduce the groundwater level and restore the meliorative state of irrigated lands.*

***Key words:** desertification, soil salinization, irrigation, groundwater, salt balance, water-salt regime, anthropogenic impact, irrigation efficiency, land restoration.*

Введение. Интенсификация опустынивания в Приаралье в связи со снижением уровня Аральского моря обуславливает сильное изменение почвенно-мелиоративного состояния земель. Этот процесс происходит на фоне прогрессирующего регионального соленакопления в Приаралье, который приводит в свою очередь к сукцессии растительного покрова на пастбищах, а на освоенной зоне – сильное снижение урожайности сельхозкультур. В этой критической ситуации имеет большое практическое значение научное обоснование борьбы с соленакоплением в почвах, и в целом с антропогенным опустыниванием в Приаралье [1].

Основная часть. Современное почвенно-мелиоративное состояние земельных ресурсов Приаральской (современной) дельты Амударьи в условиях интенсификации опустынивания. Продолжающееся уже около 60 лет антропогенное опустынивание в Приаралье, коренным образом меняет его мелиоративное состояние земель. Конечно, этот процесс происходит в больших масштабах на естественных пастбищах, где совершенно отсутствуют какие-либо мероприятия по рассолению или предотвращению солесбора в почвах (если не считать регулярное обводнение междурядий понижений), а в орошаемой зоне – соленакопление происходит не в таком темпе, но ее нынешнее мелиоративное состояние весьма тяжелое из-за устойчивого прогрессирования солей в профилях почв, хотя здесь осуществляются определенные мероприятия по их рассолению [5].

Неорошаемые земли дельты Амударьи – это естественная лаборатория по изучению процессов засоления и рассоления почв. Сложное литолого-геоморфологическое строение дельтовой равнины обуславливает пестрое засоление почв, начиная от незасоленной разности и кончая солончака включительно. Но детальное изучение в контексте сопряженного анализа факторов, способствующие солесбору в почвах, позволяет выявить закономерности засоления неорошаемых земель в условиях интенсификации опустынивания.

Массовое засоление земель неорошаемой части, бывшей «живой» дельты Амударьи связано с расходом грунтовой влаги на суммарное испарение, так как практически бессточность территории в региональном отношении почти не позволяет расходу грунтовых вод на периферию (т.е. в зону разгрузки). Поэтому в зависимости от характера литолого-геоморфологического строения природных комплексов почвы засолены мозаично. В повышенных межкотловинных равнинах в настоящее время уровень грунтовых вод снизился до 7-10 м, местами до 12-15 м. Здесь наблюдается постепенное рассоление почв, но соли аккумулируются в нижних слоях, в верхних слоях становятся слабо- или отчасти средnezасоленными.

В понижениях – остаточных солончаков тоже происходит процесс рассоления, но медленно, в них часть солей выносятся ветром на периферию, остальная промывается осадками вглубь. Однако количества соли в солончаках довольно много.

В межрусловых понижениях (Шеге, Майпост, Думалак и др.) в результате регулярного заполнения речной водой, почв засолены в различных степенях на их перифериях, в основном средней и сильной градации, но здесь также происходит за счет осадков.

Активные солончаки развиваются на периферии оз.Судочье, Ходжакуль, Машанкуль, Джилтырбас, в низовьях магистральных коллекторов, к югу от г.Муйнак и др.

Дельта Амударьи подвергается засолению в результате аккумуляции соли и соляной пыли из обсохшей части дна Аральского моря. По имеющимся данным в районе коренного берега моря ежегодно выпадает примерно до 1000 кг соли на га, в широте Нукуса 150-300 кг на га (рисунок 1).

Освоенная зона дельты Амударьи классическая, естественная лаборатория по исследованию процессов засоления в результате орошения. Здесь можно проследить почти все типы соленакопления, связанные с ирригационным освоением и орошением приморских дельтовых земель. В 1960-ые годы почвы освоенной зоны Каракалпакстана оценивались еще сравнительно лучшим мелиоративным состоянием, что это было обусловлено «сухим дренажом» (из-за низкого коэффициента земельного использования) [5]. В настоящее время орошаемые почвы всюду

подвержены засолению в различной степени, это результат воздействия опустынивания в связи со снижением зеркала Арала.

В обсохшей части Аральского моря:

1 - фитомелиоративные работы осуществляемые в первую очередь (природные комплексы (ПК) (ПК 1); 2 - фитомелиоративные работы осуществляемые во вторую очередь (ПК 2, 3); 3 - фитомелиоративные работы осуществляемые в третью очередь (ПК 1) 4 - заново создаваемые водные бассейны (ПК 2); 5 - существующие водные бассейны.

В дельте Амударьи:

6 - существующие водные бассейны (ПК 6); 7 - заново создаваемые водные бассейны (ПК 7); 8 - заготовка фураж (тростников) путём сплошного затопления (ПК 6, 7, 8).

Пригодные орошаемые земли:

9 – условно орошаемые земли: впадины с сильнозасоленными почвами; в первую очередь проектируются пригодные земли для освоения (ПК 9, 10, 13, 15, 16); 10 - целесообразно в первую очередь проектируются пригодные земли для освоения (ПК 11);

Существующие орошаемые земли:

11 – рисовые поля (ПК 17); 12 – земли для выращивания хлопка, фураж и культурные растения (ПК 18, 18 а);

Непригодные земли для освоения:

14 – засоленные почвы и солончаки (ПК 14),
19 – остаточные возвышенности (ПК 19).

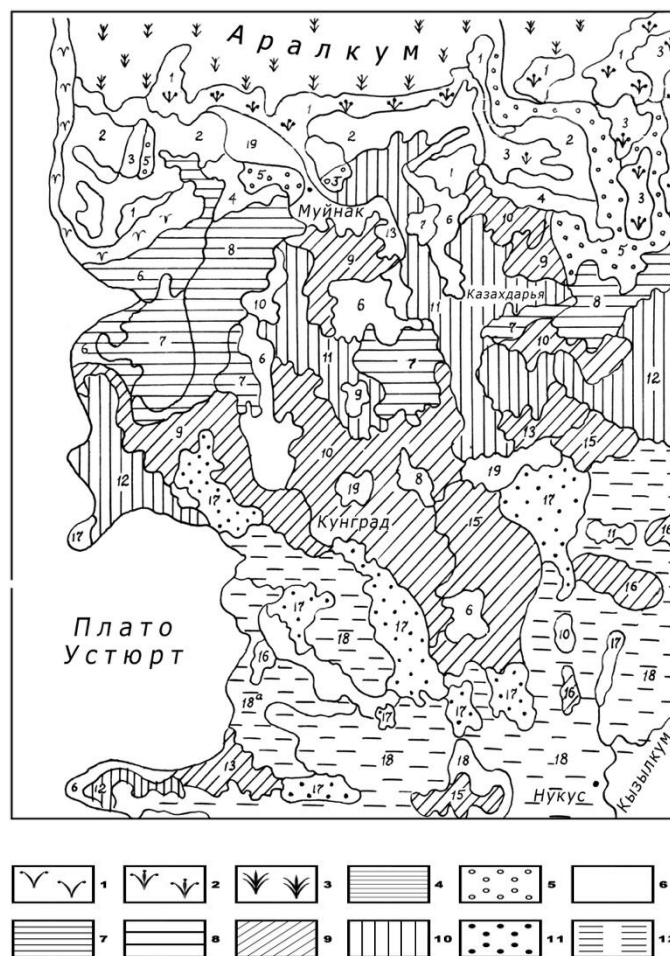


Рисунок 1. Комплекс мероприятий для предотвращения опустынивания в дельте Амударьи и обсохшей части Аральского моря

Из имеющегося 500 тыс. га орошаемых земель около 65% подвержены средней и сильной степени засоления, остальные в основном слабого засоления [5]. Характер засоления почв весьма пестрый. При картографировании установлено, что засоления почв на одной и той же площади быстро меняется: на фоне незасоленных участков имеются пятна слабого, среднего и сильного засоления, а также солончака. Площади, занятые этими пятнами, составляют от 0,10 до 0,5 га, часто соседние пятна сливаются в один контур и образуются участки со сплошным в той или иной степени засолением [5].

Основным критерием, определяющим мелиоративное состояние орошаемых земель, считается урожайность сельхозкультур. Средняя урожайность хлопка-сырца по Каракалпакстану в последнее время колеблется от 18 до 20 ц/га, риса соответственно – 16-20 ц, в ряде районов урожайность хлопка-сырца – 7-10 ц/а. Таким образом, мелиоративное

состояние орошаемых земель неблагоприятно для развития сельскохозяйственного производства [3].

Основные причины неудовлетворительного мелиоративного состояния орошаемой зоны дельты Амударьи. Главной причиной неудовлетворительного мелиоративного состояния орошаемых земель – это практически бессточность дельтовых равнин Амударьи. Здесь приток грунтовых вод больше, чем отток. Поэтому отток осуществляется за счет суммарного испарения и дренажного стока за пределы района. Поэтому все зависит от эффективного функционирования коллекторно-дренажной системы (КДС).

Средняя удельная протяженность дренажных сетей в Каракалпакстане в настоящее время составляет 34 м/га, они выводят орошаемых земель в среднем за год около 3-3,3 км³ грунтовых и сбросных вод. Однако не вся площадь освоенной зоны обеспечена КДС, имеются большие массивы, (в Элликалинском, Шуманайском, Кегейлийском, Чимбайском, Бозатауском районах), где совершенно отсутствуют дренажные сети. Поэтому на значительных площадях хлопковых полей, почвы в основном засолены средней и сильной степенью.

Скорость снижения уровня грунтовых вод и их отток за пределы орошаемого района, транспортировка соленых вод с орошаемых полей к приемникам, зависит от эффективности работы существующих КДС. Современное состояние дренажных систем целиком не отвечает требованиям эксплуатации горизонтальных мелиоративных каналов, так как почти все они сильно засорены. Рабочая глубина (от 1 до 1,4 м) не допускает дренирование грунтов и своевременный вынос минерализованных вод к коллекторам. Поэтому в толще корнеобитаемого слоя почв имеется достаточное количество солей, влияющее на урожайность хлопчатника.

Причины возникновения пятнистого засоления обычно обусловлены неровностью рельефа орошаемой площади. Повышенные участки рельефа во время промывки не освобождаются полностью от солей, а при вегетационном поливе равномерно не увлажняются. В связи с этим они служат аккумуляторами солей, поскольку здесь наблюдается фитильное соленакопление.

Главные мелиоративные особенности дельтовой равнины помимо бессточности территории, резкого преобладания отложений тяжелых по механическому составу, незначительный (0,0001-0,0002) уклон поверхности рельефа, устойчивое накопление солей. Эти особенности определяют близкое залегание уровня грунтовых вод. Использование оросительных вод по завышенной норме на фоне недостаточного дренажа усугубляет накопление солей в корнеобитаемом слое почвы.

Режим грунтовых вод орошаемых зон дельты Амударьи формируется под влиянием фильтрационных потерь из каналов, инфильтрации поливных

вод с орошаемых территорий, а также промывных участков. В преобладающей части (80%) зоны в период вегетации, глубина залегания грунтовых вод составляет 1-2 м, площадей с залеганием грунтовых вод 2-3 м (20%) значительно больше. Следовательно, вся территория поливной зоны имеет глубину залегания грунтовых вод от 1 до 3 м, что обуславливает интенсивное испарение грунтовой влаги, способствующее соленакоплению в зоне аэрации.

Однако, несмотря на близкое залегание уровня грунтовых вод, их минерализация не высокая, в преобладающей (50-60%) части освоенной зоны доминирует градация 1-3 г на литр, градация 3-5 г/л – 25-30%, градация 5-10 г/л и более – 10-20% и более. Тип минерализации – гидрокарбонатно-хлоридно-сульфатный. Грунтовые воды слабой минерализации являются причиной слабозасоления. При этом остальные – среднего и сильного засоления.

Установлено, что несмотря на общую равнинность дельты она в геоморфологическом отношении довольно сложная. Это, прежде всего, обусловлено глубиной расчленения рельефа, т.е. наличием мощных широких грядообразных повышений, которым соответствуют один или два протока, сочетающиеся с междуровневыми понижениями (средняя глубина расчленения рельефа составляет 0-3 м). В орошаемой зоне повышениям обычно соответствуют трассы оросительных (магистральных и межхозяйственных) каналов, а понижениям – трассы магистральных и межхозяйственных коллекторов. Повышения обычно сложены почвогрунтами более легкого механического состава, а понижения – тяжелого. В связи с этим в них наблюдаются заметное различие в глубине залегания грунтовых вод, и соответственно в солевом режиме почв.

Однако в настоящее время, когда наблюдается общее подтопление орошаемых земель это различие вряд ли имеет какой-нибудь эффект. Поэтому нам, кажется, ныне процесс засоления имеет сплошной характер, так как грунтовые воды всюду подвергаются испарения в одинаковой степени.

Одним из существенных причин соленакопления в почвах дельты – это соленость речных вод Амударьи. Согласно данным поста Саманбай, минерализация вод Амударьи в период орошения (май-август) колеблется от 0,6 до 2,2 г/л. Ясно, что при орошении хлопчатника этими водами, приводит к накоплению солей в почвах в условиях отсутствия горизонтального оттока грунтовых вод. Иными словами, в год с горизонтальными водами аккумулируются от 6,6 до 11 млн. т солей, или от 12 до 25 т/га. Если КДС регулярно будет работать с исключительно высокой эффективностью, то эти соли будут, выносятся к коллекторам, в противном случае – начнется накопление солей. В настоящее время доминирует положительный солевой баланс региона.

Вопросы управления водно-солевым режимом почв. Управление почвенно-мелиоративного состояния орошаемой зоны дельты Амударьи, радикальным образом достигается путем осуществления комплекса практических мероприятий [2]. Отметим наиболее приоритетные из них, нам кажется, необходимо сначала достичь прекращения подъема уровня грунтовых вод, а в последующем его устойчивое снижение. Это возможно лишь на основе высокоэффективного функционирования КДС, строительством дополнительных сетей на тех массивах, где отсутствует и где недостаточная густота не позволяет своевременный вынос солей за пределы региона [4].

Снижение уровня грунтовых вод хотя бы до 2-3 м, позволяет началу обессоливания почв на значительной площади, в основном на грядообразных повышениях дельты, где относительно легкий механический состав почв будет способствовать оттоку грунтовых вод до глубины 3-4 м, можно в значительной степени предотвратить реставрацию соленакопления в почвах, будет происходить устойчивое уменьшение количества солей с профиля почвогрунтов. При снижении уровня грунтовых вод до глубины 2-3 м в межрусловых понижениях начинается рассоление почв, расположенных на их склонах. В то время в их днищах уровень грунтовых вод будет лежать на глубине 1,5-2 м, что не особенно интенсивно будет сказываться на процесс рассоления. Учитывая это обстоятельство желательно снизить уровень грунтовых вод до глубины 2,5-3,5 м, местами до 4 м. При этом параметре зеркала грунтовых вод, во-первых, интенсифицируется отток грунтовых вод грядообразных повышений в направлении соседних понижений, при этом если коэффициент полезного действия (КПД) дренажных систем понижений будет высоким, то уровень грунтовых вод будет лежать на глубине 2,0-2,5 м, местами и более. Все это зависит от оптимизации нормы орошения культур, промывки полей, качественной спланированности неровности микрорельефа земельных участков. Особенно в этом комплексе мероприятий существенное значение имеет высокий КПД существующих КДС. Он достигается при условии углубления рабочей глубины дрен до 3-3,5 м, местами глубже, а также постоянного ремонта и очистки. Удельную протяженность КДС необходимо довести до 40-45 м/га.

Нам кажется, в орошаемой зоне целесообразно сохранить нынешний показатель (0,50) коэффициент земельного использования (КЗИ), так как целинные и переложно-залежные земли (а их площадь около 0,5 млн. га) служат как бы «сухим дренажем», которые всасывают грунтовые воды периферии орошаемых участков, тем самым предотвращают засоление орошаемых почв. При этом они становятся солончаками.

Необходимо коренная реконструкция имеющихся ирригационно-мелиоративных систем на основе инженерного проекта, так как оросительные каналы очень извилистые, их допустимая длина высокая,

КПД внутрихозяйственных сетей низкий (0,5-0,6). Пятнистое засоление почв можно ликвидировать путем качественной планировкой неровности полей, оросительная вода должна равномерно распределиться по полям.

Выводы. Для устойчивого улучшения почвенно-мелиоративного состояния орошаемых земель необходимо также регулярно осуществлять мелиоративный мониторинг, при этом иметь ввиду, вести определения минерализации и качества оросительной воды каналов, КДС, солевой съёмки орошаемых земель, составления водно-солевого баланса по Республике Каракалпакстан. Результатом всех этих работ должно быть «Карта почвенно-мелиоративного состояния орошаемых земель Каракалпакстана» в масштабе 1:200000. При составлении указанной карты, необходимо использовать материалы космоснимков, дающие самую свежую информацию по всей территории республики по мелиоративному состоянию земель. Эта карта служит как бы основой для контроля и осуществления соответствующих мероприятий по улучшению состояния земель.

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ЎЗБЕК -ИНГЛИЗ АДАБИЁТИДА АЁЛ СИЙМОСИНИНГ ҚИЁСИЙ ТАҲЛИЛИ

***Аннотация.** Мазкур мақолада ўзбек ва инглиз адабиёти ёзувчилари асарларида аёл ва она тимсоли қиёсий таҳлил этилган. Ўзбек ва инглиз адабиёти намуналарида оналарда қайси миллат ва қайси ижтимоий давр онаси бўлишидан қатъи назар муштараклик ва умумийлик борлиги аниқланган. Турли хил асарларда ижод этган ўзбек ва инглиззабон ёзувчилари асарларидаги шу давр аёлларининг турмуш тарзи, ижтимоий ҳаётдаги мавжуд қийинчиликлар, оила муносабатлари ва оналарга хос умумий фазилатлари ўрганилган. Хусусан, ўзбек адабиёти намоёндаларидан Абдулла Қодирий, Чўлпон, Ғафур Ғулом; инглиз адабиёти вакилларида В.Шекспир, Чарлз Диккенс, О`Брайн, Энн Энрайтлар ижодига мансуб асарлардаги аёллар ва она образлари очиб берилган. Шунингдек, ўзбек ва инглиз адабиётида турли хил хулқ-атворга эга бўлган аёллар сиймоси акс эттирилган бир қанча асарлар (роман, трагедия, ҳикоялар)дан парчалар келтириши орқали далилланган. Ижтимоий мавқеи паст, қадрсизланган, шахс сифатидаги эркинликлари топталган, хўрлик ва жабрдан азият чеккан аёллар тақдири билан бирга итоатгўй, қаноатли, ҳалол турмуш тарзини кечирган оналар тимсоли замонавий аёллар турмуш тарзидаги фаровонлик билан таққослаш ва мушоҳада қилиши учун кенг таҳлилга тортилган.*

***Калим сўзлар:** она, аёл, образ, миллийлик, умуминсоний қадриятлар, ўзлик ва шахсий сифатлар, таҳлил.*

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COMPARATIVE ANALYSIS OF FEMALE CHARACTER IN UZBEK-ENGLISH LITERATURE

***Abstract.** This article compares the images of women and mothers in the works of Uzbek and English writers. Using examples from Uzbek and English literature, it is determined that the image of mothers has common features in works regardless of the nationality and social period to which the mother belongs. In the works of Uzbek and English-language writers who worked in different*

centuries, the lifestyle of women of that time, current difficulties in public life, family relationships and general qualities of mothers are studied. In particular, among the representatives of Uzbek literature are Abdulla Kadiri, Cholpon, Gafur Gulam; The images of women and mothers in the works of W. Shakespeare, C. Dickens, O'Brien, Anne Enright, and representatives of English literature are revealed. This is also proven by citing excerpts from a number of works (novels, tragedies, short stories), which reflect the image of women with different behavior in Uzbek and English literature. The image of the mother who led a submissive, contented and honest life alongside the fates of women with low social status, devalued, trampled upon personal freedoms, suffering from humiliation and suffering, was subjected to extensive analysis in order to compare and observe the flourishing lifestyle of the modern woman.

Keywords: mother, woman, image, nationality, universal values, personality and personal qualities, analysis

КИРИШ

Дунёда шундай бир зот борки, унинг мадҳини, таърифини келтирмаган шоир, ёзувчи ёки рассом йўқ. Гўдакнинг наздида ягона ҳимоячи, ҳалоскор ва ғамхўр бўлган ушбу зот барча миллатларнинг адабиётида бирдек тараннум қилинади. Англаганингиздек, бу она, аёл тимсолидир.

Ҳар бир миллат адабиётида учрайдиган аёл образи орқали шу миллатга хос бўлган хулқ-атвор, жамият қоидалари, оилавий ҳаёт муҳити, турмуш тарзи ва фаровонлик сингари хусусиятларни англаб олиш мумкин. Зеро, асардаги Она тимсоли асар ифодаланган даврдаги жамиятнинг ҳолати, ривож, моддий-маънавий қийинчиликлари, ижтимоий-сиёсий вазиятини яққол очиқ беради.

ТАДҚИҚОТ МЕТОДОЛОГИЯСИ

Ўзбек халқи бадиий адабиётида ўзбек оналарининг сиймосини тасвирланишида ҳар бир ёзувчи ўзига хос услубдан фойдаланади. XX аср ўзбек адабиёти намояндалари томонидан яратилган асарларда шу даврдаги ижтимоий қийинчиликлар, оиладаги иқтисодий танглик, гендер тенглик масалалари, фарзанд тарбиясидаги зиддиятлар, жамият ва оиладаги қаноатли аёл ролини акс эттирувчи образларни кузатиш мумкин.

Ушбу мақолада ўзбек ва инглиз адабиётида турли хил хулқ-атворга эга бўлган аёллар сиймоси акс эттирилган асарларни таҳлилга тортамыз.

ТАҲЛИЛ ВА НАТИЖАЛАР

Ўзбек маърифатпарвари, жадид Чўлпон ижодида Она тимсоли орқали жамиятдаги ижтимоий мавқеи паст, ҳақ-ҳуқуқлари паймол этилган, қисмати аянчли хотин-қизларнинг дарду ҳасратлари ёритилган.

Чўлпон “Кеча ва кундуз” романидаги бош қаҳрамон Зеби образи тимсолида, соддадил, болаларча беғубор, эрдан маҳрум, қисмат ва ота-она райига бўйсунувчан хотин-қизларининг фожиявий тақдирини ёритади.

Отасига итоаткор Зеби жоҳил отанинг хоҳишига асосан ёши ўзидан анча катта бўлган, беўхшов, хотинбоз мингбошининг завжаси бўлиб, мавжуд жамиятнинг қурбонига айланади. Шунингдек, адиб “Кеча ва кундуз” романида фарзанд бахти учун ҳар нарсага тайёр, меҳрибон, самимий ғамхўр сингари ўзбек оналарига хос фазилатларга эга Зебининг онаси образини моҳирона тасвирлайди.

“Бу она қизининг саодатидан бошқа нарсани билмайдиган оналардан эди. Дунёда қандай яхшилик ва хайриятлик бўлса, ҳаммасини шу биргина қизи учун истар ва орзу қиларди”, - дея она образи ифодаланади.

Ушбу асарда нафақат она-фарзанд муносабатлари, балки турмуш ўртоғига итоатгўй, меҳрибон, оилапарвар, хотин-қизларнинг эрлари қўлига иқтисодий қарам бўлгани, эрксиз аёлнинг қисмати Қурбонбиби тимсолида бадий гавдаланади. Оиладаги муҳитни юмшатишда, барчанинг кўнглига бирдек йўл топишда ўзбек аёлига хос удабуронлик, самимият қуйидаги парча орқали ифодаланади:

“Қурвонбиби — ўз эрини, Салти — қовоғидан доим қор ёғиб турган совуқ бир сўфини кўрарди. Бу булутли ҳавони очмоқ фақат онанинг вазифаси эди”.

Ижодкор асаридаги аксарият аёл образларида мазлума, куюнчак, фидойи, меҳр-муҳаббатга тўла аёллар тақдири акс эттирилади.

Ғафур Ғулумнинг “Менинг ўғригина болам” ҳикоясини мутолаа қилиб, ўзбек онасининг ўта даражадаги меҳрибонлиги ва меҳмоннавозлигию, мурруватли, улкан қалб соҳибаси эканига гувоҳ бўлмаган китобхон бўлмаса керак.

Асарда ўзбек аёлининг шароит тақозоси билан ўғирликни касб қилган йигитга кўрсатган илтифоти ва раҳмдиллиги, оналарча ғамхўрлигини ёзувчи моҳирона тасвирлаб берган. Меҳмонни “қутлуғ уйдан қуруқ кетишига” йўл қўймасдан, уйдаги борини илинган момо сиймосида ўзбек оилаларига хос меҳмоннавозликнинг яққол ифодасини кўриш мумкин.

“Ўғригина болам, ҳой ўғригина болам, ҳойнаҳой бирор тирикликнинг қўйида томга чиққан кўринасан, ахир касбинг нозик, тумов-пумовингни ёзиб чиқсанг бўлмайдами”, дейишининг ўзиёқ, бир она, бир аёл сифатида момонинг “нозик касб эгаси”га кўрсатаётган ғамхўрлиги, унинг номақбул ишга нима сабабдан қўл ураётганини англашга ҳаракат қилаётганини билдиради.

Ғ.Ғулум “Менинг ўғригина болам” асарида халқнинг ўзига хос яширин дардларни шу зайлда ифодалайди.

Абдулла Қодирий ижоди, хусусан, унинг романлари миллий адабиётимизда миллатимизнинг маънавий-руҳий ҳаётини акс эттирувчи нодир мерос сифатида эътироф этилади. Қодирий асарларида “она”, “аёл” образлари орқали ўзбек оилаларининг турмуш тарзи, ўзбекона маросимлар, урф-одат ва қадриятларнинг ўзига хослиги ёрқин мисоллар орқали

ифодаланган. Қодирий романларида акс этган миллий колорит, анъаналар, менталитетга хос иллатларни асардаги “аёл” образларининг руҳияти, хулқ-атвори ва ташқи кўринишларида кузатиш мумкин. “Ўткан кунлар” романида “қуюқ жинггила кипрак”лари остидан “тимқора кўзлари” боқиб тургувчи, “қоп-қора камон, ўтиб кеткан нафис, қийиқ қошлари чимирилган-да, нимадир бир нарсадан чўчиган каби” кўрингувчи, “тўлган ойдек ғуборсиз оқ юз”лик ўн етти-ўн саккиз ёшлардаги, марғилонлик Мирзакарим қутидорнинг қизи, Отабекнинг маъшуқаси Кумушбиби;

тошкентлик Олим понсадбошининг қизи, “ўн етти ёшлар чамалиқ, кулчалиқ юзлик, оппоқкина, ўртача ҳуснлик”, Ўзбек ойимнинг диди билан ўғли Отабек учун танланган келини, Кумушнинг кундоши Зайнаб;

Юсуфбек ҳожининг хотини, эллиқ беш ёшларда; чала-думбул табиатлик, аммо эрига ўткирлиги билан машҳур хотин, унча-мунча тўй ва азаларга “кавшим кўчада қолган эмас” деб бормайдиган Ўзбек ойим “ўттуз беш ёшлар чамалиқ гўзал, ҳуш бичим бир хотин”, Мирзакарим қутидорнинг жуфти ҳалоли, яъни Кумушнинг онаси Офтоб ойим;

Офтоб ойимнинг онаси, етмишлардан ошган кампир Ойша буви каби турли ёшлардаги аёл образларини учратамиз.

“Ҳамманинг тушига «тўй» кириб чиқган” бир кечадан кейин хабарни эшитган “Кумушбибининг қора кўзлари жиқ ёшга тўлиб, кипраклари ёш билан беландилар”. Кумушбибининг дилидаги ғашликни кетказиш учун “Йиғлама бекачим, — деди Тўйбека, — биз биламиз сизнинг кўз ёшларингизнинг нимага эканин: эрлар сўйинганда кулсалар, сизга ўхшаш қизлар йиғлайдирлар; сизнинг йиғлаганингиз — қувонганингиз... Мени эрга берганларида сенга ўхшаш мен ҳам йиғлаган эдим, аммо ичимдан никоҳ кунининг тезроқ келишини кута-кута ўлган эдим”. Ушбу парчада ўзбек қизларининг гарчи оила қуришларидан хурсанд бўлсаларда, қувончини ўзига хос тарзда яқинлар-у, бегоналардан пинҳон тутишлари ифодаланади.

“Қизлар мажлиси — гуллар, лолалар, тўтилар, кумрилар мажлиси! Бу уйда — Кумушбибининг тоғасининг уйда қизлар мажлиси, гуллар мажлиси! Бу уйга ўттуз-қирқ чамалиқ қизлар йиғилганлар, йиғилишдан мақсад: қизлар ўзларининг энг латиф, энг гўзал бир аъзоларини бу кун хотинлик оламига узатмоқчидирлар. Бу узатиш мажлисини жонлик, руҳлик ўтказмак учун барча қизлар ўзларининг энг асил, энг нафис кийимларини кийиб, фавқулодда ясаниб, ҳусн оламини яна бир қат, яна бир қайта бежабдирлар. Агар бу уйга кириб, бу мажлис аъзоларини бир мартаба кўздан кечирсангиз, ҳозирданок айтиб қўйиш мумкин-ки, албатта эсингиз чиқиб кетар: — Бу гулми, кўҳлик? Йўқ наригиси! Ундан кўра буниси! Барисидан ҳам ўттаси!.. Ана шундай қилиб эсдан ҳам ажрасиз, гул танлашда бир қарорға келалмай эл ичида кулгига ҳам қолурсиз, расво ҳам бўлурсиз.

Мана, мажлис аъзолари шунақангги бир-биранидан ўтоқ малаклар, парилар эдилар”.

Парчада ўзбек қизларининг латофати ва гўзаллиги тараннум этилибгина қолмасдан, уларнинг иффату ҳаёси юксак даражада бўлган бир аъзоларини “хотинлик” дунёсига узатилиниши билан боғлиқ маросимлар ўзига хос услубда баён қилинади.

Шунингдек, инглиз адабиётида ҳам аёл ва она образининг бетакрор қиёфаси эрк, исён, болапарварлик, фидокорлик орқали намоён қилинади.

Жаҳон адабиётшунослигида В.Шекспирнинг даври, ҳаёти ва ижоди кенг ўрганилган. Шекспир яратган аёл ролларига назар ташласак, бу даврда аёлларнинг эркинлиги эркактарникига қараганда камроқлигини англаш қийинмас. Шекспир асарларида аёл ва она сиймоси турли хил қаҳрамонлар ва образлар орқали акс эттиради. Ёзувчи трагедияларида ҳаётда тўлақонли бахтиёрлик нашидасини суриш, муҳаббат ва озодлик учун курашда севгининг ғалабаси учун жамият тартиблари ва қоидаларини инкор этиш, муносабатларни ўзаро бир-бирини англаш асосида қайта қуриш ғояси етакчилик қилади.

Жумладан, Шекспирнинг “Отелло”, “Қирол Лир”, “Ромео ва Жульетта” асарларида муҳаббати учун ота-онасига қарши чиққан, ўз ҳаёти ва иқболи учун ижтимоий муҳит, табақаланиш, синфий курашларга рўбарў келган аёллар образи таърифланади. Асарлардаги яширин никоҳ, турли даражадаги қасос ва қотилликлар, инсоннинг эрк ва туйғулари, умидлари учун кураш жараёнлари бошқа асарлардан фарқланади.

Маълумки, шоҳлар ва султонлар фарзандларини энагалар тарбия қилишган. “Ромео ва Жульетта” асаридан олинган қуйидаги мисраларда Жульеттанинг онасидек азиз бўлган энагасининг ўз фарзанди сингари севиб меҳр берган қизи тўйини кўриш орзусида эканлиги билдирилади.

Nurse:

*Peace. I have done. God mark thee to his grace,
Thou wast the prettiest babe that e'er I nursed.
An I might live to see thee married once,
I have my wish.*

“Энага

Аллақачон жим турибман, худо асрагур,
Ҳеч кимни ҳам сенча яхши боққан эмасман.-
Тўйингни ҳам кўрсам қолмас эдим армонда”...

Шунингдек, энагаларнинг амалдорлар фарзандларини нафақат тарбия қилиши балки ўз оқ сути билан вояга етказиши қўйидаги парчада кўрсатилган.

Nurse:

*Were not I thine only nurse,
I would say thou hadst sucked wisdom from thy teat.*

“Энага

“Мен-ку сенинг энагангман, яхши биламан:
Сутим билан эмиб олдинг ақлу фаросат!”

Шекспир даврида барча замонларда кузатилганидек, ёш қизларни эрта турмушга узатилиши жараёни мавжудлиги Жульеттанинг онаси Капулетти хоним сўзлари билан куйидагича ифодаланади.

*LADY CAPULET: Well, think of marriage now. Younger than you
Here in Verona, ladies of esteem,
Are made already mothers. By my count
I was your mother much upon these ears
That you are now a maid. Thus, then, in brief:
The valiant Paris seeks you for his love.*

“Капулетти хоним

Ана шуни ўйлаб кўринг, ҳозирда қизим,
Веронада сиздан ёшроқ хонимлар борки,
Бирмунчаси она бўлди! Ҳатто мен ўзим-
Сизни туққан чоғларимда сиздан ёш эдим.”

Жульеттанинг онаси Капулетти хоним қизидан ёшроқ пайтида аллақачон она бўлган. Афсуски, қизларни эрта турмушга чиқариш ва уларнинг оилавий ҳаётга тайёр бўлмасдан туриб фарзандли бўлиши сингари муаммоли ҳолат бугунги кунда ҳам жамиятда учраб туради.

Инглиз онасининг болапарварлиги ва меҳнатсеварлигини ўзбек оналари билан қиёслаш мумкин. Инглиз адабиётида она ва бола ўртасидаги тушунмовчилик, ўсмирлик ва ўспиринлик давридаги инқироз муаммосини Чарльз Диккенснинг ижод намуналарига оид асарлардаги она тимсолида кузатиш мумкин.

Чарльз Диккенс томонидан яратилган асарларда аёл тасвирининг турли шакллари акс эттирилган. Шуни таъкидлаш керакки, ёзувчи яшаган давр ва у тасаввур қилган дунё бир-бири билан чамбарчас боғлиқ, шу боисдан, муаллиф ўз ижодида Виктория аёлларини эътиборсиз қолдирмади. Аёлларнинг вафодорлиги, поклиги ва оиласига садоқати унинг аксарият асарларида ёритиб берилган. Чарльз Диккенс кўпинча ички давр деб эътироф этиладиган Виктория даври (1837-1901)нинг ёзувчиси сифатида аёлларнинг мукамал сиймо кўринишида тасвирланишини амалга оширди. Виктория даврида аёллар учун яхши яшаш осон бўлмаган, шу боисдан баъзи аёллар тирикчилик илинжида ўз номусини сотишгача боришган. Ч.Диккенс аёлларнинг шу даврдаги жамиятда қашшоқлик ва эркакларнинг нафси қурбони бўлганлигини яхши биларди ва адиб Виктория жамиятининг шафқатсизлигини “чўкиб бораётган аёллар”га нисбатан одамларнинг қарашларини “Оливер Твист” асарида танқид қилади.

Ч.Диккенс “Оливер Твист”да енгилтабиатлилик, ўғрилиқ, қиличбозлик ва бошқа мавзуларни ёритиб беради. “Оливер Твист” қаҳрамонларида персонажлар бир-биридан жуда фарқ қилса-да, уларнинг ҳаммаси битта умумийлик - ахлоқий муаммолар билан курашади. Виктория даврида яхши ахлоқ ва фазилатларга эга бўлиш айниқса аёллар учун жуда муҳим эди.

“Оливер Твист”нинг асосий аёл қаҳрамонлари - Агнес, Ненси ва Росе. Романдаги Агнес, Роуз ва Ненси образларида турли хил ижтимоий қарашлар ва ахлоқий хусусиятларга эга аёллар сифатида бир-бирига қарши қўйилади.

Ненси ва Агнес иккаласи ҳам тушкунликка тушган ва ҳақоратланган аёллар. Асарда Агнес тақдир тақозоси билан турмушга чиқмасдан туриб ҳомиладор бўлган ва руҳияти топталган аёл сифатида келтирилса, Ненси енгилтабиатлиги ва хушторлари туфайли қийинчиликка тушган аёл сифатида ёритилади. *“I’m in a life that has no hope for me. I’ve made my choices, but I can’t bear to see a child like Oliver suffer”*. Викторияликлар Ненси каби аёлларни қабул қилишмади, у ҳаётда йиқилган аёл сифатида тасвирланган, аммо у яхшиликларга тўла қалб эгаси. *“Society values gold and underrates brass, but brass has much more strength and practical use than does gold. Translated, this means that society values the angel-in-the-house, but a woman like Nancy is much stronger of character and provides more practical service”*. Ч.Диккенс Ненси гуруч сифатида гавдалантиради, у олтиндан кучлироқ ва аҳамиятлироқ деб юқори баҳолайди. Ненси бақувват ва фаол бўлганлиги сабаб, унинг характери романдаги бошқа аёлларга қараганда анча кучли аёл бўлиб акс эттирилади.

Бироқ, Роуз - бу романнинг энг мукамал хоними. Диккенс уни фаришта, яхши ахлоқий қадриятлар ва меъёрларга эга бўлган аёл сифатида таърифлайди. *“I will never leave you, Oliver; you shall not be alone. I will always stand by you and help you find your way”*. Бу ерда Роузнинг Оливерга бўлган садоқати ва ғамхўрлиги акс эттирилган.

Эдна О`Брайен асаридаги она сиймосининг тасвири ўзига хос бой ва мураккаб бўлиб, бунда аёлнинг ижтимоий чекловлар ва шахсий кураш мавзуларига чуқур алоқадорлиги акс эттирилади. О`Брайеннинг оналар тасвири кўпинча ҳокимият, зулм ва шахсий эркинлик излаш масалалари билан кесишади. О`Брайеннинг роман ва ҳикояларида она образи зулм ва ижтимоий чекловлар остида қолишига қарамасдан, мослашувчан, ғамхўр, курашувчан, ички зиддиятларга нисбатан иродали, кучли аёл сифатида ифодаланган: *“Her hands were calloused from years of labor, et her spirit remained unbroken. She would wake before dawn, tending to the animals and the hearth, always with a patience that spoke of love for her family, dreaming silently of a world where her daughters could choose their own destinies”*. Ушбу парча О`Брайен ҳикоясидаги она образининг икки томонламалигини кўрсатади – кучли ва сабрли, келажак авлодни тарбиялашда жамият тазйиқларига бардош беради. Кейт каби образлар орқали роман аъналарга боғлиқ бўлишига қарамай, мустақам ва фарзандлари учун порлоқ келажакка умид қиладиган аёлларнинг кучини таъкидлайди.

Эдна О`Брайеннинг она образи мураккаб табиати, теран қарашлари билан ажралиб туриб, асарда зулм, шахснинг ўз ғоялари билан кураши, ижтимоий чекловларга нисбатан норозилик ҳисси акс этади. О`Брайеннинг асаридаги она тимсоли кўпинча аёлнинг ўзига хослиги,

жамиятда ўз умидлари ва шахсий эркинликка эришиш билан боғлиқ кенгрок муаммоларни ўрганиш учун асос бўлиб хизмат қилади.

Эдна О`Брайен: “The Country Girls” (“Қишлоқ қизлари”) ва “The Little Red Chairs” (“Кичик қизил стуллар”) каби романларида О`Брайен анъанавий Ирландия жамиятида оналар дуч келадиган қийинчиликларни ёритади. Асарлардаги она сиймоси кўпинча шахсий норозилик, жамиятнинг умидлари ва бу қийинчиликларнинг фарзандларига таъсири билан курашади. О`Брайеннинг оналар тасвири Ирландия маданиятидаги аёлларнинг чекланган ҳуқуқи ва эркинлиги ва мустаҳкам иродасини акс эттиради.

Ирланд замонавий ёзувчиси Энн Энрайт ҳам ўз ижодида аёл ва она мавзусига қўл урган энг истеъдодли адибалардан бири. Унинг асарлари турли ёшдаги ҳам ижобий ҳам салбий аёллар бўлиб, ўз мақсадлари ва орзуларига эришиш йўлида курашаётган кучли образларлардир. Э. Энрайтнинг “*The Green Road*” романи бутун Ирландия романининг кўплаб анъанавий тасвирлари – оила, авлодлар ўртасидаги ришталар, мулк, мотам, ичкиликбозлик, тушунмовчилик, тарихий жароҳатлар сояси, ҳиссиз муносабатлар изтиробини сабр-тоқатли, аммо таҳқирланган она тимсолининг ҳис-туйғулари билан боғлиқ ҳолда қайта кўриб чиқади. “*The Green Road*” асари нафақат онанинг роли марказдалиги учун, балки Ғарб маданияти ва Ирландия жамиятидаги рамзий оналикнинг барча муаммоли томонларини бирлаштиргани учун ҳам кучли асар ҳисобланади. Розалин аёлликнинг кўплаб қарама-қарши архетипларининг қатъий орқага қайтиши ва такрорланиши каби намоён бўлади: у айбдорликни ҳис қиладиган, фидойи ирланд онаси. Розалин – бир вақтнинг ўзида буюк она, аёл кучининг бемисл тимсоли. “*Rosaleen Madigan was a force to be reckoned with, a powerful matriarch who commanded respect and admiration. Her determination and unwavering love for her children propelled her forward, overcoming obstacles and shaping the course of their lives. Rosaleen's presence filled every room she entered, her strength radiating from within*”. У ўз ҳаёти ва тўрт фарзандининг ҳаётидаги мураккабликларни бошидан кечирар экан, Росалин улар билан ўзаро муносабатларида доимо сабр-тоқатни намоён этади. У фарзандларини дикқат билан тинглайди, ҳукм қилмасдан олдин йўл-йўриқ кўрсатади ва ҳатто можаро ёки кескин муносабатлар даврида ҳам уларнинг ҳаётида доимий иштирок этади.

ХУЛОСА

Ўзбек ва инглиз адабиёти намуналари билан танишар эканмиз, уларда оналар қайси миллат онаси бўлишидан қатъи назар муштаракликни англаш мумкин. Зеро, барча Оналар туйғулари, фарзандга бўлган муҳаббати, оилапарварлиги ва фидойилиги жиҳатидан ўхшашдирлар. Аёллар эркакдан кўра ғамга ва маҳзунликка нисбатан бардошли, метиндек иродаси билан машаққатларни енгишга қодир зот.

Аёлга, Онага хос бўлган ҳокисорлик, болапарварлик, ишонувчанлик ва самимият асрлар суронида янада сайқал топиб бораверади.

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СУРХОНДАРЁ ВИЛОЯТИ СУВ ОМБОРЛАРИ НЕМАТОДАЛАР ФАУНАСИНИНГ ҚИЁСИЙ ТАҲЛИЛИ

Аннотация. В статье сравнивается нематодофауна Учкизильского и Южно-Сурханского водохранилищ. В Учкизильском и Южно-Сурханском водохранилищах Сурхандарьинской области выявлено 119 видов свободноживущих и фитопаразитических нематод, при этом отмечено, что Учкизильское водохранилище занимает ведущее место по численности особей.

Ключевые слова: Фауна, водохранилищ, фаунистический спектр, свободноживущие нематоды, паразитические нематоды, экологические группы.

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COMPARATIVE ANALYSIS OF THE NEMATODE FAUNA OF WATER RESERVOIRS OF SURKHANDARYA REGION

Abstract The article compares the nematode fauna of Uchkizil and South-Surkhan reservoirs. 119 types of free-living and phytoparasitic nematodes were identified in the Uchkizil and Southern Surkhan reservoirs in the Surkhandarya region, and it was noted that the Uchkizil reservoir takes the leading place in terms of the number of individuals.

Key words: Fauna, reservoir, Faunistic spectrum, free-living nematodes, parasitic nematodes, ecological groups.

Эркин яшовчи нематодаларнинг турли хусусиятлари (таркиби, сони, тарқалиши) ва функционал жиҳатлари (моддалар ва энергия алмашинуви, органик моддаларнинг табиати ва ишлаб чиқариш тезлиги) ҳамда сув сифатини баҳолаш учун нематодаларнинг биологик хилма-хиллиги кўрсаткичларини тузишга оид кенг кўламли изланишлар олиб борилмоқда.

Учқизил ва Жанубий Сурхон сув омборларида эркин яшовчи ва фитопаразит нематодаларин ўрганиш бўйича 2010-2022 йилларда тадқиқот ишлари олиб борилган. [1;2]

Учқизил ва Жанубий Сурхон сув омборлари 0,5-1 метр чуқурликдаги тупроғининг юқори (1-2 см) қатламидан 800 та ва қирғоқ бўйи ўсимликлари хара (*Chara fragilis* Des., 1810), торон (*Polygonum hydropiper* L., 1753), қамиш (*Phragmites australis* Cav.) ва қўға (*Typha latifolia*) ўсимликларидан 700 та намуналар олинди.

Аниқланган нематодаларнинг таксономик таҳлили шуни кўрсатадики, Сурхондарё вилоятидаги Учқизил ва Жанубий Сурхон сув омборида 119 турдаги эркин яшовчи ва фитопаразит нематодалар сув омборлар тупроқларида, хара, торон сув ўсимлиги ҳамда қирғоқ бўйи қамиш ва қўға ўсимликлари илдизи ва илдиз олди тупроғида аниқланган бўлиб, улар 9 туркум, 18 кенжа туркум, 10 катта оила, 41 оила, 40 кенжа оила, 64 авлодга мансубдир.

Аниқланган нематодалар 3 та кенжа синфга (*Adenophorea*, *Chromadoria*, *Rhabditia*) мансублиги аниқланиб, улардан *Adenophorea* кенжа синфи вакилларининг иккита сув омборда ҳам кўп сонда учраши аниқланди.

Учқизил сув омборида *Rhabditia* кенжа синфи 10 та (27,8%) оилага мансуб нематодаларни ўз ичига олса, Жанубий Сурхон сув омборида 12 та (32,4%) оилага мансуб нематодалар учради.

Учқизил сув омборида *Adenophorea* кенжа синфи 5701 та индивид (жами аниқланган индивидларнинг 54,3%), *Chromadoria* кенжа синфи 4106 та (39,1%), *Rhabditia* кенжа синфи 693 та (6,6%), Жанубий-Сурхон сув омборида эса *Adenophorea* кенжа синфи 2402 (48,7%), *Chromadoria* кенжа синфи 1438 та (29,1%) ва *Rhabditia* кенжа синфи 1096 та (22,2%) индивидни ташкил этди. Таҳлил натижасига кўра *Adenophorea* ва *Chromadoria* кенжа синф вакиллари Учқизил сув омборида, Жанубий Сурхон сув омборига нисбатан кўп сонда учраши қайд этилди.

Ботаникада флористик комплексларнинг систематик таркибининг асосий хусусиятларини ифодаловчи “Флористик спектрлар” кенг қўлланилади. Фаунистик комплекслар, хусусан гельминтлар тузилишини таҳлил қилишни хорижий олимлар [6; 775-786-б., 5; 178 б., 3; 161-174-б., 4; 49-б.] томонидан ишлаб чиқилган.

Барча нематода оилалари оз сонли турлар билан ифодаланади. Улардан баъзилари 8-10 турни, бошқалари 3 турни, қолганлари 1-2 турни ўз ичига олади.

Учқизил ва Жанубий Сурхон сув омборларидаги нематодаларнинг “Фаунистик спектри” ни таҳлил қилиш камида 3 та (доминант, субдоминант ва рецедент) оилага ажратиш имконини беради.

Доминантлар гуруҳига 5-10 турни ўз ичига олган оилалар киради.

Учқизил ва Жанубий Сурхон сув омборлари фаунасини 6 та (*Tripulidae*, *Tobrillidae*, *Mononchidae*, *Dorylaimidae*, *Plectidae*, *Cephalobidae*) оила вакиллари ташкил этди.

Субдоминантлар гуруҳига 2-4 турни ўз ичига олган оила вакиллари киради. Учқизил сув омборида 18 та (*Alaimidae*, *Prismatolaimidae*,

Qudsianematidae, Aporcelaimidae, Thornidae, Ironidae, Mylonchulidae, Cyatholaimidae, Microlaimidae, Monhysteridae, Leptolaimidae, Axonolaimidae, Chronogasteridae, Rabdolaimidae, Rhabditidae, Aphelenchoididae, Tylodoridae, Pratylenchidae) оила ва Жанубий Сурхон сув омборида 13 та (Qudsianematidae, Ironidae, Mylonchulidae, Cyatholaimidae, Monhysteridae, Leptolaimidae, Axonolaimidae, Chronogasteridae, Rabdolaimidae, Rhabditidae, Panagrolaimidae, Paraphelenchidae, Hoplolaimidae) оила вакиллари қайд этилди.

Рецедентлар гуруҳини 1 та турни ўз ичига олган оила вакиллари ташкил этади. Учқизил сув омборида 12 та (Enoplidae, Oxystominidae, Nupolaimidae, Paradorylamidae, Chromadoridae, Ethomolaimidae, Cyndrolaimidae, Teratocephalidae, Neotylenchidae, Anguinidae, Criconematidae, Paratylenchidae) оила ва Жанубий Сурхон сув омборида 18 та (Alaimidae, Enoplidae, Oxystominidae, Pristomatolaimidae, Aporcelaimidae, Nupolaimidae, Paradorylamidae, Thornidae, Chromadoridae, Microlaimidae, Cyndrolaimidae, Teratocephalidae, Aphelenchidae, Aphelenchoididae, Tylenchidae, Tylodoridae, Criconematidae, Paratylenchidae) оила вакиллари ташкил этди.

Учқизил сув омборида олиб борилган фаунистик тадқиқотлар натижаларига кўра, 94 турга (10500 нусха) мансуб нематодалар аниқланган бўлиб, шулардан 65 тури (8771) эркин яшовчи нематодалар, 17 тури (433) хара (*Ch. fragilis*) ўсимлигида, 12 тури (311) торон (*P. hydropiper*) ўсимлиги илдиз ва поя қисмида, 28 тури (533) қамиш (*Ph. australis*) ўсимлиги илдизи ва илдиз олди тупроғида ва 19 тури (452) кўға (*T. latifolia*) ўсимлиги илдизи ва илдиз олди тупроғида учраши аниқланди.

Жанубий Сурхон сув омборида олиб борилган фаунистик тадқиқотлар натижаларига кўра, 93 турга (4936) мансуб нематодалар аниқланган бўлиб, шулардан 60 тури (2963 нусха) эркин яшовчи нематодалар, 18 тури (336) хара (*Ch. fragilis*) ўсимлигида, 25 тури (547) торон (*P. hydropiper*) ўсимлиги илдиз ва поя қисмидан, 27 тури (596) қамиш (*Ph. australis*) ўсимлиги илдизи ва илдиз олди тупроғидан, ва 19 тури (494) кўға (*T. latifolia*) ўсимлиги илдизи ва илдиз олди тупроғида учраши аниқланди.

Тадқиқотлар натижасида аниқланган 119 тур нематодаларнинг 66 тури умумий турлар ҳисобланиб, иккита сув омборда ҳам учраши қайд этилди. Учқизил сув омборида *A. primitivus*, *P. intermedius*, *T. affinis*, *T. papillata*, *T. cornuta*, *L. flavomaculatus*, *L. conurus*, *E. acuticauda*, *A. superbus*, *A. aquaticus*, *P. macrolaimus*, *I. americanus*, *M. aquaticus*, *M. signaturellus*, *E. pratensis*, *M. globiceps*, *M. filiformis*, *P. parietinus*, *R. filiformis*, *A. karakalpakensis*, *A. dasylocercus*, *C. hexalineatus*, *H. viviparous*, *D. intermedius*, *P. wescolagricus*, *P. pratensis* нематода турлари қайд этилиб, Жанубий Сурхон сув омборида учрамаган бўлса, *T. medius*, *T. allophusis*, *D. tepidus*, *E. centrocercus*, *M. attenuates*, *N. brachyuris*, *M. africana*, *M. palidicola*, *R. longicaudata*, *P. rigidus*, *P. subelongatus*, *D. rivalis*, *M. striatus*, *E. mucronatus*, *E. oxyuroides*, *E. striatus*,

A. maximus, *P. batavicus*, *P. myceliophthorus*, *T. davainei*, *H. erythrinae*, *H. multicoloratus*, *H. tylenchiformis* нематода турларининг Жанубий Сурхон сув омборида учраши аниқланди.

Таҳлил натижасига кўра, Учқизил сув омборида йиллик ўртача лойқалинишнинг пастлиги, ўртача йиллик минераллашувининг, сув таркибида азот микдорининг ва фитобиомассанинг юқорилиги билан изоҳлаш мумкин. Учқизил сув омбори нематодалар фаунасининг Жанубий Сурхон сув омборига ўзаро ўхшашлигини, Сурхондарё сувининг Занг канали орқали Учқизил сув омборга қуйилиши каби ҳолатлар билан изоҳланади.

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СУРХОНДАРЁ ВИЛОЯТИ СУВОМБОРЛАРИ ҚИРҒОҚ БЎЙИ ЎСИМЛИКЛАРИНИНГ ПАРАЗИТ НЕМАТОДАЛАР БИЛАН ЗАРАРЛАНИШИ ВА ПРОФИЛАКТИКАСИ

Аннотация В статье проанализирована фауна прибрежных фитопаразитических нематод Учкизильского и Южно-Сурханского водохранилищ. В ходе исследования выявлены болезнетворные фиогельминты, такие как *P. wescolagricus*, *P. pratensis*, *M. curvata*, *P. masrodorus*, *H. erythrinae*, *H. multicinctus* и *H. tylenchiformis*, и дана информация о мерах профилактики против них.

Ключевое слово: водохранилища, фитопаразитические нематоды, фауна, водоросли.

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INFECTION AND PREVENTION OF PARASITIC NEMATODES OF SHORELINE PLANTS OF SURKHANDARYA REGION WATERFRONT

Annotation: The article analyzes the fauna of coastal phytoparasitic nematodes in the Uchkizil and South Surkhan reservoirs. During the study, disease-causing phyohelminths such as *P. wescolagricus*, *P. pratensis*, *M. curvata*, *P. masrodorus*, *H. erythrinae*, *H. multicinctus* and *H. tylenchiformis* were identified and information on preventive measures against them was given.

Keywords: reservoirs, phytoparasitic nematodes, fauna, algae

Нематодалар макробентос компонентлари учун муҳим озуқа сифатида, сувнинг ифлосланиш даражасини кўрсатувчи индикатор сифатида фойдаланиш ва сув ҳавзаларининг унумдорлигини оширишда муҳим аҳамиятга эга. Шу сабабли сув омборларида эркин яшовчи ва фитопаразит нематодаларнинг эколого-фаунистик ҳолатини баҳолаш муҳим илмий ва амалий аҳамият касб этади.

Сурхондарё вилояти Жанубий Сурхон сувомбори қирғоқ бўйи ўсимликлари нематодалар фаунаси бўйича тадқиқот ишлари олиб борилган [1; 24-27-б, 2; 20-22-б.]

Тадқиқот учун материаллар Учкизил ва Жанубий Сурхон сув қирғоқ бўйи ўсимликлари хара (*Chara fragilis* Des., 1810), торон (*Polygonum*

hydropiper L., 1753), қамиш (*Phragmites australis* Cav.) ва қўға (*Typha latifolia*) ўсимликларидан та намуналар олинди. Намуналар учун маршрут ишлари 2023-2024 йилларда 25 апрелдан 25 сентябргача ўтказилди. Сув омборлардан намуналар йиғиш горизонтал равишда, уларнинг майдонига қараб ҳар 100 м да олинди.

Тўпланган намуналар Термиз давлат университети Зоология кафедраси қошидаги фитогельминтология муаммоли лабораториясига олиб келинди ва тупроқ намуналаридаги нематодалар ювиш услуги ёрдамида ажратиб олинди [5; 67-69-б.].

Фитогельминтологик усуллар ёрдамида ажритиб олинган нематодалардан доимий препаратлар тайёрлашда Сайнхорст [5; 67-69-б.] услубидан фойдаланилди.

Нематода турларини аниқлаш учун Micoletzky [4; 650 б.] томонидан модификация қилинган de Man [3; 104 б.] формуласининг морфометрик кўрсаткичларидан фойдаланилди.

Сув омборлардаги қирғоқ бўйи сув ўтлари, сувда органик моддалар ҳосил қилишда, фотосинтез натижасида сув ўтлари чиқарадиган кислород сувдаги органик маҳсулотларнинг оксидланишини ва охириги минерализациясини кучайтиришда, тиббиётда шифобахш балчиқ пайдо бўлишида, лойли ванналарда турли хил, асосан сурункали касалликлар: ревматизм, подагра, асаб тизимининг айрим касалликлари ва бошқаларни даволашда, ўғит сифатида, атмосфера ҳисобига тупроқни азот билан бойитишда, сув ҳайвонлари учун озиқ сифатида муҳим аҳамиятга эга. Бундан ташқари сув ўтлари тупроқни самарали ва жуда тез бойитиб, унинг маданий ўсимликларнинг ўсиши ва тўғри ривожланиши учун имконият яратадиган сапропел муҳит ҳосил қилиши аҳамиятлидир. Сапропелнинг таъсир доираси жуда кенг бўлиб, экологик хавфсиз универсал ўғит сифатида тайёр ҳолда тавсия қилинади.

Сув омборлари қирғоқ бўйида учровчи қамиш ўсимлиги катта иқтисодий аҳамиятга эгаллиги билан ажралиб туради. Қамиш - кучли судралиб юрвчи ризомлар билан озиқланадиган кўп йиллик ўт. Илдизлари одатда жуда тез ривожланиб 2 м га етиши мумкин. Узун тик куртаклар 1-4 м баландликда (баъзан 5 м гача) юқорига кўтарилади. Илдиз сегментларидан фойдаланиб, қамишни вегетатив усулда кўпайтириш энг қулайдир. Бундан ташқари ботқоқли жойларни қурғоқчил жойларга айлантиришда, барглари ва пояларнинг катта массаси тупроқдаги намликни буғлантиришда, чорва молларига озуқа сифатида, сават ва енгил қишлоқ мебелларини тўқишда, сувни яхши филтрлаб, кислородни илдиз майдонларига етказиб, тупроқни бойитишда ва балиқларни яшаш макони сифатида ҳамда кўпайиб тухум қўйишда аҳамиятлидир.

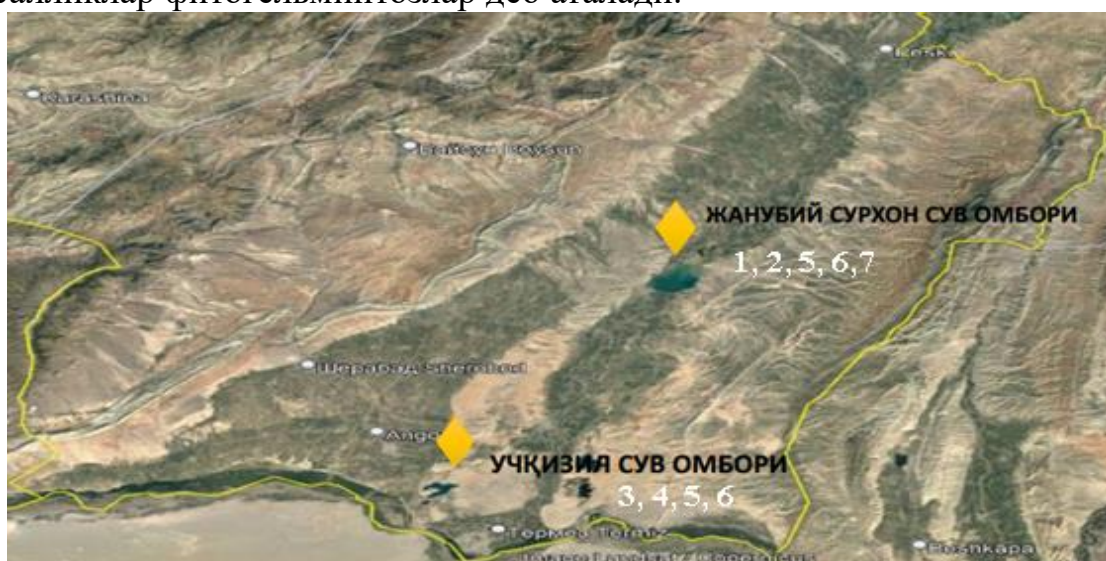
Қамишзорларнинг фаунаси бой ва хилма-хил бўлиб, кўплаб қушларнинг яшаш жойи сифатида, сув омборларнинг қирғоқ юзасини эрозиядан сақлашга қарши ишларни ижобий ҳал қилишда катта аҳамиятга

эга. Қирғоқ бўйи қамиш ўсимлиги ҳосилдорлиги 1 гектарга 2-3 тоннани ташкил қилади. Қамиш ўсимлигини 100 грамм ризоми 260 ккалгача энергия сақлайди. Уларда 5% гача протеин, 50% гача крахмал, 10-15% углевод ва 32% гача толалар (куритилган ризомда) мавжуд.

Шу боис Сурхондарё вилояти сув омборлари қирғоқ бўйи ўсимликларининг паразит нематодаларига қарши кураш чораларини ишлаб чиқиш амалий аҳамиятга эга.

Тадқиқот давомида *Pratylenchus wescolagricus*, *P. pratensis*, *Macroposthonia curvata*, *Paratylenchus macrodorus*, *Helicotylenchus erythrinae*, *H. multincinctus* ва *Hoplolaimus tylenchiformis* каби касаллик келтириб чиқарувчи фиогельминтлар аниқланган (1-расмга қаранг).

Фитогельминтлар томонидан етказиладиган зарар, ўсимликларнинг ер устки органларида ҳам намоён бўлиб, бунда уларнинг ўсишдан қолиши, заиф ёки нимжон поялар ҳамда кичрайиб тезда сарғайиб нобуд бўладиган баргларнинг ҳосил бўлиши каби ҳолатлар кузатилади. Фитогельминт ажратмалари ўсимлик-хўжайин учун шунчалик захарли ҳисобланадики, бу нафақат паразит зарарлаб ширасини сўриб олган хўжайраларга, балки унинг атрофидаги хўжайраларга ҳам ўз таъсирини кўрсатади (некроз, яъни чириш). Фитогельминтларнинг ҳаётий фаолияти натижасида ўсимлик организмда у ёки бу даражада оғир касалликлар келиб чиқиб, бу касалликлар фитогельминтозлар деб аталади.



1-расм. Сурхондарё вилояти сув омборларида паразит фитонематодаларнинг тарқалиши:

- | | |
|--------------------------------------|--------------------------------------|
| 1. <i>Helicotylenchus erythrinae</i> | 5. <i>Macroposthonia curvata</i> |
| 2. <i>H. multincinctus</i> | 6. <i>Paratylenchus macrodorus</i> |
| 3. <i>Pratylenchus wescolagricus</i> | 7. <i>Hoplolaimus tylenchiformis</i> |
| 4. <i>P.pratensis</i> | |

Фитогельминтлар ўсимликларни очикдан-очик ёки яширин зарарлашдан ташқари, билвосита зарар ҳам етказади. Буларни қуйидагича изоҳлаш мумкин:

1. Фитогельминтлар бошқа кўпгина касаллик кўзгатувчи организмларнинг ташувчилари ҳисобланади. Уларнинг ва кўпгина микроорганизмларнинг ўсимликларда паразитлик қилиши ва зарарлаши натижасида ўсимлик нобуд бўлади.

3. Фитогельминтлар ўсимликларга механик таъсир кўрсатиши, физиологик ва биохимиявий жараёнларини ўзгартириши натижасида, бошқа касаллик кўзгатувчиларнинг ўсимликларни зарарлашини осонлаштиради.

4. Фитогельминтлар ўсимликларнинг ташқи муҳит таъсиротларига чидамлилигини пасайтиради.

Илдиз эктопаразит нематодалари ўсимликларни зарарлашда касалликни намоён бўлмайдиган белгиларини келтириб чиқаради (ўсишдан қолиш ва баргларнинг сарғайиши). Қайд қилинган фитогельминтлар томонидан ҳосил бўлган микроскопик яралар ва илдиз некрозлари (чириши) осонгина фитогельминтологик методлардан беҳабар бўлган мутахассислар эътиборидан четда қолиши мумкин

Helicotylenchus авлодининг эктопаразит нематодалари ва бошқалар ўсимлик илдизлари юзасидан озиқланадиган илдиз тўқималарининг некрозига олиб келиши мумкин, бу ташқи томондан жароҳатланган жойларнинг қизариши билан ифодаланади.

Pratylenchus авлодига мансуб эндопаразит нематодалар ўсимликларнинг озиқланадиган ва кўпаядиган тўқималарига кириб бориб, чуқурроқ ва кенгроқ некрозига сабаб бўлади ва илдиз юзасида “яралар” деб номланган тўқ жигарранг доғлар пайдо қилади.

Шу билан бирга, фитопаразит нематодаларнинг қишлоқ хўжалик экинларининг сифат ва миқдорий хусусиятларига билвосита ижобий таъсири ҳақида далиллар мавжуд. Масалан, *Paratylenchus* авлоди вакиллари озиқ сонда учраши натижасида ўсиши ва ҳосилдорликни яхшиланиши исботланган [8; 833-б.]. Айтиш лозимки, қишлоқ хўжалик экинларини доимо муайян бир майдонларда етиштириш, фитогельминтларнинг шу экинзорларда популяция зичлигининг ортишига ва ўчоқларининг ҳосил бўлишига олиб келади. Европада нематодалар тупроқнинг биологик кўрсаткичлар индикатори сифатида тан олинган [9; 429-443-б., 6; 368-375-б., 10; 13-22-б., 7-297-б.].

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СВЯЗЬ ЭФФЕКТИВНОСТИ СОРТИРОВАНИЯ С КРАТНОСТЬЮ СОРТИРОВАНИЯ СЕМЯН

Аннотация: В этой статье рассматривается связь эффективности сортировки с частотой сортировки семян.

Ключевые слова: посевные семена хлопчатника, сортирование, плотность семян, всхожесть семян, центробежная сила, псевдосжиженное состояние.

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THE RELATIONSHIP OF SORTING EFFICIENCY WITH THE MULTIPLICITY OF SEED SORTING

Abstract: This article examines the relationship between sorting efficiency and seed sorting frequency.

Keywords: cotton seeds, sorting, seed density, seed germination, centrifugal force, pseudo-liquefied state.

Производство посевного материала для сельского хозяйства, в том числе и посевных семян хлопчатника требует колоссальных материальных и трудовых затрат. Переход полноценных семян при сортировании во фракцию отходов должен быть минимальным. Для выполнения этого условия необходимо выбирать оптимальные планы сортирования семян, которые включают в себя выбор типов сортировочных машин, повторности сортирования и их комбинаций [1,2].

Существует весьма смутное представление о влиянии количества сортирований на повышение качества семян. К тому же практикуются различные виды сортировочных и калибровочных устройств. Нет также количественных соотношений отсортированных посевных и технических фракций семян, так как не существует методики определения этого соотношения.

Данная проблема требуют решения следующих вопросов:

- разработка методики определения эффективности сортирования;

- определение интегральной (кривой) функции распределения семян

по качественным показателям после любой кратности сортирования (функция также может быть представлена в табличной или графической форме);

- определение коэффициента переноса семян в любую из фракций;
- определение доли переноса полноценных семян в отходы сортирования (аналогично определяется доля неполноценных семян в посевной фракции);
- расчёт кратности сортирования.

В работе определяется методика расчёта эффективности сортирования, интегральные функции распределения семян по качественным показателям после сортирования и выбор планов сортирования с использованием итерационного метода.

Генеральная совокупность качественных показателей семян подчиняется некоторому распределению, которое в каждом случае определяется экспериментально. Мы рассмотрим такой качественный показатель как абсолютный вес семян. Для других качественных показателей ход решения задачи аналогичный. Отличие будет в параметрических характеристиках распределений.

Известно, что распределение абсолютного веса семян подчиняется нормальному закону (рис.1) [3] :

$$y(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-a)^2}{2\sigma^2}},$$

- где σ – среднеквадратическое отклонение;
 x - абсолютный вес семени;
 a - математическое ожидание.

При сортировании сортирующее устройство настраивается на определённый режим с целью разделения семян на фракции с абсолютным весом больше и меньше некоторой граничной величины “С” (см. Рис. 1).

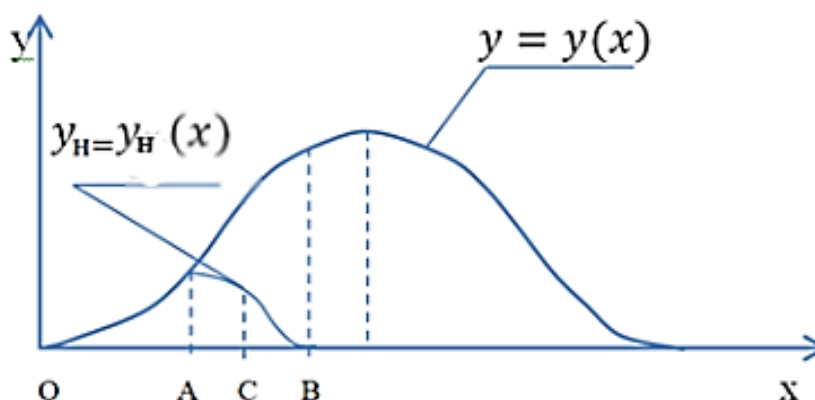


Рис.1

Ввиду неконтролируемости отдельных параметров, например неравномерность воздушного потока при пневматическом сортировании, скорости входа семян в зону разделения “неправильности” формы семян и

их хаотического расположения в зоне разделения, соударений друг с другом границная область рассортировки увеличивается. По оси x она выражается отрезком отрезком, допустим $[AB]$.

Распределение семян в отходах на участке $[AB]$ граничной области после сортирования будет выражаться новой функцией

$$y_n = y_n(x) \quad (1)$$

В общем случае

$$y_n = q(x) y(x), \quad (2)$$

где $q(x)$ - функциональный коэффициент переноса семян во фракцию отходов.

Он зависит от способа сортирования, эффективности сортирующего устройства, от рода культуры семян (хлопчатника, пшеницы и т.д.) и может определяться экспериментально. По краям области рассортировки

$$y_n(A) = y(A) \quad ; \quad y_n(B) = 0. \quad (3)$$

Отсюда для равномерного распределения семян $y(x)=const$ на участке $[AB]$ можно сделать предположение *пропорционального переноса* семян в каждую из фракций в зависимости от удаления от границы "С" (рис.2).

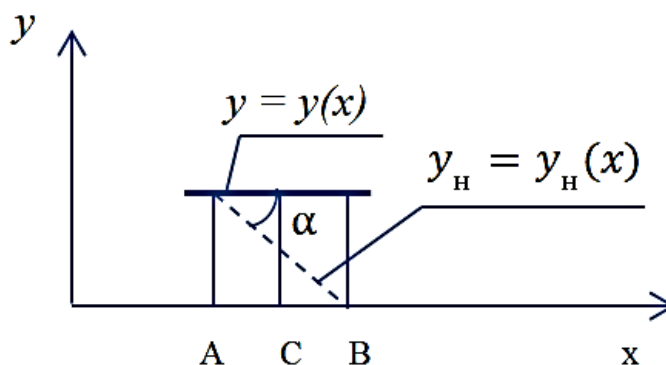


Рис.2

$$\begin{aligned} y_n(x) &= y(A) - (x - x_A) \operatorname{tg} \alpha = y(A) - (x - x_A) \frac{y(A)}{x_B - x_A} = \\ &= y(A) \left(1 - \frac{x - x_A}{x_B - x_A} \right) = q(x) y(A), \end{aligned} \quad (4)$$

где

$$q(x) = 1 - \frac{x - x_A}{x_B - x_A} \quad (5)$$

Как видно из формулы (5) функциональный коэффициент не зависит от величины “ y ” и его величину можно распространить не только на равномерное, но и любое другое распределение семян.

Тогда,

$$y_H(x) = q(x) y(x) \quad , \quad (6)$$

где $y(x)$ – первоначальная функция распределения.

Для определения эффективности сортирования можно использовать долю полноценных семян перенесённых в отходы.

$$D = \frac{H}{P+H} \quad , \quad (7)$$

где H – количество полноценных семян в области рассортировки на участке $[C, B]$, перенесённых в отходы;

P -количество неполноценных семян на участке $[O, C]$;

D - доля полноценных семян по отношению к отходам;

$P+H$ – количество отходов.

Определяем

$$H = \int_C^B y_H(x) dx \quad ; \quad (8)$$

$$P = P_1 + P_2 \quad , \quad (9)$$

где

P_1 – количество неполноценных семян на участке $[OA]$;

P_2 – количество неполноценных семян на участке $[AC]$, заданном дифференциальной кривой $y_H = y_H(x)$,

$$P_1 = \int_0^A y(x) dx \quad ; \quad P_2 = \int_A^C y_H(x) dx \quad . \quad (10)$$

Величина D задаётся исходя из технологических и экономических показателей минимизации полноценных семян в отходах некоторой величиной E .

Если D окажется больше E то есть доля переноса полноценных семян в отходы превышает допустимую величину, то эти отходы подвергаются повторно сортированию до тех пор, пока не будет осуществляться равенство

$$D \leq E \quad (11)$$

Кратность сортирований определяется повторностью сортирований.

В соответствии с вышеописанным разработан алгоритм расчёта эффективности и выбора плана сортирования посевных семян (рис.3). Вычисления ведутся с применением итерационного метода [4].

При разработке алгоритма участки от 0 до В разбили на равные интервалы с шагом Δx .

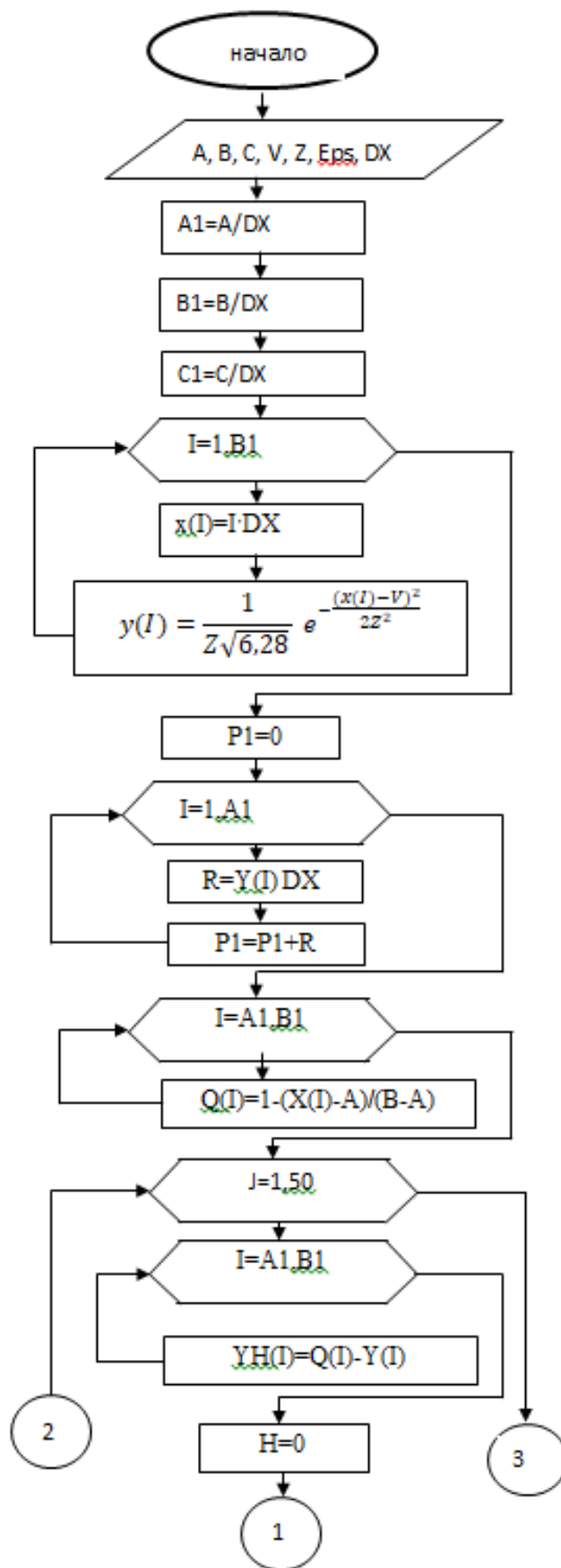
Принятые обозначения:

V-а ;

Z – σ ;

EPS- E;

DX- Δx .



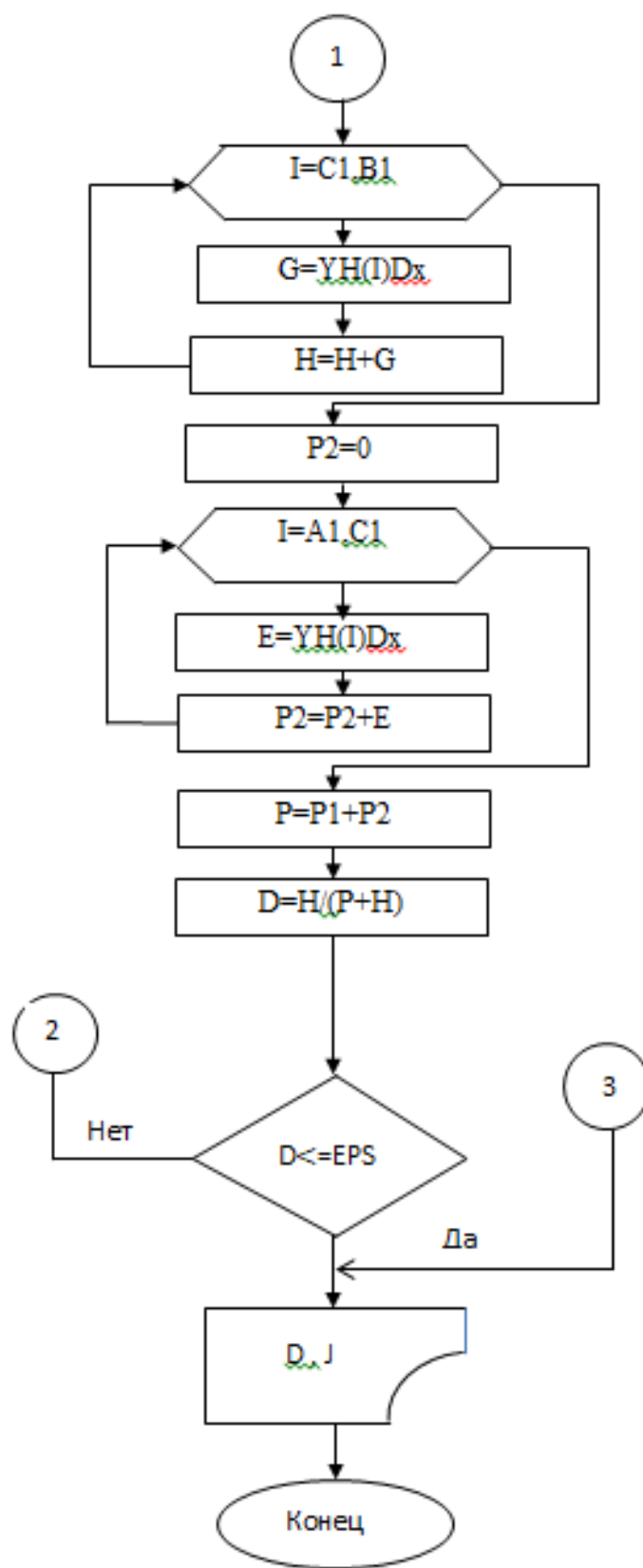


Рис.3.

В одном из расчётов при $A=0,05$ г, $B= 0,09$ г, $C= 0,07$ г ,
 $V=0,1$; $Z= 0,02$; $EPS= 0,03$, $DX=0,001$

получено :

$$J=2, \quad D(1)= 0,077593, \\ D(2) = 0,029483.$$

Следовательно, для обеспечения точности указанной рассортировки достаточно двухкратного сортирования.

Используя указанную методику можно исследовать различные варианты технологии сортирования и выбирать оптимальные комбинации и планы сортирования.

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МОДЕЛИРОВАНИЕ ПРОЦЕССОВ ВЛИЯНИЯ РЕЖИМА РАБОТЫ ВОДОСБРОСОВ НА ПРОЦЕССЫ В РУСЛЕ РЕКИ

Аннотация: В данной работе представлено численное моделирование процессов, происходящих в русле реки ниже плотины. Модель основана на решении уравнений Навье-Стокса и других гидродинамических уравнений, что позволило оценить изменения в скорости потока, транспортировке наносов и эрозионных процессах. Результаты моделирования показали, что строительство плотины приводит к изменению русловых процессов, таким как осадочная аккумуляция и усиление эрозии берегов. Полученные данные помогут в разработке мер для управления водными ресурсами и минимизации негативного воздействия на окружающую среду.

Ключевые слова: моделирование русла, плотина, гидродинамика, эрозия, транспортировка наносов, численное моделирование.

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MODELING THE INFLUENCE OF THE OPERATING MODE OF SPILLAGES ON THE PROCESSES IN THE RIVER CHANNEL

Abstract: This paper presents a numerical simulation of the processes occurring in the riverbed downstream of the dam. The model is based on the solution of the Navier-Stokes equations and other hydrodynamic equations, which made it possible to estimate changes in flow velocity, sediment transport and erosion processes. The simulation results showed that the construction of the dam leads to changes in channel processes, such as sediment accumulation and increased bank erosion. The data obtained will help in developing measures for water resource management and minimizing the negative impact on the environment.

Keywords: channel modeling, dam, hydrodynamics, erosion, sediment transport, numerical simulation.

Введение

Плотины играют ключевую роль в управлении водными ресурсами, обеспечивая контроль над потоками рек, производство электроэнергии, а

также защиту от наводнений. Однако их воздействие на гидрологические и морфологические процессы в реках может быть как положительным, так и отрицательным. Особенно значительным является влияние плотин на процессы, происходящие в нижней части их бьефа, где изменения в потоках воды могут вызвать глубокие преобразования в русле реки, включая изменение скорости потока, транспортировку наносов и эрозионные процессы.

Изменения в гидродинамических условиях могут привести к возникновению новых экосистем, а также к ухудшению состояния существующих. Накопление осадков, увеличение глубины и ширины русла в определенных участках, а также эрозия берегов могут оказать влияние на биоразнообразие и качество водных ресурсов. Поэтому важным аспектом исследования становится моделирование этих процессов, что позволит не только лучше понять динамику реки, но и разработать стратегии для минимизации негативных последствий.

Цель данной работы заключается в разработке численной модели, позволяющей анализировать процессы в русле реки ниже плотины. Модель будет основываться на современных численных методах и поможет в оценке влияния плотины на гидродинамические и морфологические характеристики реки. В работе будут рассмотрены основные методы моделирования, а также полученные результаты, которые могут быть использованы для эффективного управления водными ресурсами и защиты экосистем в условиях воздействия плотин.

Методы

Для моделирования использовались два подхода: численное моделирование с использованием программы ANSYS Fluent и аналитические методы. Модель базировалась на уравнениях Навье-Стокса для описания движения жидкости, а также на уравнениях непрерывности и энергии для оценки процессов теплопередачи. Геометрия исследуемого участка реки была построена на основе данных полевых измерений и цифровой модели рельефа местности.

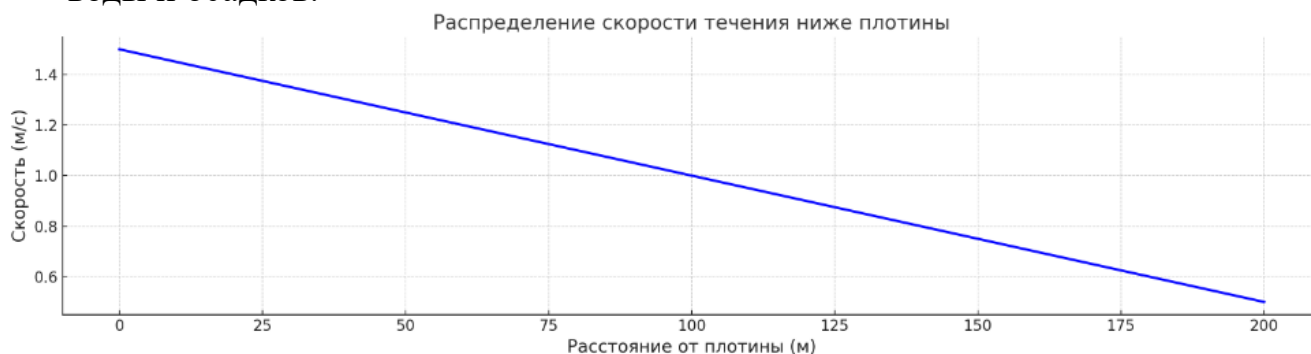
Численное моделирование проводилось на 3D-сетке, которая отражает сложную геометрию русла реки в нижней части плотины. Моделирование включало в себя следующие этапы:

1. Построение цифровой модели рельефа;
2. Расчет гидравлических параметров течения (скорость потока, распределение давлений);
3. Оценка транспортировки наносов и эрозии берегов.

Результаты

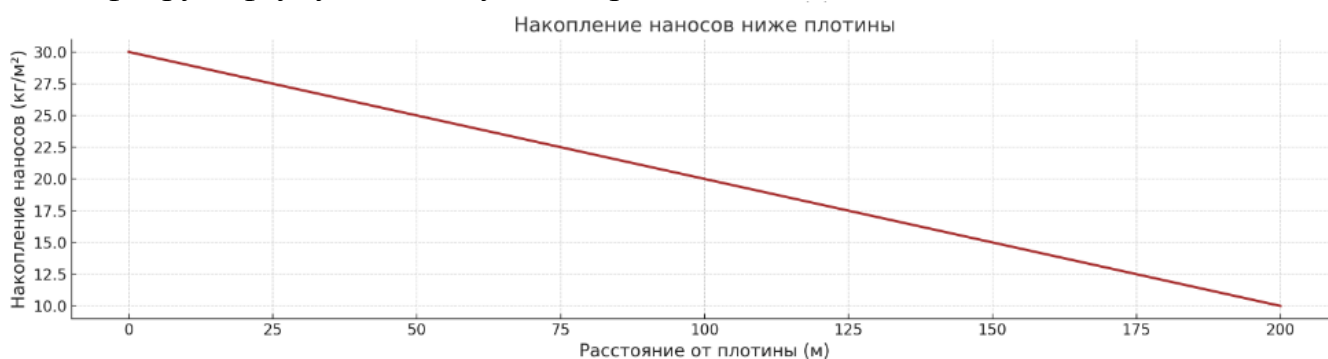
Результаты численного моделирования гидродинамических процессов в русле реки ниже плотины показали существенные изменения в характеристиках потока и морфологии русла. Основные результаты исследования можно резюмировать следующим образом:

Изменение скорости потока: Моделирование выявило значительное снижение скорости потока воды в нижнем бьефе плотины. На расстоянии 100 метров ниже плотины скорость потока снизилась в среднем на 30% по сравнению с данными до строительства плотины. Это замедление связано с образованием зоны влияния плотины, в которой происходит накопление воды и осадков.



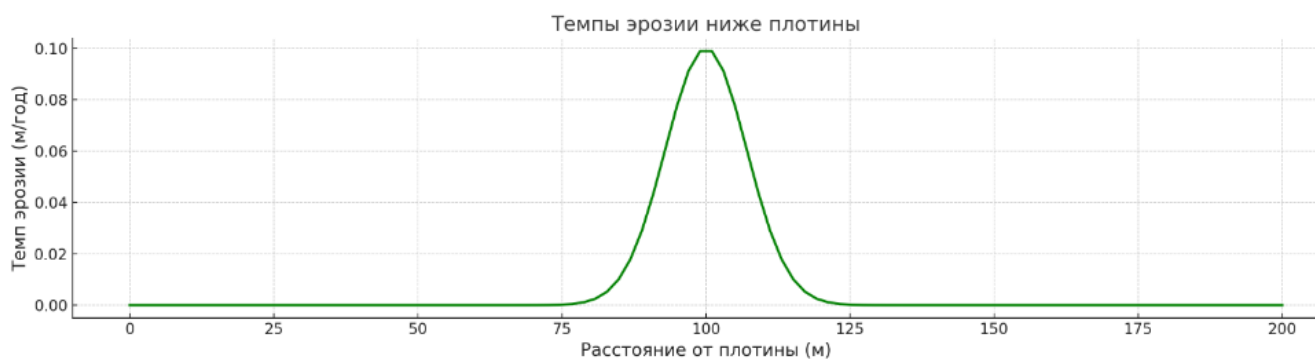
Распределение скорости течения ниже плотины: На этом графике показано распределение скорости течения реки ниже по течению от плотины.

Транспортировка наносов: Моделирование показало, что снижение скорости потока привело к увеличению осадочной аккумуляции в непосредственной близости от плотины. Средняя скорость транспортировки наносов уменьшилась на 25%, что привело к образованию отложений на дне реки и созданию новых отмелей. Эти отложения могут оказывать влияние на флору и фауну данного участка реки.



Накопление наносов ниже плотины

Эрозионные процессы: Моделирование выявило зоны, где происходит усиление эрозии берегов. На участках, где поток воды сталкивается с изменениями в рельефе (например, с крутыми поворотами русла или на участках с резким изменением скорости потока), наблюдается усиленная эрозия. Это может привести к ухудшению устойчивости береговых линий и изменению экосистемы.



Темпы эрозии ниже плотины

Форма и глубина русла: Анализ показал, что морфология русла претерпела изменения после строительства плотины. В местах, где ранее были обнаженные участки, образовались новые отмели, а глубина русла значительно увеличилась в зонах, где скорость потока осталась высокой. Эти изменения влияют на гидрологические параметры реки и могут вызвать дополнительные проблемы, такие как изменение режима питания водоема.

Воздействие на экосистему: Полученные данные свидетельствуют о том, что изменения в русле реки влияют на экосистему нижнего бьефа плотины. Образование новых осадочных участков может способствовать изменению среды обитания для различных видов рыб и водных организмов, что, в свою очередь, влияет на биоразнообразие.

В целом, результаты моделирования подтверждают, что строительство плотины значительно изменяет гидродинамические и морфологические процессы в нижнем бьефе реки. Эти изменения необходимо учитывать при проектировании и эксплуатации гидротехнических сооружений для обеспечения устойчивого управления водными ресурсами и сохранения экосистем.

Обсуждение

Полученные результаты свидетельствуют о необходимости учитывать процессы, происходящие в русле реки ниже плотины, при планировании строительства и эксплуатации плотин. Предложенная модель позволяет прогнозировать изменения русловых процессов и разрабатывать меры по предотвращению негативных последствий, таких как повышенная эрозия берегов или осадочная аккумуляция. Для более точного прогнозирования рекомендуется использовать комплексный подход, включающий полевые наблюдения и лабораторные исследования наряду с численным моделированием.

Основное влияние на процессы в русле реки оказывает не только геометрия плотины, но и режим работы водосбросов. В будущем необходимо более детально исследовать влияние сезонных изменений стока, а также учитывать климатические факторы, такие как изменение количества осадков и температурные колебания.

Заключение

В данной работе было проведено численное моделирование процессов, происходящих в русле реки ниже плотины, с целью анализа влияния гидротехнических сооружений на гидродинамические и морфологические характеристики реки. Моделирование показало, что строительство плотины значительно изменяет условия потока, что, в свою очередь, приводит к изменению скорости течения, накоплению осадков и эволюции эрозионных процессов.

Полученные результаты продемонстрировали:

1. **Снижение скорости потока** в нижнем бьефе плотины, что вызывает значительное накопление осадков в непосредственной близости от плотины. Это может привести к изменениям в глубине и ширине русла, а также к необходимости дноуглубительных работ.

2. **Изменение эрозионных процессов**, с выявлением зон, где скорость потока вызывает усиление эрозии берегов. Это может привести к ухудшению состояния берегов и негативно повлиять на экосистему.

3. **Влияние на экосистему**, так как изменения в морфологии русла и скорости потока могут оказывать серьезное воздействие на флору и фауну реки, что необходимо учитывать при планировании и эксплуатации гидротехнических сооружений.

Разработанная модель может служить эффективным инструментом для прогнозирования изменений, происходящих в реках ниже плотин, а также для разработки мер по предотвращению негативных последствий для экосистем и управления водными ресурсами. В будущем рекомендуется проводить дополнительные исследования, включая полевые наблюдения и более комплексные модели, учитывающие воздействие климатических изменений и долгосрочные изменения в режимах стока.

Таким образом, результаты данной работы подчеркивают необходимость комплексного подхода к оценке влияния плотин на реки и важность учета гидродинамических процессов при разработке стратегии управления водными ресурсами.

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ДЕХКАНСКИЕ ХОЗЯЙСТВА И ЗЕМЛЕВЛАДЕЛЬЦЫ ВАЖНЫ В ОБЕСПЕЧЕНИИ ПРОДОВОЛЬСТВЕННОЙ БЕЗОПАСНОСТИ УЗБЕКИСТАНА

***Аннотация.** В данной статье говорится об обеспечении продовольственной безопасности и какую важную роль играет при этом дехканские хозяйства. Проблема продовольственной безопасности обостряется из-за ослабления разрыва между возможностями сельскохозяйственного производства для удовлетворения стандартов здоровья человека на душу населения, и поэтому надо изучать пути решения обеспечить продуктами питания человечества.*

***Ключевые слова.** Продовольственная безопасность, проблема недоедания, формы неполноценного питания, доля фермерских и дехканских хозяйств.*

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DEHKAN FARMS AND LANDOWNERS ARE CRUCIAL IN ENSURING UZBEKISTAN'S FOOD SECURITY

***Abstract.** This article talks about ensuring food security and what an important role dekhkan farms plays its. The problem of food security is exacerbated by the narrowing of the gap between the possibilities of agricultural production to meet the standards of human health per capita, and therefore it is necessary to study ways to solve the provision of food for humanity.*

***Keywords.** Food security, malnutrition, forms of malnutrition, share of farms and dekhkan households.*

Введение. В мире одним из важных вопросов является разработка продовольственных стратегий, направленных на увеличение мировых масштабов производства и защиту потребительского рынка. Так как, «...на сегодня в мире насчитывается более 900 миллионов человек и не более 30 процентов населения планеты страдают от проблемы недоедания» [3]. Таким образом, проблема продовольственной безопасности обостряется из-за ослабления разрыва между возможностями сельскохозяйственного

производства для удовлетворения стандартов здоровья человека на душу населения.

Если обратиться к статистике, каждый третий человек в мире страдает от неполноценного питания, у 156,5 миллион детей в возрасте до пяти лет наблюдается отставание в росте, более 52 миллиона человек страдают от истощения. Самое худшее, что недостаточным питанием объясняется примерно 45% случаев смерти детей в возрасте до пяти лет, особенно в странах с низким и средним уровнем доходов (СНСД).

В последние десять лет режим питания у населения мира стремительно меняется. В результате глобализации, урбанизации и роста доходов люди попадают в новую продовольственную среду; диапазон потребляемых ими продуктов питания расширяется, а режимы питания диверсифицируются, что имеет как отрицательные, так и положительные последствия. Кризис, повторяющаяся постоянно в четырёх странах (Нигерия, Сомали, Южный Судан, Йемен) характеризуется угрозой голода, может подорвать прогресс в области продовольственной безопасности. И если такая динамика сохранится, то к 2030 году окажется каждый второй человек, что идет вразрез с целью ликвидировать к этому сроку все формы неполноценного питания.

В теории и практике различаются, по существу, различные формы неполноценного питания: недостаточное питание (слишком низкая масса тела, отставание в росте и истощение); недостаточность питательных микроэлементов; а также избыточный вес и ожирение. Эти формы неполноценного питания наблюдаются во всех странах – как развитых, так и развивающихся – и могут присутствовать одновременно на уровне стран, сообществ, семей и отдельных лиц.

Резкие изменения глобального климата, рост числа населения и повышение спроса на сельскохозяйственную продукцию привели к необходимости последовательных реформ в этой области. В результате потепления климата и загрязнения окружающей среды Всемирная организация здравоохранения (ВОЗ) заявила, что необходимо увеличить потребление фруктов и овощей ежедневно до 400-500 грамм, но, к сожалению, этот стандарт составляет около 150-200 грамм во всем мире. Согласно рекомендации международных диетологов, по крайней мере 50 % человеческой пищи должны составлять фрукты и овощи [6].

Стоит отметить, что вышеуказанные цифры говорят за себя, и это означает, что страны мира и государства должны обеспечить продовольственную безопасность, так как продовольственная безопасность, это элемент национальной безопасности государства. Человечество, каждый момент сталкивается с ситуацией, при которой имеют или не имеют физический и экономический доступ к достаточной в количественном отношении безопасной пище, необходимой для ведения активной и здоровой жизни. Состояние экономики, при котором, несмотря на колебания

мировых рынков, с одной стороны, в количествах, соответствующих научно обоснованным показателям, с другой стороны, на уровне медицинских норм гарантированным стабильным снабжением продуктами питания и называется продовольственной безопасностью.

Если текущие прогнозы ООН показывают на продолжающийся рост населения в будущем, то продовольственная безопасность должна быть обеспечена наилучшим образом. Эти прогнозы неуклонны к снижению темпов роста населения, например мировое население, как ожидается, достигнет 9,8 млрд. человек в 2050 году и 11,2 млрд. человек к 2100 году. А это огромные цифры, которые означают, что это требует развитие агропромышленной сферы.

Особенно, кризис пандемии показал, что продовольственная безопасность всегда должна быть существенным решением для всех стран. Существенное замедление экономического роста во всех странах, особенно в странах, где уровень безработицы вырос и экономические последствия Covid-19 будут ощущаться еще сильнее, поставит страны, особенно те, что зависят от импорта продовольствия, в ситуацию, когда им будет трудно изыскивать необходимые ресурсы для закупки продовольствия. Например, исходя из предварительных выводов исследований, проведенных в апреле 2020 года, пандемия оказала в мире негативное влияние на транспорт, хранение, сбыт, финансирование в области продовольствия и доступность ресурсов.

Больше всех в сфере перевозок, хранения и сбыта пострадала производственно-сбытовая цепочка рыбной продукции, за которой следуют цепочки производства и сбыта молока и молочной продукции, животноводства, зерновых и бобовых культур.

В связи с высокой долей дехканских хозяйств в поддержании стабильности поставок продовольствия в нашей стране проводятся масштабные реформы для развития этих предприятий. Однако «существует ряд проблем и недостатков в надежной защите прав и законных интересов дехканских хозяйств и землевладельцев, внедрении рыночных механизмов в систему, устойчивом развитии сельскохозяйственного производства и эффективном использовании земли...» [7]. Поэтому приоритет был отдан «углублению структурных реформ и последовательному развитию сельскохозяйственного производства, дальнейшему укреплению продовольственной безопасности страны, расширению производства экологически чистых продуктов, значительному увеличению экспортного потенциала аграрного сектора» [8]. Реализация этих задач свидетельствует о необходимости развития сельскохозяйственного производства в дехканских хозяйствах.

В Узбекистане, в последние годы были приняты ряд мер по укреплению продовольственной безопасности, в частности, 16 января 2018 года был подписан Указ Президента Узбекистана «О мерах по дальнейшему

обеспечению продовольственной безопасности страны». Этим указом предусмотрена разработка проекта закона о продовольственной безопасности, устанавливающего меры по насыщению рынка качественной, безопасной и доступной продовольственной продукцией, своевременному устранению угроз стабильности продовольственного рынка, гибкому таможенно-тарифному регулированию импорта продовольственных товаров.

Организация ФАО оказывает помощь странам, а Узбекистану по пяти приоритетным направлениям: диверсификация систем растениеводства и устойчивая интенсификация производства; эффективные методы сельскохозяйственного производства; производство продукции животноводства, борьба с болезнями животных и пчеловодство; развитие аквакультуры и рыболовства во внутренних водоемах; рациональное использование природных ресурсов. А также существует глобальный проект ФАО – методы борьбы с саранчой, реализуемый во многих странах мира и в Узбекистане, в частности.

Республика Узбекистан является крупнейшим, в Центральной Азии производителем плодоовощной продукции. Плодоовощную продукцию обеспечивают фермерские, дехканские и личные подсобные хозяйства под опекой государства. А также принимаемые меры на уровне практических решений и законодательства способствуют тому, чтобы весенний посев прошел успешно, новый урожай плодоовощной продукции свободно доходил до потребителей, а работники отрасли могли относительно легко добираться до своих рабочих мест. Это также касается эффективной организации транспортировки сезонных рабочих между областями республики. Например, законодательными документами разрешено заниматься агробизнесом, в том числе можно умножить теплицы. В настоящее время в стране насчитывается 8,5 тыс. гектаров теплиц, из которых 40 гектаров теплиц по технологии гидропоника. В этих теплицах выращивается более 500,0 тыс. тонн овощей и цитрусовых, которые доставляются населению в зимний период. А также в Республики Узбекистан внедрены современные методы хранения (контроль атмосферы, шоковая заморозка), сортировка, калибровка и упаковка плодоовощной продукции.

В условиях модернизации и диверсификации экономики аграрного сектора Республики Узбекистан в связи с тем, что устойчивое развитие сельского хозяйства, растущий спрос населения на продовольствие в будущем все стороны связано с деятельностью дехканских хозяйств, землевладельцев актуальной является разработка рекомендаций по повышению дохода дехканских хозяйств на основе дальнейшего развития их деятельности.

В Узбекистане для фермеров и дехкан созданы все необходимые условия для получения обильного урожая, в частности:

упрощена система государственного заказа на хлопок, что предоставляет фермерам возможность выращивать другие, более прибыльные сельскохозяйственные культуры;

на 50 процентов снижена ставка налога за пользование водными ресурсами по объемам, используемым для орошения сельскохозяйственных угодий;

продлены сроки уплаты налога на имущество и земельного налога физических лиц;

все расходы, связанные с проведением ирригационных и мелиоративных мероприятий, полностью покрываются за счет Государственного бюджета;

фондам садоводства и виноградарства выделено 300 млрд сумов для освоения свободных и богарных земель. При этом намечено продавать освоенные земли на правах аренды сроком на пять-десять лет с условием заготовки определенного вида продовольственной продукции;

в 55 районах республики планируется открыть в текущем году специализированные магазины по реализации удобрений;

внедрен механизм субсидирования на выращивание племенного крупного рогатого скота в размере до двух миллионов сумов и 400 тысяч сумов - породистых овец и коз;

установлен механизм предоставления за счет Государственного фонда поддержки предпринимательской деятельности гарантии в размере 50 процентов суммы кредитов до 20 млрд сумов, выделяемых коммерческими банками на реализацию проектов в животноводстве, птицеводстве, рыбоводстве и кролиководстве.

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"PUBLIC CULTURE" IS A DEFECT COMPLETELY FOREIGN TO OUR UZBEKA VALUES

Annotation: This article discusses the harmful effects of "Popular Culture" and its various manifestations on the minds of our people and youth.

Key words: "Public culture", value, spirituality, education, honor, shame and anxiety, shame, iba and chastity.

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"ОММАВИЙ МАДАНИЯТ" - ЎЗБЕКОНА ҚАДРИЯТЛАРИМИЗГА МУТЛАҚО БЕГОНА ИЛЛАТ

Аннотация: Ушбу мақолада "Оммавий маданият" ва унинг турфа кўринишларининг халқимиз ва ёшларимиз онгига зарарли таъсири ҳақида фикр юритилади.

Калим сўзлар: "Оммавий маданият", қадрият, маънавият, тарбия, ор-номус, уят ва андиша, шарму хаё, ибo ва иффат.

Бугунги кунда инсон маънавиятига қарши йуналтирилган, бир қарашда арзимас бўлиб туюладиган кичкина хабар ҳам ахборот оламидаги глобаллашув шиддатидан куч олиб, кузга кўринмайдиган, лекин зарарини ҳеч нарса билан қоплаб бўлмайдиган улкан зиён етказиши мумкин. Бу - бизга четдан кириб келаётган, ўзбекона қадриятларимизга мутлақо ёт бўлган маънавий ва ахлокий тубан иллатларни ўз ичига олган «оммавий маданият»нинг миссионерлик кўринишидаги айрим хуружларидан бири бўлган «14 февраль - «Севишганлар куни» ёки «Авлиё Валентин куни» ҳақидадир.

Қадимги Римда Авлиё Валентин куни Луперкалий байрами - эротик фестивал сифатида нишонланган. Бу - аёл худо Жуно Фебруата билан худо Луперк ўртасидаги ишқий муносабатлар билан боғланган. Бирорта дин бу кунни байрамини нишонламайди.

Ўрта асрларда уруш пайтида роҳиб Валентин севишганларга гувоҳларсиз, ноқонуний никоҳ ўқиб қўя бошлайди. Рим императори Клавдий II уни қамоққа олиб, ўлим жазосини белгилайди. Қамоқда у турма нозирининг қизи Жулия билан танишади. Ўлими олдидан унга севги изҳори ёзилган юрак шаклидаги «валентинка»ни юборади. Уни 269 йил 14 февраль куни қатл қилишади.

XIX асрда Буюк Британияда қулбола валентинкалар ишлаб чиқиладиган бошланди. Бу эса байрамларни тижорийлашувини бошлаб берди. Севги мавзуси ҳам тижоратлашади. Севгили сўзлар уфурган янги байрамлар пайдо бўла бошлайди. Умумроссия ижтимоий фикрни ўрганиш Маркази (ВЦИОМ) ва Юрий Леваданинг таҳлилий маркази маълумотларига кўра Россия ёшлари орасида бу байрам кенг тарқалиб бормоқда. «Севишганлар куни»ни байрам қилувчилар кўпайгани сари садоқат камайиб, ажримлар кўпая бормоқда. Россиянинг «Известия» газетасида мамлакатда кейинги йилларда хар 1000 оиладан 800 таси ажрашаётгани эълон қилинди. Оқибатда 400 000 нафар вояга етмаган болалар етимга айланмоқда. Турмуш қуриш ёшида, бироқ, оила қурмаганлар сони 40 фоизга ошган⁶³.

Дунёда қатор ёшлар ташкилотлари, динлар вакиллари ҳам бу байрамга салбий муносабатда. Чунки «Севишганлар куни»нинг негизида қадимги Римда ўтказилиб келинган луперкалий эротик байрами ётибди. Бу байрамнинг динларга алоқаси йўқ, балки барча динларнинг қадриятларига зид. Чунки Луперкалий байрамида ахлоқсизлик, тартибсиз жинсий алоқалар қўллаб-қувватланган.⁶⁴

Ёшлар ташкилотлари бу байрамга миллий маданиятга таҳдид сифатида кескин муносабат билдиришган. Чунки одамлар буюм бозорларида «Модная девушка» деган балоғатга етган, бир кўкраги очик, ўта калта юбка кийдириб қўйилган қиз кўғирчоклар, беҳаё ҳолатда турган қизлар сурати тагига шахвоний «изхор»лар битилган «валентинка»лар сотилаётганини кўрмоқдалар. Уларнинг ёнида болаларга капалак, дарахт, куёнчаларни эмас, балоғат ёшидаги қизларнинг ножоиз суратлари билан «Наклей и раскрась» деган дафтарлар бор. Қизалокларга буялган суратларига қараб, ранг танлаб, ёнидаги эскизларини бўяш тавсия этилади. Бу 5 ёшли қизалокларга 15 ёшли қизларнинг хаёлларини сингдиришдан бўлак нарса эмас. Инсон бутун умри давомида оладиган маълумотларнинг 70 фоизини 5 ёшгача олади. Ота-оналар айнан шу ёшдаги болаларига бундай эрмакларни сотиб олиб беришлари канчалик фойдасиз эканлигини уйлаб қуришлари керак.

Кейинги йиллардаги кузатишлар шундан далолат берадики, 14 февраль куни мамлакатимизда фаолият олиб бораётган айрим радиоканалларни тинглаш жараёнида телефон кўнғироқларини 97 фоизи тарихи кўпчиликка маълум бўлмаган «Валентин куни» хусусида бўлади. Ёшлар бир-бирини табриклаган, бугун бизнинг кунимиз экан, деб, ота-оналари эшитса ёқа ушлайдиган «севги изоҳлари»ни эфир тўлкинлари воситасида етказишади. Бизнингча, табиатимизга, миллий урф-одат ва қадриятларимиз ҳамда менталитетимизга бегона бўлган «Валентин куни» номи билан кириб келаётган бу «байрам» аслида миссионерларнинг

⁶³

<http://www.vokrugnovostei.ru/news/>

Мария В. День Святого Валентина: история праздника // ВСМ.ru.

найрангларида бири ҳисобланади. Чунки миллатни бузиш, мамлакатни таназзул ёқасига олиб келишнинг энг машхур йули - унинг ёшларини йулдан адаштиришдир.

«Севишганлар куни». Кулоққа, юракка сарёғдек ёқимли, лекин миллат маънавияти, ахлоқи, саломатлигига халокатли «фестиваль». Айрим ёшларимиз кўр-кўрона ўзларига байрам қилиб олган бу кун аслида динларга ҳам, ахлоққа ҳам зид байрам. Демак бу ҳолатга жиддий эътибор лозим. Пайғамбаримиз ўз хадисларида ким қайси қавмга тақлид қилса, ўша қавмдан бўлиб қолиши тўғрисида огоҳлантирган.

Бу «байрамда» Биринчи президент И.Каримовнинг «Юксак маънавият - енгилмас куч» номли маънавият соҳасидаги фундаментал асарида бизни огоҳлантирган аломатларнинг ҳаммаси мужассам. Асарда «Табиийки, «оммавий маданият» деган ниқоб остида ахлоқий бузуқлик ва зўравонлик, индивидуализм, эгоцентризм ғояларини тарқатиш, керак бўлса, шунинг ҳисобидан бойлик орттириш, бошқа халқларнинг неча минг йиллик анъана ва қадриятлари, турмуш тарзининг маънавий негизларига беписандлик, уларни кўпоришга қаратилган хатарли тахдидлар одамни ташвишга солмай қўймайди», дейилади.

Хуллас юрт тараккиёти учун бел боглаган хар қандай инсон бир ишга қўл уришдан олдин, яхшилаб ўйлайди: Бу иш менга фойда берса ҳам, юртимга зарар бериб қолмасмикан?! Уйлаймизки, юқоридагилардан хулоса чиқариб, Республикаимизнинг барча аҳоли қатлами бегона ёт мафкураларга қарши курашишда ҳушёрликни оширса мақсадга мувофиқ бўлади. Бу борада айниқса, фуқароларнинг ўзини-ўзи бошқариш институти ҳисобланмиш маҳалла фаоллари ва профилактика инспекторларининг ўрни беқиёсдир.

Хулоса шуки, «оммавий маданият»нинг мақсади - ота-боболаримизнинг онгу тафаккурида минг йиллар давомида шаклланиб, сайқал топган ор-номус, уят ва андиша, шарму хаё, ибодат ва ифбат каби юксак ахлоқий туйғу ва тушунчалар, қадриятларини йўқ қилиш. Бирорта халқ тан олмаган, кўп мамлакатларда тақиқланган ахлоқсизлик анъаналарига ёшларимизни ўргатиш, ёшлар маънавий оламининг дахлсизлигини бузишга интилувчиларга қарши курашиш кечиктириб бўлмайдиган вазифамиздир.

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РАСПРОСТРАНЕНИЯ ГЕЛЬМИНТОВ ПТИЦ В РАЗЛИЧНЫХ БИОЦЕНОЗАХ УЗБЕКИСТАНА

Аннотация: В статье анализируются особенности распространения птиц и гельминтов в различных биоценозах Узбекистана. В их биоценозах было зарегистрировано 4 вида цестод, 4 вида трематод, 3 вида акантоцефалов и 3 вида нематод. Также была определена степень поражения промежуточного хозяина, специфичная для каждого биоценоза.

Ключевые слова: гельминты, продуктивность, резервуары, паразиты.

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DISTRIBUTION OF BIRD HELMINTHS IN DIFFERENT BIOCENOSES OF UZBEKISTAN

Annatation: The article analyzes the distribution characteristics of birds and helminths in different biocenoses of Uzbekistan. 4 types of cestodes, 4 types of trematodes, 3 types of acanthocephals and 3 types of nematodes were recorded in their biocenosis. Also, the damage extent of the intermediate host specific to each biocenosis was determined.

Key words: Helminths, productivity, reservoirs, parasites

Птицы, в отличие от других классов позвоночных животных, имеют более обширный ареал обитания, разные части которого существенно отличаются природно климатическими условиями. При осуществлении анализа нашего материала по особенностям распространения гельминтов птиц в различных экологических условиях выявили биоценозы, которые характеризуются своеобразием структуры гельминто-фаунистических комплексов. Установили, что определяющими факторами в этом являются, с одной стороны, физико-географические и гидрологические условия местности, растительный покров и состав позвоночных и беспозвоночных данных биоценозов, с другой, особенности экологии хозяев (окончательные, промежуточные, резервуарные), участвующих во всех звеньях формирования паразитических систем. Важную роль в становлении

структуры гельминтофауны в биоценозах игоает также степень воздействия на них антропогенного фактора где следует учитывать и длительность пребывания птиц в тех или иных биоценозах.

В биоценозах побережья рек и саев широко распространены 4 вида цестод (*Amoebotaenia* сиплата, *Dilepis undula*, *Paradilepis scolicina* *Cloacotaenta megalpis*), 4 вида трематод (*Echinostoma rewolutum*, *Ech. transfretanum*, *Bilharziella pjlonica*, *Lerperosomum coracii*), 3 вида акантоцефал (*Polymorfuss magnus*, *P. minutus*, *Prostharhyhus transversus*) и 3 вида нематод (*Contracaecum spiculigerum*, *Tetrameres fissispina*, *Amidostomum fulicae*). Это обусловлено наличием здесь большого количества окон чательных и промежуточных (дождевые черви, моллюски, ракообразные) хозяев этих видов гельминтов, спецификой их экологии, а также благоприятными природными условиями (влажная почва, густая растительность) для выживания, сохранения и увеличения отмеченных паразитических единиц.

В биоценозах тугайных зарослей, характеризующихся своеобразной кустарниковой и древесной растительностью, постоянными обитателями являются фазан, черная ворона, индийский воробей, черный дрозд, грач и другие птицы, для которых характерными гельминтами являются 2 вида цестод (*Raillietina frantina*, *R. taiwanensis*) и 4 вида акантоцефал (*Sphaerirostris teres*, *S. turdi*, *Mediorchynchus armencis*, *M. micracanthus*), отмеченные в этих биоценозах как массовые виды. Здесь созданы благоприятные условия для развития паразитических червей и интенсивного обмена гельминтами между птицами различных систематических групп (повышенная влажность во время сильной летней жары, густые заросли, слабая циркуляция воздуха).

Основную часть территории гор занимают смешанные лесные массивы, плодовые сады и пастбища с разнотравной и древесно кустарниковой растительностью. Природные условия характеризуются обилием осадков, относительно влажным климатом, не высокими температурами воздуха и почвы, богатой растительностью и т.д., что создаёт благоприятные условия для развития многих видов гельминтов, особенно нематод, развивающихся без промежуточных хозяев (геогельминты).

В данных биоценозах доминируют 4 вида цестод (*Mesocestoides perlatus*, *Choanotaenia passerina*, *Ch. constricta*, *Passerilepis crenata*), трематоды семейства *Brachylamidae* и *Dicrocoeliidae*, связанные в своем развитии с наземными моллюсками. Из акантоцефалов доминируют *S. teres*, *S. turdi*, *M. microcanthus*. *M. armenicus*.

Гельминтофауна птиц пастбищных биоценозов в основном характеризуется наличием, видов развитие которых связано с прямокрылими, жесткокрылыми, почвенными клещами другими беспозвоночными обитателями открытого пространства. Здесь доминируют представители класса цестод (*M. perlatus*, *P. crenata*) и нематод (*Ascaridia galli*

Capillaria obsignata, *Heterakis gallinarum*). В биоценозах трансформированных зон становление различных групп паразитических червей обусловлено длительным антропопрессом. Гельминтологический статус птицеводческих хозяйств во многом зависит от технологии его ведения. В крупных птицефабриках с клеточным методом содержания кур выявили незначительную «приживаемость» гельминтов.

Наиболее распространены гельминты на птицефермах государственных и фермерских хозяйств Сурхандарьинской области. В этих типах хозяйств зараженность кур аскаридами достигла 49-99%, гетеракисами - 51-54%, отмечены также цестоды растений (4-6,1%). Часто наблюдали инвазированность кур несколькими видами гельминтов достаточно высокая (75-95%).

Гельминтофауна птиц плодовых садов и огородов имеет некоторые черты сходства с естественными биоценозами, однако основными факторами, лимитирующими развитие паразитических червей в этих условиях, является воздействие на птиц агротехнических мероприятий и использование химических веществ в качестве удобрений, гербицидов, инсектицидов и др., что, безусловно, отражается и на паразитологической ситуации. Здесь наиболее часты цестоды (*R. taiwaensis*, *R. passerina*, *R. crenata*) и акантоцефалы (*S. teres*, *P. transversus*).

Города, как известно, составляют основную часть урбанизированных территорий нашего региона, что характеризуется исключительным своеобразием экологических условий, относительно высокой температурой воздуха, загрязненностью воды, атмосферой почвы, зеленых насаждений и др. Тем не менее, за последние годы здесь сформировалась своеобразная авиафауна — индейский скворец, черная ворона, сорока, большая и малая горлицы, черный дрозд, полевой воробей, обитающие в массовом виде. В этих биоценозах у птиц зарегистрировали соответственно 17,25 и 31 вид гельминтов с экстенсивностью инвазии 2,76 и 33,3%. Также выявили природные очаги амёботениоза, хоанотениоза, эхиностоматидоза и др. Разнообразие видового состава гельминтов изученных биоценозов определяется разнообразием обитающих в них беспозвоночных различных систематических групп и благоприятными для выживания инвазионных элементов природными условиями.

Гельминтофауна большинства видов птиц (сизый и бурый голубь, сизоворонка, серый сорокопуд) имеет в основном тенденцию к обеднению.

Однако в условиях антропопрессии при интенсивном обмене гельминтами между дикими и домашними птицами у таких синантропных видов пернатых, как индейский и обыкновенный скворец, черная ворона, полевой воробей, большая и малая горлицы экстенсивность заражения паразитическими червями остается достаточно высокой (54,7-56,5%). Распространение гельминтозов по различным биоценозам среди птиц по сравнению с другими группами позвоночных животных выражено слабее.

Эти особенности прослеживаются среди перелетных птиц, имеющих широкий ареал обитания, что в большинстве случаев приводит к мозаичному распространению паразитических червей. Тем не менее, у многих видов гельминтов наблюдается заметная приуроченность к определенным биоценозам, что связано с биологическими (промежуточный хозяин, высокая степень посещаемости и скопление птиц, степень насыщенности и внешней среды инвазионными элементами), экологическими, антропогенными и другими закономерностями.

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КУРАШЧИЛАРНИНГ ТЕХНИК ҲАРАКАТЛАР ТУРЛАРИНИ ЎРГАТИШ МЕТОДЛАРИ

Аннотация: Курашчиларнинг беллашувдаги қарши ҳужум ҳаракатларибу рақибнинг ҳужумига қарши ҳужумни тайёрлаётганда ташаббусни ўз қўлига олиш ва қарши ҳужум усулини олдинроқ қўллаш учун ҳужум қилиш ёки қулай ҳимояланиб олиб, кейин қарши ҳужум қилишдан иборат. Қарши ҳужумлар рақиб ҳужумнинг яқунловчи вазифасига қарши жавоб ҳужуми бўлиши мумкин.

Калим сўзлар: кураш, қарши ҳужум, усулни қўллаш, ҳужум қилиш техник таёргарлик, беллашув, тактик ҳаракат.

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METHODS OF TRAINING THE TYPES OF TECHNICAL MOVEMENTS OF WRESTLERS

Annotation: A wrestler's counter-attack moves in competition consist of taking the initiative while preparing to counter an opponent's attack and attacking in order to use a counter-attack technique first, or taking a comfortable defense and then counter-attacking. Counterattacks can be counterattacks against an opponent's finishing move.

Key words: wrestling, counter attack, method application, attack, technical preparation, competition, tactical action.

Курашга тайёрлашда асосий техник ва тактик ҳаракатлардан иборатдир. Тайёрловчи ҳаракатлар улар мусобақа қоидалари томонидан йўл қўйиладиган, ҳужум ва ҳимоя ҳаракатларининг муваффақиятини таъминлайдиган ҳаракатлардир. Курашчида булар рақибни олдиндан билиш маҳорати, рақибининг заиф томонларини кўриш, алдамчи ҳаракатлар қилиш ҳамда ўз режалалари ҳаракатлари ва ҳолатидан иборат.

Курашчилар рақибни олдиндан билиш маҳорати тўғрисида, унинг гавда тузилиши, хусусиятлари, сифатлари имкониятлари ва ҳолати ҳақида: беллашув олиб бориш услуби-актив ёки пасив, ҳужумкор ёки ҳимояланиши

тўғрисида, унинг яхши кўрган ҳаракатлари, ўй-фикрлари ва ҳоказолар ҳақида ташқи ва ички ахборотлар олишга қаратилган ҳатти-ҳаракатлардир.

Курашчи беллашув вақтида рақибнинг энг сеvimли туриш ҳолати қандайлигини, қандай масофада туришини, қандай усулини қўллашини ва уларнинг кучини, бирор усулни бажариш учун тайёргарликни қандай олиб боришини, ниятларини, қандай ҳужум қилиши, ҳимояланишини ва қарши ҳужум қилишини, уларнинг кучи қандайлигини, чаққонлиги ва чидамлилигини аниқлаш айниқса муҳимдир. Разведка кўпроқ тайёрловчи характердаги ҳақиқий ва сохта ҳаракатлар билан ҳамда курашчи сеvimли

Курашчи беллашув вақтида психолог бўлиши рақибнинг ҳолатини билиши; физиолог бўлиши-ҳаракатлари, нафас олиши ва тер чиқишига қараб рақибнинг ҳолатини билиши: артист бўлиб, рақибни сохта ҳаракатлар билан алдаб, тўғри усул қўллашдан адаштириб, рақибга ўз планини мажбур этувчи ва бу билан ўз планини қатъий амалга оширувчи ҳамда ғалабага эришувчи мард, иродали спортчи бўлиши керак.

Мусобақа шароитларида беллашув суратини кўтариш учун рақибга нисбатан ҳийла ишлатиш қулай шароитлар яратиш ҳамда усулни муваффақиятли қўллаш, ҳимоя ва қарши ҳужум учун қулай пайт танлаш мақсадларида тайёрловчи ҳаракатлар қилишдир.

Турли ҳолатда ва турли масофаларда туриб, алдаш ҳаракатлари ва сохта ҳаракатларни, ундаш, таклиф қилиш усулини қўллаб, шунингдек танланган усулни ёки қарши ҳужум ҳаракатини ўтказиш учун ҳужум ва ҳимоя ҳаракатларидан фойдаланиб ҳийла ишлатиш мумкин.

Ҳийла билан курашчи ташаббусни ўз қўлига олишга, активлик кўрсатишга, керакли ҳаракат учун рэнгда қўлай жойни танлашга баъзан эса рақибдан қочишга ҳаракат қилади. Рақибдан ўзининг ҳақиқий ниятларини яшириш, унинг хушёрлигини йўқотиш, чалғитиш ва ўзи ўйлаган планни амалга ошириш мақсадида ҳаракатлари ва ҳолати маскировка қилинади. Маскировка ҳаракатларида тажрибали спортчилар рақибларига ўзларини бамайлихотир, сусткаш қилиб кўрсатадилар, баъзилар бўшашаган бўлиб, тўсатдан бутун кучларини ишга соладилар, баъзи бирлари истидодли артист каби асбийликни ифодаладилар. Қўлларини силкитадилар, бошқалари эса кураш олдидан бамайли хотир, бўшанг ёки ўзига ишонч билан кўтсадилар ва ҳоказо. Ҳар бир курашчи ўзига хос маскировка услубига эга бўлади.

Шунинг учун баъзан унинг нияти чин ёки сохталигини аниқлаш жуда қийин бўлади. Курашчиларнинг беллашувдаги қатъий ҳужумкорлик ҳаракатлари, мудофа, ҳимоя ва рақибга қарши ҳужум ҳаракати техник ҳаракатлардир. Ҳужум қилишдаги оддий атака усули, яъни ҳаракатларига кўпроқ бир суръатда бажаради бу эса тактик вазифани ҳал қилади. Курашчининг ҳужум қилишдаги мураккаб ҳужум усули ва ҳаракатлари – булар икки босқичда алдаш, сохта ҳаракатлар билан биргаликда бажариладиган турли хил комбинациялардан иборат бўлиши мумкин.

Курашчининг муҳофаа усул ва ҳаракатлари – булар ҳимоя ва қарши ҳужум ҳаракатларидир.

Ҳимоя ҳаракатларига қуйидагилар киради: рақибнинг ҳужумда қўллайдиган усуллари, қарши усул ишлатиш билан ҳужумдан қутилиш ёки ундан қочиш. Курашчиларнинг беллашувдаги қарши ҳужум ҳаракатлари-бу рақибнинг ҳужумига қарши ҳужумни тайёрлаётганда ташаббусни ўз қўлига олиш ва қарши ҳужум усулини олдинроқ қўллаш учун ҳужум қилиш ёки қулай ҳимояланиб олиб, кейин қарши ҳужум қилишдан иборат. Қарши ҳужумлар рақиб ҳужумнинг яқунловчи вазифасига қарши жавоб ҳужуми бўлиши мумкин.

Курашчиларнинг техник малакасини ошириш учун ўқув-машғулот машғулотлари жараёнида курашни энди ўрганувчилар, разрядли ва мастерлар курашчилар билан турли хил ўқув мусобақаларини доимо режалаштириш ва ўтказиб бориш керак. Назорат мусобақаларида вақтни қисқартириб ва ошириб ҳамда мусобақа қоидалари бўйича беллашувлар ўтказиш лозим.

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ОСНОВНЫЕ ВРЕДИТЕЛИ ПЛОДОВЫХ САДОВ СУРХАНДАРЬИНСКОЙ ОБЛАСТИ

*Аннотация: В этой работе рассматривается Яблоневый плод *Cydia pomonella* (Linnaeus, 1758) из семейства листоедов (*tortricidae*), широко распространенный во фруктовых садах и наносящий им вред; калифорнийский щитовник *Diaspidiotus perniciosus* (Coms., 1881), даны сведения о распространении, вреде, биоэкологических особенностях пурпурного щитовника *Parlatoria oleae* (Colvée, 1880).*

*Ключевые слова: *Malus domestica* B., *Cydia pomonella*, *grapholitha molesta*, *parlatoria oleae*, *Diaspidiotus perniciosus*, биология, плод, лист, ветка.*

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MAIN PESTS OF FRUIT ORCHARDS IN SURKHAN-DARYA REGION

***Annotation:** This thesis includes *Cydia pomonella* (Linnaeus, 1758), an apple orchard belonging to the family *Tortricidae*, which is widespread in orchards and harms them; The distribution, damage, and bioecological characteristics of the California shield *Diaspidiotus perniciosus* (Coms., 1881) and the purple shield *Parlatoria oleae* (Colvée, 1880), which belong to the family *Diaspididae*, have been reported.*

***Key words:** *Malus domestica* B., *Cydia pomonella*, *Grapholitha molesta*, *Parlatoria oleae*, *Diaspidiotus perniciosus*, biology, fruit, leaf, twig.*

В то время как в мировом масштабе происходят изменения климата, наблюдается стремительный рост населения и ускорение производственных процессов, в пищевой промышленности, как и во всех отраслях, возрастает ряд проблем. Ежегодно в мире яблоки выращиваются на площади более 5 миллионов гектаров. В 2017 году объем производства яблок составил 76 миллионов тонн. В 2017-2018 годах валовое производство яблок сократилось на 2,6 миллиона тонн. В частности, 46% всей яблочной продукции в Германии, 23% в Италии и 8% во Франции погибает под воздействием вредных организмов [7].

Соответственно, обеспечение сельскохозяйственных растений, в том числе населения качественной плодовой продукцией, совершенствование эффективных мер борьбы в области снижения экономического ущерба, наносимого вредными насекомыми, имеет важное научно-практическое значение. В плодовых садах республики зарегистрировано более 260 вредителей и более 50 болезней, в полевых культурах - более 300 вредителей и более 100 болезней [2,4].

Яблоня - *Malus domestica* B. является важной в экономическом отношении культурой и возделывается во всем мире. В мире по выращиванию яблок лидируют США (4,8 млн т), Китай (22,01 млн т), далее следуют Россия, Иран, Турция, Франция, Италия. В Узбекистане яблоко считается вторым по популярности фруктом после винограда. В мире валовой сбор яблок составляет 60,2 млн тонн, в то время как в Узбекистане этот показатель составляет 0,4 млн тонн [1].

С целью составления списка основных вредителей семечковых плодовых садов Сурхандарьинской области в 2020-2022 годах были проведены полевые исследования в айвовых и яблоневых садах фермерского хозяйства "SAYROB - AGRO - LIFE," расположенных в МСГ "Навруз" Термезского района Сурхандарьинской области, в яблоневых садах фермерских хозяйств "Арслонбек Курбонов," "Гилямбоб Боги-Ангор" Ангорского района, "Джончекка сархадлари" Узунского района, "Чаман-Сарвар кучатлари" Кумкурганского района. В условиях Сурхандарьинской области были зарегистрированы опасные виды вредителей на яблонях, проведен полный анализ их биологии и особенностей вредоносности. В ходе наших маршрутных наблюдений было обнаружено, что в наших плодовых садах встречаются опасные грызущие вредители - яблонная плодожорка *Cydia pomonella* (Linnaeus, 1758), принадлежащая к семейству листоверток (*Tortricidae*), и восточная плодожорка - *Grapholitha (Laspeyresia) molesta* (Busck, 1916), которая считается внутренним карантинным объектом для нашей республики. На территории Сурхандарьинской области в плодовых садах обнаружено 15 видов сосущих вредителей, относящихся к 2 классам, 3 отрядам и 8 семействам. В результате исследований установлено, что 8 видов сосущих вредителей семечковых плодовых садов наносят значительный ущерб: яблонная тля *Aphis pomi* (De Geer, 1773), кровяная тля *Eriosoma lanigerum* (Haus., 1802), калифорнийская щитовка *Diaspidiotus perniciosus* (Coms., 1881), фиолетовая щитовка *Parlatoria oleae* (Colvée, 1880), яблонный клоп *Stephanitis oschanini* (Vasiliev, 1935), грушевый клоп *Stephanitis pyri* (Fabricius, 1775), красный боярышниковый клещ *Amphytetranychus viennensis* Zacher, обыкновенный паутинный клещ *Tetranychus urticae* (Koch, 1836). Яблонная плодожорка *Cydia (Carpocapsa) pomonella* L., являющаяся одним из основных доминантных видов вредителей плодовых садов, поражает более 30 видов плодовых деревьев, особенно яблони, частично груши и айвы. Яблонная плодожорка

повреждает около 50% урожая яблок и груш. Ежегодно из-за ее вредоносности опадает значительная часть завязей и незрелых плодов. Плоды, пораженные яблонной плодояркой, часто загнивают и не подлежат хранению. Иногда этот вредитель поражает также абрикосы и сливы. Яблонная плодоярка питается мякотью и семенами плода. Этот вредитель поражает 30-40% скороспелых сортов яблони, 40-50% средних и осенних сортов, 80-90% плодов ценных позднеспелых сортов [3,4,5]. Калифорнийская щитовка - опасный вредитель 270 видов растений, таких как яблоня, груша, персик, вишня, черешня, слива. Кокциды оставляют пятна на плодах и снижают их качество. У 50% некоторых сортов яблок с фиолетовой щитовкой обнаружено 20 и более пятен. Установлено, что на 90% плодов имеются пятна. Фиолетовая щитовка - *Parlatoria oleae Colvée*. и калифорнийская щитовка - *Diaspidiotus perniciosus Coms.* занимают высокие места по степени вредоносности в яблоневых садах: 34,5% составляет фиолетовая щитовка, 30,2% - калифорнийская щитовка, 11,4% - яблонная запятовидная щитовка, а остальные виды составили 6,9%. Среди семечковых плодовых деревьев калифорнийская щитовка поразила яблоню на 12,8%, грушу - на 10,1%, айву - на 10,9%, а остальные виды были поражены в наименьшей степени - 8,6%.

В заключение следует отметить, что для устранения недостатков в этой области необходимо, прежде всего, выявить видовой состав, биоэкологические особенности и степень вредоносности организмов, наносящих ущерб сельскохозяйственным культурам, а также раскрыть закономерности их естественного регулирования. На основе этих данных следует разработать практические рекомендации по борьбе с вредителями.

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БИОЛОГИЧЕСКИЕ И ЭКОЛОГИЧЕСКИЕ ОСОБЕННОСТИ КРОВЯНОЙ ЯБЛОННОЙ ТЛИ *ERIOSOMA LANIGERUM* (HAUS., 1802)

Аннотация: На территории Сурхандарьинской области в плодовых садах обнаружено 19 видов сосущих вредителей, относящихся к 2 классам, 2 отрядам и 10 семействам. В данной статье приведены сведения о биологии, экологии и координатах распространения яблонной кровяной тли (*Eriosoma lanigerum*), встречающейся в семечковых плодовых садах садоводческих районов Сурхандарьинской области.

Ключевые слова: *Eriosoma lanigerum*, координата, семейство, вид, биология, экология, личинка, яйцо.

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BIOLOGICAL AND ECOLOGICAL CHARACTERISTICS OF THE APPLE BLOOD APHID OF *ERIOSOMA LANIGERUM*

Abstract: In the Surkhandarya region, 19 species of sucking pests belonging to 2 classes, 2 orders, and 10 families were identified in fruit orchards. This article provides information on the biology, ecology, and distribution coordinates of the woolly apple aphid (*Eriosoma lanigerum*) found in seed fruit orchards in the horticulturally developed districts of the Surkhandarya region.

Key words: *Eriosoma lanigerum*, coordinate, family, species, biology, ecology, larva, egg.

В мире плодоводство является одной из ведущих отраслей сельского хозяйства многих стран. Овощи и фрукты являются ценными источниками клетчатки, витаминов и минералов, полезных фитохимических веществ. ФАО и Всемирная организация здравоохранения рекомендуют включать в ежедневный рацион каждого взрослого человека не менее 400 граммов овощей и фруктов - это предотвращает хронические заболевания, включая рак, сахарный диабет, сердечные заболевания, ожирение и дефицит микроэлементов. По подсчетам, ежегодно 20-40% мирового урожая уничтожается насекомыми-вредителями. Ежегодно на защиту

сельскохозяйственных растений от болезней тратится 220 миллиардов долларов, а вредители-насекомые наносят мировой экономике ущерб около 70 миллиардов долларов [7].

В исследованиях В.В.Яхонтова установлено, что родиной яблонной кровяной тли (*Eriosoma lanigerium*) является Северная Америка, и это насекомое попало в Европу 200 лет назад вместе с саженцами деревьев. Этот вредитель попал в Узбекистан в 1905 году в результате завоза саженцев. Эта тля в своей родине - Северной Америке - зимует в стадии яйца на вязах [3].

Впервые яблонная кровяная тля была названа Хаусманом в 1802 году как *Aphis lanigera*. В 1820 году Лич выделил род *Eriosoma* из тлей линнеевского типа, и в конце концов тля получила название *Lanigerum hausm* [1].

Установлено, что яблонная кровяная тля (*Eriosoma lanigerium*) распространяется только через саженцы, несмотря на то, что она может перемещаться с места на место. Если яблони в саду расположены близко друг к другу, личинки, упавшие на землю, могут перейти на соседнее дерево и образовать колонию. В частности, оказалось, что этот вредитель больше всего поражает яблони, расположенные вблизи воды с высокой влажностью и прохладой. Появление сильных ветров способствует расселению и распространению вредителей, обитающих в верхних частях растения [5]. Кровяная тля быстро размножается и за лето дает 17-20 поколений. Наибольший вред она наносит сортам яблони "Бумажный ранет", "Розмарин" и "Золотой Пармен" [2].

Территория Сурхандарьинской области, где мы проводили исследования, расположена на самом юге Узбекистана, на правом берегу Амударьи, в южных предгорьях Гиссарского хребта. На юге по Амударье граничит с Афганистаном, на севере, северо-востоке и востоке с Таджикистаном, на юго-западе с Туркменистаном, на северо-западе с Кашкадарьинской областью. Площадь области составляет 20,1 тыс. км². Природный климат исследуемой территории и разнообразие фауны насекомых привлекли к себе внимание ряда исследователей. Исследования по сосущим вредителям проводились в семечковых плодовых садах Сурхандарьинской области, на стационарных и маршрутных территориях с координатами 37°27'34.7"N 67°11'22.9"E Ангорского района, 38°22'38.3"N 68°05'25.6"E Узунского района, 37°16'28.5"N 67°20'24.4"E Термезского района. При сборе образцов насекомых использовались общеэнтомологические методы и методы, разработанные для данного отряда.

2020 году были проведены наблюдения в садах семечковых культур в районах с развитым садоводством Сурхандарьинской области. В результате наших наблюдений было собрано более 100 образцов. На территории Сурхандарьинской области в плодовых садах обнаружено 19 видов сосущих вредителей, относящихся к 2 классам, 2 отрядам и 10 семействам. В

результате исследований было установлено, что яблонная кровавая тля *Eriosoma lanigerum* (Haus., 1802) является одним из наиболее вредоносных сосущих вредителей семечковых плодовых садов.

Биоэкология. Существуют крылатые и бескрылые формы яблонной кровавой тли (*Eriosoma lanigerum*). У крылатой тли над брюшной частью находится белый пушок. Тело цилиндрическое, длиной около 2,2 мм. Остальные части тела - голова, грудь и ноги - черные, а брюшко темно-коричневое. Цвет крылатой яблонной кровавой тли (*Eriosoma lanigerum*) отличается от цвета бескрылой тли. Видно, что поверхность этой тли полностью покрыта белым восковым налетом.

Эта тля также называется мохнатой яблонной тлей. Красная кровавая тля зимует в стадии мелких и взрослых особей разного возраста. Это свидетельствует об уникальности биологии данного вида тлей. В Ангорском и Узунском районах Сурхандарьинской области, где проводились исследования, в зимний период красная кровавая тля была обнаружена на корнях яблонь, под корой, а также в трещинах более толстых ветвей. На своей родине в Северной Америке эта тля зимует в стадии яйца на вязах [4].

Для выхода красной кровавой тли из яйца или для пробуждения личинок и перезимовавших особей из зимней спячки требуется температура +5°C. В первом исследуемом регионе - Ангорском районе Сурхандарьинской области - период пробуждения этого вида тли от зимнего сна пришелся на 5 марта 2021 года, в то время как в Узунском районе в этот период данный вид тли не был обнаружен. В этом районе первые личинки тли были найдены к 2 апреля. Исследования проводились на 15 яблонях, отобранных в обоих регионах. Установлено, что температура в махалле "Марказ" Ангорского района на 2-3 градуса выше, чем в селе Маданият Узунского района. Соответственно, пробуждение красной кровавой тли из зимней спячки в махалле "Марказ" началось на 15 дней раньше. После образования первых колоний в ходе исследования было установлено, что 22 марта в махалле "Марказ" красная кровавая тля образовала колонию размером 20 см², а в кишлаке Маданият - колонию размером 18 см² 6 апреля. Анализ динамики начальной популяции показал, что в обоих районах рост совпал почти одновременно: 8-10 мая на 15 яблонях они покрыли площадь 1,45-1,55 см². Анализ динамики первичной популяции показал, что в обоих районах рост совпал почти одновременно, т.е. 8-10 мая на 15 кустах яблони они покрыли площадь 1,45-1,55 см².

Высокая температура воздуха летом, сухой воздух и обилие полезных насекомых препятствовали размножению тли *Eriosoma lanigerum*, и наблюдалось резкое уменьшение ее численности. Второй период повышения численности тлей в популяции в обоих регионах пришелся на октябрь. Во время второго подъема было обнаружено, что яблоневые сады Ангорского района были несколько более поражены этим насекомым, чем яблоневые сады Узунского района. Резкое снижение температуры воздуха в

конце ноября 2021 года и полное опадение листьев растений вызвали переход тли *Eriosoma lanigerium* в период зимнего покоя. В обоих исследуемых регионах зимняя спячка этой тли пришлась на конец ноября - начало декабря. В конце мая в обоих районах, где проводились исследования, были обнаружены первые крылатые особи тли. Крылатых тлей в колонии очень мало - всего 1-2 особи. К сентябрю количество крылатых тлей достигло 15-25. К осени у тлей появляется двуполое потомство, которое после четвертой линьки и созревания спаривается и откладывает яйца. Яйца погибают под влиянием зимних холодов и снега. Исследования в лабораторных условиях показали, что эти материнские особи тли после откладки яиц погибают.

Что касается экологических особенностей яблонной красной кровяной тли (*Eriosoma lanigerium*), мы наблюдали, что этот вид распространяется только через саженцы, несмотря на то, что тли могут перемещаться с места на место. Если яблони в саду расположены близко друг к другу, личинки, упавшие на землю, могут перебраться на соседнее дерево и образовать колонию.

В результате исследования было замечено, что эта тля образует большие колонии преимущественно в нижних ярусах яблонь в Ангорском районе, в то время как на территории Узунского района мы обнаружили, что колонии разной величины образуются на всех ярусах деревьев. В частности, оказалось, что этот вредитель больше всего поражает яблони, растущие в местах с высокой влажностью, прохладой и вблизи воды.

Эти вредители яблонь могут наносить вред не только данному виду, но и ряду семечковых и косточковых культур. Они приводят к задержке развития растений, скручиванию и высушиванию листьев и точек роста, образованию некачественных, мелких, невкусных плодов с низкими потребительскими свойствами. Поскольку вредные виды не имеют постоянной температуры тела, температура воздуха и освещение оказывают существенное влияние на их развитие. Вредители приспособлены к температурным колебаниям, и для них оптимальными условиями являются +24 и +25 градусов. Повышение температуры приводит к изменению плотности популяции насекомых, иногда снижение влажности, огрубление и повреждение внешнего слоя кормового объекта приводят к уменьшению их численности. Сильные ветры способствуют перемещению и распространению вредителей, обитающих в верхних частях растений.

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СОВРЕМЕННЫЕ ТЕНДЕНЦИИ БОРЬБЫ С БЕДНОСТЬЮ

***Аннотация:** В данной статье рассматриваются современные тенденции борьбы с бедностью, которая остается одной из самых актуальных социальных проблем на глобальном уровне. Актуальность темы обусловлена растущим неравенством, экономическими кризисами и изменениями климата. Основное внимание уделяется экономическому росту и созданию рабочих мест, социальным программам и защите уязвимых групп населения, инновациям и технологиям, устойчивому развитию, международному сотрудничеству, а также образованию и развитию навыков. Статья подчеркивает важность комплексного подхода к борьбе с бедностью, который включает взаимодействие государства, бизнеса и гражданского общества. Эффективные стратегии и программы могут не только снизить уровень бедности, но и улучшить качество жизни, способствуя созданию более справедливого и устойчивого общества.*

***Ключевые слова:** Бедность, Социальное неравенство, Экономический рост, Социальные программы, Инновации, Устойчивое развитие, Международное сотрудничество, Образование.*

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CONTEMPORARY TRENDS IN THE FIGHT AGAINST POVERTY

***Abstract:** This article examines current trends in the fight against poverty, which remains one of the most pressing social problems at the global level. The relevance of the topic is due to growing inequality, economic crises and climate change. The main focus is on economic growth and job creation, social programs and protection of vulnerable groups, innovation and technology, sustainable development, international cooperation, as well as education and skills development. The article emphasizes the importance of an integrated approach to combating poverty, which includes interaction between the state, business and civil society. Effective strategies and programs can not only reduce poverty, but also improve the quality of life, contributing to the creation of a more just and sustainable society.*

***Keywords:** Poverty, Social Inequality, Economic Growth, Social Programs, Innovation, Sustainable Development, International Cooperation, Education.*

Бедность остается одной из самых острых социальных проблем на глобальном уровне. В условиях стремительных изменений в мировой экономике, социальной структуре и климатических условиях, борьба с бедностью требует новых подходов и эффективных стратегий. В данной статье рассматриваются современные тенденции в борьбе с бедностью, их эффективность и перспективы.

Введение

Бедность — это многофакторное явление, включающее не только недостаток финансовых ресурсов, но и ограниченный доступ к образованию, здравоохранению, социальным услугам и возможностям для трудоустройства. В связи с этим современные стратегии борьбы с бедностью становятся более комплексными и включают в себя различные аспекты социального и экономического развития.

Экономический рост и создание рабочих мест

Одной из главных тенденций в борьбе с бедностью является акцент на экономическом росте. Создание рабочих мест — это ключевой фактор, способствующий улучшению финансового положения населения. Многие страны разрабатывают программы по привлечению инвестиций, стимулированию предпринимательства и развитию инфраструктуры. Малый и средний бизнес играют важную роль в создании рабочих мест, и их поддержка становится приоритетом для правительств.

Социальные программы и защита уязвимых групп

Социальные программы остаются важнейшим инструментом в борьбе с бедностью. Эти программы направлены на поддержку наиболее уязвимых групп населения, включая женщин, детей и пожилых людей. Механизмы социальной защиты, такие как минимальный доход, пособия по безработице, доступ к медицинским услугам и образованию, помогают людям выйти из ситуации бедности и повысить качество их жизни.

Инновации и технологии

Технологические инновации становятся важным инструментом в борьбе с бедностью. Использование цифровых технологий позволяет улучшить доступ к информации, финансированию и образовательным ресурсам. Например, мобильные приложения и платформы для онлайн-обучения предоставляют возможности для развития навыков и повышения квалификации, что в свою очередь помогает людям находить работу и повышать свой доход.

Устойчивое развитие и защита окружающей среды

Современные тенденции также акцентируют внимание на устойчивом развитии и защите окружающей среды. Экологически чистые технологии и методы ведения сельского хозяйства могут не только сократить уровень бедности, но и улучшить состояние окружающей среды. Проекты, направленные на восстановление экосистем и рациональное использование

ресурсов, способствуют созданию рабочих мест и повышению жизненного уровня.

Международное сотрудничество

Международное сотрудничество играет ключевую роль в борьбе с бедностью. Многие страны объединяют усилия для обмена знаниями, ресурсами и технологиями. Глобальные инициативы, такие как Повестка дня в области устойчивого развития до 2030 года, подчеркивают важность совместных действий для сокращения бедности и неравенства на мировом уровне.

Образование и развитие навыков

Образование является одним из самых эффективных способов борьбы с бедностью. Доступ к качественному образованию и профессиональной подготовке помогает людям развивать свои навыки и повышать шансы на рынке труда. Образовательные программы, направленные на детей и молодежь, особенно в условиях бедности, могут значительно изменить будущее целых сообществ.

Заключение

Современные тенденции борьбы с бедностью требуют комплексного подхода, включающего экономические, социальные, экологические и технологические аспекты. Эффективная борьба с бедностью возможна только при активном участии государства, бизнеса и гражданского общества. Разработка и реализация эффективных стратегий и программ помогут не только сократить уровень бедности, но и значительно улучшить качество жизни для всех слоев населения, способствуя созданию более справедливого и устойчивого общества.

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ИНСТИТУЦИОНАЛЬНЫЕ ОСНОВЫ РАЗВИТИЯ ЭЛЕКТРОННОЙ КОММЕРЦИИ В УСЛОВИЯХ ЦИФРОВОЙ ЭКОНОМИКИ УЗБЕКИСТАНА

Аннотация: статья посвящена анализу институциональных факторов, влияющих на развитие электронной коммерции в Узбекистане в контексте цифровой трансформации экономики. Исследование направлено на выявление существующих барьеров и возможностей для развития электронной торговли в стране. В работе рассматриваются вопросы правового регулирования, налогообложения, развития платежных систем, логистики и инфраструктуры, а также роли государства в поддержке электронной коммерции. Результаты исследования могут быть использованы для разработки государственной политики в области развития электронной коммерции и повышения конкурентоспособности национальной экономики.

Ключевые слова: электронная коммерция, Узбекистан, цифровая экономика, институциональные факторы, государственное регулирование.

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INSTITUTIONAL FOUNDATIONS OF E-COMMERCE DEVELOPMENT IN THE DIGITAL ECONOMY OF UZBEKISTAN

Abstract: The article is devoted to the analysis of institutional factors influencing the development of e-commerce in Uzbekistan in the context of digital transformation of economy. The research is aimed at identifying existing barriers and opportunities for the development of e-commerce in the country. The paper considers the issues of legal regulation, taxation, development of payment systems, logistics and infrastructure, as well as the role of the state in supporting e-commerce. The results of the study can be used to develop state policy in the field of e-commerce development and increase the competitiveness of the national economy.

***Keywords:** e-commerce, Uzbekistan, digital economy, institutional factors, state regulation.*

Введение

В последние десятилетия мир переживает стремительные изменения в экономической структуре, вызванные внедрением цифровых технологий и расширением интернет-пространства. Парадигма цифровой экономики, основанная на использовании информационных и коммуникационных технологий, коренным образом меняет подходы к ведению бизнеса, общению с клиентами и управлению ресурсами [1]. В этом контексте электронная коммерция (e-commerce) становится не просто дополнением, а ключевым элементом современного экономического ландшафта, представляя собой новый формат взаимодействия между производителями и потребителями, а также альтернативный канал дистрибуции товаров и услуг.

Для Узбекистана, страны с динамично развивающейся экономикой, внедрение электронных коммерческих технологий представляет собой важную стратегическую задачу [2]. В последние годы правительство Узбекистана активно работает над созданием благоприятных условий для развития цифровой экономики, что включает в себя поддержку электронной коммерции как одного из важнейших направлений. В условиях глобализации и растущей конкуренции создание эффективной институциональной базы для электронной коммерции становится неотъемлемой частью экономической политики государства. Институциональные основы развития электронной коммерции предполагают не только наличие законодательных и регулирующих механизмов, но и активное участие различных заинтересованных сторон, таких как предприниматели, государственные органы, научные и образовательные учреждения, а также гражданское общество.

Актуальность данного исследования обусловлена необходимостью анализа текущего состояния и перспектив развития электронной коммерции в Узбекистане в условиях цифровой экономики. Учитывая особенности и потребности местного рынка, важно выявить ключевые факторы, способствующие или препятствующие успешной интеграции электронных технологий в бизнес-практику. Основной целью данного доклада является исследование институциональных основ, необходимых для стимулирования роста электронной коммерции, а также анализ их влияния на эффективность экономической деятельности в стране [3].

В Узбекистане наблюдается значительный рост числа интернет-пользователей и, соответственно, увеличение объемов онлайн-продаж. По данным Статистического агентства Республики Узбекистан, число интернет-пользователей в 2023 году составило более 20 миллионов человек, что создает благоприятные условия для роста электронной коммерции.

Однако, несмотря на позитивные тенденции, сектор электронной торговли сталкивается со множеством проблем, среди которых недостаточная правовая база, низкий уровень цифровой грамотности населения, а также ограниченный доступ к финансовым и технологическим ресурсам. Эти проблемы требуют комплексного подхода и координации действий на уровне государственной политики.

Институциональные основы электронной коммерции охватывают широкий спектр вопросов, связанных с регулированием интернет-торговли, защитой прав потребителей, налогообложением и обеспечением кибербезопасности. Наличие четких и справедливых правил игры, которые способствуют честной конкуренции и защищают интересы всех участников рынка, является залогом успешного развития электронной торговли. В этом контексте важным аспектом является развитие инновационных подходов к регулированию, основанных на принципах прозрачности и доступности, что, в свою очередь, повысит уровень доверия как со стороны потребителей, так и со стороны бизнеса.

Одной из ключевых задач институционального развития электронной коммерции является формирование единой системы образования и повышения квалификации специалистов в области цифровых технологий и онлайн-бизнеса [4]. В условиях стремительного развития технологий возникает необходимость в подготовке кадров, способных адаптироваться к новым реалиям и эффективно использовать возможности, предоставляемые цифровой экономикой. Важную роль в этом процессе должны сыграть государственные образовательные учреждения, а также частные компании, которые могут предложить современные программы обучения и стажировки.

Кроме того, необходимо уделить внимание развитию инфраструктуры электронной коммерции, включая логистику, платёжные системы и защиту данных. Эффективная инфраструктура будет способствовать не только росту онлайн-продаж, но и повышению общей конкурентоспособности узбекских компаний на международной арене. В этой связи важным направлением является внедрение современных технологий и стандартов, а также привлечение иностранных инвестиций в сектор электронной торговли.

Таким образом, исследование институциональных основ развития электронной коммерции в Узбекистане в условиях цифровой экономики является актуальной задачей, требующей комплексного анализа и системного подхода. Этот доклад направлен на выявление ключевых факторов, влияющих на развитие электронной торговли, а также на формирование рекомендаций по созданию эффективной институциональной базы, способствующей устойчивому росту и развитию сектора в долгосрочной перспективе.

Анализ и результаты

Развитие информационно-коммуникационных технологий (ИКТ) представляет собой один из ключевых факторов, определяющих прогресс общества в современных условиях. Сегодня деятельность бизнеса трудно представить без применения систем электронного документооборота, а также автоматизации документооборота, включающей электронные средства связи, такие как компьютерные сети, электронная почта и другие технологии. Эти инструменты легли в основу появления новых бизнес-моделей и форматов взаимодействия с потребителями.

Согласно рабочей программе Всемирной торговой организации (ВТО) по электронной коммерции, принятой на заседании Генеральной Ассамблеи 25 сентября 1998 года, электронная коммерция определяется как «производство, распределение, маркетинг, продажа и поставка товаров и услуг с использованием электронных средств связи» [5]. Эта формулировка подчёркивает важность интеграции технологий в традиционные торговые процессы, что, в свою очередь, способствует повышению эффективности и скорости операций.

В соответствии со статьей 3 Закона Республики Узбекистан, от 29.09.2022 г. № ЗРУ-792 «Об электронной коммерции» данное понятие охватывает предпринимательскую деятельность, связанную с продажей товаров, выполнением работ и оказанием услуг, осуществляемую с использованием информационных систем. Участниками процесса электронной коммерции являются как юридические, так и физические лица, занимающиеся электронной торговлей, а также покупатели этих товаров и услуг. Важно отметить, что в эту сферу могут быть вовлечены и информационные посредники, представляющие собой юридические и физические лица, предоставляющие услуги, связанные с оборотом электронных документов [6].

Анализ исторических аспектов электронной коммерции указывает на то, что она зародилась как отдельная экономическая структура в 1960-х годах XX века. Первые шаги в этой области были предприняты американскими компаниями American Airlines и IBM, которые внедрили автоматизированные системы для продажи и бронирования авиабилетов. Это позволило значительно снизить стоимость услуг и увеличить поток пассажиров. В 1971 году студенты Стэнфордского университета и Массачусетского технологического института провели первую транзакцию, связанную с покупкой марихуаны через компьютерную сеть ARPANET. Позднее это событие стало обозначаться как первая онлайн-транзакция, что, в свою очередь, символизировало начало развития электронной коммерции.

В контексте государственного управления в сфере электронной коммерции в условиях перехода к цифровой экономике следует понимать целенаправленную деятельность государственных органов, направленную на установление норм и правил ведения коммерческой деятельности

субъектами экономики [7]. Это включает в себя создание благоприятных условий для развития электронной торговли и совершенствование функций государственной власти, способствующих инновационным преобразованиям и цифровизации экономики. Формирование эффективной институциональной среды является залогом успешной интеграции электронных технологий в экономическую систему страны, что, в свою очередь, будет способствовать повышению конкурентоспособности и устойчивому экономическому росту.

Анализ взглядов ученых на термин «электронная коммерция». Термин «электронная коммерция» за последние десятилетия стал неотъемлемой частью нашего лексикона, однако его точное определение продолжает обсуждаться в научном сообществе. Разные ученые предлагают свои интерпретации этого феномена, учитывая его многогранность и динамичное развитие.

Широкое понимание электронной коммерции. Многие исследователи, такие как Mohamad, A. H., Hassan, G. F., & Abd Elrahman, A. S. (2022), Grover, V., & Teng, J. T. (2001), Kwilinski, A., Volynets, R., Berdnik, I., Holovko, M., & Berzin, P. (2019) [8,9,10], определяют электронную коммерцию как любую коммерческую деятельность, осуществляемую с использованием информационно-коммуникационных технологий. В этом широком понимании к электронной коммерции относят не только онлайн-продажи товаров и услуг, но и электронные платежи, электронный маркетинг, электронный документооборот и другие виды деятельности.

Узкое понимание электронной коммерции. Другие ученые, например, Chu, S. C., Leung, L. C., Van Hui, Y., & Cheung, W. (2007) [11] и Taher, G. (2021) [12], придерживаются более узкого толкования термина. Они считают, что электронной коммерцией следует называть исключительно деятельность, связанную с продажей товаров и услуг через Интернет. Такой подход позволяет четко отделить электронную коммерцию от других видов электронной деятельности.

Функциональное определение электронной коммерции. Ряд исследователей, в том числе Minculete, G., & Minculete, G. D. (2013). [13] и Sun, Z., & Finnie, G. R. (2004). [14], предлагают функциональное определение электронной коммерции. Они акцентируют внимание на процессах, которые происходят в рамках электронной коммерции, таких как поиск информации о товарах и услугах, сравнение цен, оформление заказа, оплата и доставка.

Интеграционный подход к определению электронной коммерции. Все больше ученых, таких как Kurpayanidi, K. I., & Abdullaev, A. M. (2020). [15] и Muminova, E., & all (2020), склоняются к интеграционному подходу. Они рассматривают электронную коммерцию как часть более широкой цифровой экономики и подчеркивают ее взаимосвязь с другими явлениями, такими как интернет-маркетинг, социальные сети и мобильные технологии.

Анализ научной литературы свидетельствует о многогранности интерпретаций понятия «электронная коммерция». Одним из наиболее широких определений, предложенных американским экономистом Gary, P. (2011)., является определение, включающее все виды экономической деятельности, реализуемые с использованием интернет-технологий. Такой подход подчеркивает всеобъемлющий характер электронной коммерции, охватывая не только традиционные онлайн-продажи, но и широкий спектр сопутствующих услуг, таких как электронные платежи, маркетинг, логистика и др. Подобную точку зрения разделяют и другие исследователи, в том числе А. Саммер и Гр. Дункан.

В контексте Республики Узбекистан исследования электронной коммерции приобретают особую актуальность в связи с проводимыми структурными преобразованиями и развитием цифровой экономики. Отечественные ученые, такие как А.Н. Арипов, Р.И. Исаев, А.А. Джурабаев, Х.А. Мухитдинов и Л.И. Шибаршова, внесли значительный вклад в изучение институциональных, технологических и экономических аспектов развития информационно-коммуникационных технологий в стране. Работы Р.И. Исаева, Т.К. Иминова и Х.А. Мухитдинова посвящены исследованию теоретических и практических аспектов электронной коммерции, включая вопросы формирования ее понятийного аппарата (С.С. Гулямов) и развития электронной документации (Р.И. Исаев, П.Ф. Хасанов, Х.П. Хасанов).

Несмотря на значительные достижения отечественных исследователей в области электронной коммерции, следует отметить, что в большинстве работ акцент делается на организационно-экономических аспектах развития этого феномена: оптимизации бизнес-процессов, снижении издержек, минимизации налогов. В то же время, глубокий анализ электронной коммерции с позиций экономической теории остается недостаточно развитым.

Электронная коммерция является одним из ключевых драйверов современной экономики. Для успешного развития этого сектора в Узбекистане необходимо продолжать углубленные научные исследования, направленные на выявление новых теоретических закономерностей и разработку практических рекомендаций для государственных органов и бизнеса.

Эволюция понятия «электронная коммерция». Важно отметить, что понимание электронной коммерции постоянно развивается. С появлением новых технологий и бизнес-моделей, таких как блокчейн и искусственный интеллект, границы электронной коммерции расширяются. Singh, D. K., & Aithal, P. S. (2024) в своих работах подчеркивает, что электронная коммерция перестает быть просто онлайн-продажей товаров и услуг, а становится основой для создания новых бизнес-экосистем.

Анализ взглядов различных ученых показывает, что термин «электронная коммерция» имеет множество интерпретаций. Отсутствие

единого определения связано с многогранностью и динамичностью этого явления. Однако, несмотря на разнообразие подходов, все исследователи сходятся во мнении, что электронная коммерция играет все более важную роль в современной экономике.

Проведенный анализ позволяет классифицировать электронную коммерцию по типу совершаемых сделок. Каждая операция между потребителем и продавцом уникальна и требует индивидуального подхода. В то же время, наблюдается тенденция к долгосрочному сотрудничеству между участниками рынка электронной коммерции.

Отсутствие единого определения «цифрового налогообложения» в современной экономической литературе является актуальной проблемой. Бурное развитие интернет-торговли и рост прибыльности цифровых гигантов, таких как Facebook, Apple, Amazon, Google, Microsoft и Netflix, подталкивают экономистов к разработке эффективных механизмов налогообложения в этой сфере. Рыночная капитализация этих компаний, достигающая 4,5 триллионов долларов США в год, свидетельствует о масштабах и влиянии цифровых платформ на мировую экономику.

Цифровизация государственного управления становится важным фактором, способствующим повышению потенциала государства. Связь между информатизацией государственного управления и расширением государственных возможностей особенно ярко проявляется в странах Восточно-Европейского и Центрально-Азиатского (ВЕЦА) регионов, где это связано с уровнем развития информационно-коммуникационных технологий (ИКТ), степенью проникновения интернета и функциональной совместимостью систем управления информацией.

Степень развития электронной коммерции в условиях перехода к цифровой экономике напрямую связана с уровнем развития ИКТ и оценивается по ряду показателей. К числу таких показателей относятся:

- доля электронной коммерции в цифровой экономике,
- объем инвестиций в ИКТ,
- скорость и покрытие интернета, его доступность для населения,
- доля государственных услуг в системе электронного правительства,
- количество зарегистрированных ключей электронной цифровой подписи (ЭЦП),
- число активных доменных имен второго уровня в зоне .UZ,
- обеспеченность организаций специалистами в области ИКТ
- и уровень безопасности в сфере электронных торгов.

Также важны показатели в международных рейтингах, оценивающих уровень развития информационных технологий в стране.

В Узбекистане за период с 2016 года по настоящее время наблюдается значительный прогресс по многим из указанных показателей. Например, валовая добавленная стоимость, созданная в сфере услуг «информация и

связь», выросла в два раза — с 4,4 до 10 трлн сумов. Объем услуг, предоставленных в рамках экономической деятельности «Информация и связь», также удвоился — с 6,3 до 13 трлн сумов.

По состоянию на 1 января 2024 года в сфере информации и связи функционировало 10 551 предприятие и организация. Однако по сравнению с аналогичным периодом 2022 года количество таких организаций сократилось на 1 653 единицы, что составляет 13,5%. В течение 2023 года услуги мобильной связи, включая Интернет, составили 48,5% от общего объёма предоставляемых услуг. На начало 2024 года количество хозяйствующих субъектов, имеющих лицензию на оказание услуг доступа к сети Интернет, составило 289.

По итогам января-сентября 2024 года объем телекоммуникационных услуг достиг 15 028,4 млрд сумов, что на 13,5% больше по сравнению с аналогичным периодом 2023 года. В IV квартале 2022 года пропускная способность международных каналов передачи данных увеличилась на 400 Гбит/с и составила 3 600 Гбит/с.

Развитию сектора ИКТ также способствовал рост объема инвестиций в основной капитал в сфере «Информация и связь», который увеличился в четыре раза за период с 2016 по 2020 год, с 1,2 до 4,8 трлн сумов. Объем иностранных инвестиций и кредитов в этой сфере вырос в 2,5 раза, с 0,8 до 2 трлн сумов.

Эксперты отмечают динамичное развитие телекоммуникационной инфраструктуры: протяжённость проложенных волоконно-оптических линий связи увеличилась почти в 3,8 раза — с 17,9 до 68,6 тыс. км. Ожидается, что до конца 2021 года эта цифра практически удвоится и составит 118,6 тыс. км, что позволит создать внутреннюю и международную транспортную сеть, обеспечивающую высокоскоростной и широкополосный доступ к мировым информационным ресурсам — необходимую основу для интеграции в глобальную электронную коммерцию.

Также наблюдается устойчивый рост числа абонентов с доступом в Интернет на 100 человек населения — с 26,6 в 2015 году до 80 в 2023 году, что представляет собой практически трёхкратное увеличение. Основной прирост наблюдается за счёт подключения физических лиц: уровень обеспеченности Интернетом вырос с 25,8 в 2015 году до 73,6 в 2023 году, что составляет 2,7 раза. Лидерами по уровню проникновения интернета являются Ташкент и Ферганская область, где на 100 человек в 2023 году приходится 190 и 90 абонентов соответственно.

Расширение сети мобильной связи происходит за счёт установки новых станций, обеспечивающих работу сетей 4G, а в Ташкенте и Фергане также реализуются проекты по установке 45 базовых станций пятого поколения — 5G. Однако Кашкадарьинская, Сурхандарьинская и

Ташкентская области отстают по уровню доступа к интернету, где показатель не превышает 70 абонентов на 100 человек даже к 2023 году.

Во всех регионах наблюдается положительная динамика в увеличении доступа населения к интернету. Наибольший прирост показали Ферганская область (более чем в 4 раза) и Навоийская область (более чем в 2,8 раза). Эти данные свидетельствуют о постепенном сокращении цифрового неравенства между регионами и расширении доступа населения к интернету.

Согласно постановлению Кабинета Министров Республики Узбекистан от 17 апреля 2021 года «Об утверждении основных технико-экономических параметров технико-экономического обоснования проекта «Расширение пропускной способности международного центра пакетной коммутации АК «Узбектелеком», компания «Узбектелеком» в сотрудничестве с американской компанией «Wincom Technologies» реализует проект модернизации данного центра стоимостью около 26 миллионов долларов США. Реализация проекта позволит увеличить пропускную способность до 1 800 Гбит/с. Важным этапом этого сотрудничества стало успешное завершение конкурса на расширение внешнего интернет-канала, стоимость которого составила 25,9 миллиона долларов, как указано в постановлении правительства. Ожидается, что этот проект окупится в течение шести лет.

В соответствии с постановлением Президента Республики Узбекистан от 14 мая 2018 года № ПП-3724 «О мерах по ускоренному развитию электронной коммерции» был учрежден Национальный реестр субъектов электронной коммерции e-tijorat.uz. В этот реестр, основанный на принципах добровольности и бесплатности, могут быть включены юридические лица и индивидуальные предприниматели, чьи доходы от реализации товаров и услуг посредством электронной коммерции составляют не менее 80% от общего объема реализованных товаров и услуг. Эти субъекты становятся плательщиками единого налогового платежа по ставке 2%.

Для оценки эффективности государственного управления в сфере электронной коммерции в условиях цифровой экономики предлагается использовать различные индексы, такие как:

1. **Эффективность работы правительства (Government Effectiveness)** — этот индекс включает показатели, которые измеряют качество государственных услуг, процесс разработки и реализации внутренней государственной политики, уровень доверия к государственным органам, качество работы государственного аппарата, компетентность государственных служащих и степень их независимости от политического давления.
2. **Качество регулирования (Regulatory Quality)** — этот индекс отражает восприятие способности правительства разрабатывать и

внедрять обоснованные меры государственной политики и нормативные акты, которые способствуют развитию частного сектора. Он фиксирует наличие мер, противоречащих принципам рыночной экономики, таких как неадекватный контроль цен и чрезмерное регулирование бизнес-среды.

3. **Открытое правительство (Open Government)** — этот индекс измеряет уровень открытости правительства, определяемый тем, насколько эффективно оно обменивается информацией, предоставляет гражданам инструменты для подотчётности и способствует их участию в обсуждении государственной политики. Также важным аспектом является уровень безопасности, который характеризует, насколько эффективно общество обеспечивает защиту граждан и их имущества.
4. **Соблюдение законов (Regulatory Enforcement)** — этот индекс определяет степень, в которой нормативные акты, как правовые, так и административные, применяются справедливо и эффективно. Он анализирует механизмы, с помощью которых обеспечивается соблюдение нормативных актов.
5. **Уголовное правосудие (Criminal Justice)** — этот индекс оценивает систему уголовного правосудия в стране. Эффективная система уголовного правосудия является ключевым элементом верховенства права, поскольку она обеспечивает механизм рассмотрения жалоб и возбуждения дел против правонарушителей.
6. **Гражданское правосудие (Civil Justice)** — этот индекс анализирует доступность и эффективность системы гражданского правосудия для обычных граждан. Он оценивает, насколько эти системы доступны, недороги и свободны от коррупции, а также насколько эффективно исполняются судебные решения.
7. **Отсутствие коррупции (Absence of Corruption)** — этот индекс измеряет уровень коррупции в правительстве и включает в себя такие формы, как взяточничество, влияние частных интересов на государственные решения и незаконное присвоение государственных ресурсов. Он также рассматривает, проводятся ли государственные закупки и тендеры в рамках открытых и конкурентных процессов и воздерживаются ли государственные служащие от хищений.

Эти индикаторы позволяют комплексно оценить состояние электронной коммерции и выявить области, требующие улучшения в контексте государственного управления и цифровой трансформации экономики Узбекистана.

Обсуждение

Исследования демонстрируют позитивную динамику роста эффективности государственного управления. Для дальнейшего повышения результативности, прозрачности и открытости в этой сфере необходима

комплексная реализация мер по внедрению цифровых технологий в управленческие процессы. В данном контексте важными факторами являются уровень цифровизации, развитие цифровых рынков, степень информатизации процессов, социально-экономическая ситуация в стране, уровень цифровизации в зарубежных странах, а также международные стандарты трансграничного взаимодействия.

Цифровизация инструментов управления процессами электронной коммерции формирует новые механизмы взаимодействия субъектов экономики:

- Информатизация бизнес-процессов способствует совершенствованию единой системы взаимодействия участников на различных уровнях.
- Высокая скорость интернета и доступность цифровых технологий позволяют оперативно реагировать на изменения в экономической среде.
- Повышение прозрачности и доступности государственных услуг стимулирует бизнес к внедрению цифровых технологий в свою деятельность.
- Возможность обрабатывать большие объёмы данных упрощает принятие управленческих решений на государственном, региональном и муниципальном уровнях.

Цифровые технологии способствуют эффективному взаимодействию всех участников рынка, обеспечивая сбор, обработку и хранение информации, что, в свою очередь, повышает качество и оперативность принятия решений государственными органами.

Анализ международного опыта показывает, что субъекты электронной коммерции все чаще взаимодействуют через цифровые платформы, создавая цифровую экосистему. Электронная коммерция в Узбекистане развивается в условиях рыночной среды, однако необходимо учитывать риски цифровизации: монополизацию данных иностранными платформами, обеспечение технологической независимости, вопросы кибербезопасности и другие. Эти факторы требуют особого внимания при обновлении нормативно-правовой базы, а также при решении организационных и технических вопросов.

Государственные органы Узбекистана активно работают над созданием технологических платформ, совершенствованием законодательной базы для цифровой экономики, развитием системы «Электронное правительство», защитой национальных интересов при международном сотрудничестве, стимулированием внедрения цифровых технологий, подготовкой кадров, обеспечением защиты от киберугроз и расширением международного сотрудничества в области цифровой экономики. Развитие цифровой инфраструктуры и повышение цифровой грамотности также являются ключевыми факторами, способствующими росту цифрового потенциала страны. Однако существующая нормативно-

правовая база с множеством подзаконных актов и ограничений, а также недостаток конкуренции на рынке могут отпугивать потенциальных инвесторов.

В рамках национальной программы «Цифровой Узбекистан — 2030» предусмотрены меры по развитию цифровой экономики, в том числе создание регуляторных «песочниц» для тестирования новых законодательных актов, привлечение инвестиций в науку и технологии, улучшение обмена данными на национальном и субрегиональном уровнях, а также укрепление международного сотрудничества в области цифровой инфраструктуры.

Несмотря на определённые успехи, предприятия Узбекистана остаются в числе отстающих в международных рейтингах цифровой конкурентоспособности. Для улучшения ситуации необходимо разработать систему стимулирования внедрения цифровых технологий на предприятиях. Ключевыми приоритетами в этом направлении являются совершенствование экономических механизмов государственного управления и создание благоприятных условий для привлечения инвестиций в цифровые проекты.

Также необходимо разработать сбалансированные регуляторные условия для участников цифровых рынков, включая обеспечение безопасной цифровой среды, развитие национальных экосистем и платформ, а также поддержку национальной цифровой экономики. Регуляторная политика должна своевременно реагировать на изменения рыночной среды, способствовать развитию инноваций и поддерживать национальные цифровые платформы и экосистемы в условиях конкуренции с зарубежными и глобальными платформами. Важно создать правовую основу, обеспечивающую условия для успешного развития национальных цифровых экосистем.

Согласно Стратегии развития Нового Узбекистана на 2022–2026 годы, цифровая экономика рассматривается как основной драйвер роста. В рамках этой стратегии предусмотрено увеличение объема цифровой экономики как минимум в 2,5 раза к 2026 году, что станет важным шагом к укреплению конкурентоспособности Узбекистана на мировом уровне.

Полный переход государственного управления в цифровую среду требует сбалансированного подхода, включающего не только широкое использование технологий, но и сохранение личного взаимодействия и защиту интересов граждан. В рамках стратегии ускоренного развития национальной экономики и обеспечения устойчивого роста необходимо всестороннее совершенствование системы управления электронной коммерцией в условиях цифровой трансформации. Важными аспектами являются формирование регуляторной среды, которая создавала бы благоприятные правовые условия для применения цифровых технологий и ведения электронной коммерции, а также обеспечение здоровой

конкурентной среды для национальных и иностранных экономических субъектов, включая цифровые экосистемы и платформы. При этом важно гарантировать защиту прав граждан и поставщиков, технологический суверенитет и устойчивое социально-экономическое развитие на пути к цифровой экономике.

Совершенствование экономических механизмов государственного регулирования предполагает разработку различных мер стимулирования приобретения цифровых продуктов и услуг в сфере электронной коммерции. К ним относятся создание льготных условий кредитования, налоговые и административные льготы, снижение ставок подоходного налога, упрощение таможенных процедур для товаров цифровой торговли, а также меры по увеличению экспорта цифровых услуг и привлечению инвестиций. Эти меры призваны снизить барьеры для участников рынка и повысить их конкурентоспособность на внутреннем и международном уровнях.

Цель регулирования цифровых экосистем и платформ на текущем этапе их развития заключается в обеспечении качественной конкуренции на национальном рынке и поддержании равных условий для всех участников, независимо от принадлежности к той или иной экосистеме. Необходимо приложить усилия для развития национальных экосистем и платформ в условиях конкуренции с зарубежными аналогами, а также для защиты интересов поставщиков и потребителей цифровых товаров и услуг. Эти меры будут способствовать устойчивому экономическому росту, дальнейшей цифровизации и технологическому развитию Республики Узбекистан, создавая прочную основу для роста цифровой экономики и укрепления ее позиций на международной арене.

Заключение

Проведенное исследование демонстрирует, что электронная коммерция в Узбекистане переживает стремительный рост, однако для достижения полного потенциала требуется дальнейшее развитие институциональной среды.

По нашему мнению, для ускорения развития электронной коммерции целесообразно:

- совершенствовать законодательную базу, обеспечивающую защиту прав потребителей и стимулирующую инновации.
- усилить инвестиции в развитие инфраструктуры, включая широкополосный интернет и логистические сети.
- развивать человеческий капитал, повышая уровень цифровой грамотности населения.
- создавать благоприятные условия для развития малого и среднего бизнеса в сфере электронной коммерции.
- укреплять международное сотрудничество в области электронной торговли.

Таким образом, в долгосрочной перспективе электронная коммерция может стать одним из основных двигателей экономического роста Узбекистана, способствуя повышению уровня жизни населения и укреплению позиций страны на мировом рынке.

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УСОВЕРШЕНСТВОВАНИЕ СДАЧИ ФИНАНСОВЫХ ОТЧЕТОВ АКЦИОНЕРНЫХ ОБЩЕСТВ НА ОСНОВЕ ЗЕЛЕННЫХ ИННОВАЦИЙ

Аннотация: в данной статье рассмотрены различные определения и понятия совершенствования финансовых отчетов и проведения аудита в акционерных обществах. А также принципы приближения к МСФО и усовершенствование сдачи финансовых отчетов акционерных обществ на основе зеленых инноваций.

Ключевые слова: учет, доход, договор, выручка, инвентаризация, переменное вознаграждение, фиксированная сумма эффективность использования, совершенствование учета.

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IMPROVING THE SUBMISSION OF FINANCIAL REPORTS OF JOINT-STOCK COMPANIES BASED ON GREEN INNOVATIONS

Abstract: This article examines various definitions and concepts of improving financial statements and conducting audits in joint-stock companies. As well as the principles of approaching IFRS and improving the submission of financial statements of joint-stock companies based on green innovations.

Keywords: accounting, income, contract, revenue, inventory, variable remuneration, fixed amount, efficiency of use, improving accounting.

В зарубежных странах мира особое внимание уделяется повышению эффективности акционерных обществ, внедрению современных принципов корпоративного управления и повышению прозрачности информации в финансовой отчетности. Однако, несмотря на принимаемые в этой области меры, многие компании в мире сталкиваются с мошенничеством, связанным с финансовой отчетностью. По данным Международной ассоциации

аудиторов по борьбе с мошенничеством, «11% стран мира имеют случаи мошенничества в банковском и финансовом секторе, 12% — в промышленности и 18% — в строительном секторе». Поэтому в странах мира правильному применению принципов бухгалтерского учета и повышению качества аудита придается особое значение в предотвращении и устранении мошенничества, связанного с финансовой отчетностью.

В различных странах мира особое внимание уделяется научным исследованиям, направленным на совершенствование подготовки и аудита финансовой отчетности в акционерных обществах в условиях глобализации экономики.

В этих исследованиях рассматриваются вопросы соблюдения принципов бухгалтерского учета при составлении финансовой отчетности, совершенствования отчета о финансовом положении, совершенствования расчета прибылей и убытков и других валовых доходов, планирования проверки финансовой отчетности, определения оптимального Решена совокупность аудиторских рисков, определение уровня их значимости при проверке финансовой отчетности и составление аудиторских заключений.

Следует признать, что в области исследований одновременно происходит трансформация финансовой отчетности в соответствии с международными стандартами, оценка событий и непрерывности деятельности после отчетного периода при аудите финансовой отчетности, а также совершенствование процесса. использования письменных материалов для обеспечения адекватности и уместности аудиторских доказательств. Однако текущие вопросы, связанные с подготовкой финансовой отчетности и организацией аудитов на уровне международных стандартов, еще не решены в полной мере.

В Республике Узбекистан особое внимание уделяется развитию деятельности акционерных обществ, внедрению в них принципов корпоративного управления, организации бухгалтерского учета и аудита на основе требований международных стандартов. В том числе «организация активной методической поддержки аудиторских организаций и аудиторов в применении международных стандартов аудита» Постановление Президента Республики Узбекистан от 9 сентября 2018 года № PQ-3946 «О мерах по развитию аудиторской деятельности в Республике». Узбекистана».определение задачи требует проведения аудита финансовой отчетности на основе международных стандартов. Эти задачи определяют важность организации финансовой отчетности и аудита на основе международных стандартов и совершенствования ее методологических основ.

С точки зрения управленческого учета в учетной политике рассматриваются следующие аспекты: методы расчета себестоимости продукции и их применение; порядок формирования трансфертной цены;

порядок составления сегментных отчетов; порядок определения точки безубыточности и др.

Учетная политика, составленная для целей налогового учета, должна соответствовать требованиям Налогового кодекса. При этом необходимо осветить следующие вопросы: правильный расчет базы по видам налогов и платежей; состав вычитаемых и невычитаемых расходов в отчетном периоде по налогу на прибыль; если юридическим лицам предоставляются налоговые льготы, их применение; направления использования средств, высвободившихся у предприятия за счет предоставленных налоговых льгот и т.п.

При составлении учетной политики необходимо обратить внимание на ее организационные, технические и методические аспекты. К организационным аспектам учетной политики относятся форма организации бухгалтерской службы, распределение обязанностей между работниками, уровень квалификации бухгалтеров.

Основной целью финансовой отчетности является предоставление внешним пользователям достоверной информации о хозяйствующем субъекте. Учетная политика, в свою очередь, напрямую влияет на формирование информации в финансовой отчетности. Поэтому информационные возможности пользователей финансовой отчетности должны учитываться при создании учетной политики.

Формирование учетной политики в хозяйствующих субъектах считается сложным процессом, включающим следующие этапы (рис. 1).

При составлении учетной политики прежде всего необходимо уточнить состав объектов учета. В практике нашей страны требования к объектам учета раскрываются в учетной политике в последовательности согласно структуре баланса. В частности, к долгосрочным активам относятся основные средства, нематериальные активы, долгосрочные инвестиции, капитальные вложения и долгосрочная дебиторская задолженность. Далее правилами учетной политики запасы, дебиторская задолженность и денежные средства определяются в составе оборотных активов. Далее следует покрытие требований по собственному капиталу, обязательствам, доходам и расходам.

При формировании учетной политики необходимо учитывать факторы, влияющие на нее. В частности, на учетную политику существенное влияние оказывают организационно-правовая структура экономического субъекта, масштабы и цели деятельности, принятая финансовая стратегия, состояние системы внутреннего контроля, а также внешние факторы.

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ИНТЕГРАЦИЯ ФИНАНСОВЫХ ОТЧЕТОВ АКЦИОНЕРНЫХ ОБЩЕСТВ НА ОСНОВЕ МСФО

***Аннотация:** в данной статье рассмотрены различные определения и понятия интеграции финансовых отчетов и проведения аудита в акционерных обществах. А также принципы приближения к МСФО и усовершенствование сдачи финансовых отчетов акционерных обществ на основе зеленых инноваций.*

***Ключевые слова:** учет, доход, договор, выручка, инвентаризация, переменное вознаграждение, фиксированная сумма эффективность использования, совершенствование учета.*

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INTEGRATION OF FINANCIAL STATEMENTS OF JOINT- STOCK COMPANIES BASED ON IFRS

***Abstract:** This article examines various definitions and concepts of integration of financial statements and conducting audits in joint-stock companies. As well as the principles of approaching IFRS and improving the submission of financial statements of joint-stock companies based on green innovations.*

***Keywords:** accounting, income, contract, revenue, inventory, variable remuneration, fixed amount, efficiency of use, improving accounting.*

Основным стандартом, регулирующим формирование финансовой отчетности на основе международных стандартов, является НСБУ №1 под названием «Представление финансовой отчетности». Настоящий стандарт определяет обязательные компоненты финансовой отчетности и порядок их представления. Стандарт содержит правила составления каждой из форм

отчетности и определяет общие требования к определению и оценке элементов отчетности.

В пункте 8 МСФО № 1 представлен полный комплект финансовой отчетности следующим образом:

- «отчет о финансовом положении;
- отчет о прибылях и убытках или валовом доходе;
- заявление об изменении капитала;
- отчет о движении денежных средств;
- примечания с кратким описанием существенных элементов учетной политики и другие описательные примечания» НСБУ «Представление финансовой отчетности».

Помимо вышеуказанных отчетов, финансовые отчеты могут включать отчеты по охране окружающей среды и другие дополнительные отчеты, облегчающие работу пользователей при принятии экономических решений.

До сих пор во многих странах можно подготовить финансовую отчетность в соответствии с национальными стандартами, а затем внести необходимые изменения для постепенного осуществления перехода на МСФО. Этот процесс называется «преобразованием»

Трансформация финансовой отчетности в соответствии с требованиями МСФО осуществляется на основе отчетов, подготовленных в соответствии с национальными стандартами. Этот процесс может осуществляться путем классификации объектов учета и организации элементов оценки. Целью является адаптация финансовой отчетности к формату МСФО.

Трансформация отчетности – это процесс, заключающийся во внесении необходимых исправлений (изменений) в соответствии с МСФО в отчетные материалы, ранее подготовленные в соответствии с национальными стандартами бухгалтерского учета.

На наш взгляд, основным недостатком этого процесса является сложность параллельного учета. Специалист, занимающийся трансформацией отчета, может самостоятельно выбрать методологию и определить этапы процесса. Выбор напрямую зависит от субъективных факторов, таких как порядок учета, особенности финансово-хозяйственной деятельности, ресурсы (финансовые, материальные и трудовые), учетная политика и уровень детализации отчетности.

К сожалению, единого опубликованного подхода к реализации трансформации не существует, поэтому каждому бухгалтеру и экономисту приходится разрабатывать отдельный алгоритм. Кроме того, разрешается выбирать методологию и этапы изменения финансовой отчетности в МСФО.

В работе показаны методы отчетности в формате МНХС.

Параллельный метод широко используется в странах мира как часть методов отчетности в формате МНХС. Таким образом, финансовый отчет готовится на основе как национальных, так и международных стандартов.

Комбинированный метод обеспечивает достаточную точность раскрытия информации в любой момент, поскольку нет необходимости ждать окончания периода подготовки финансовой отчетности. Показатели отчетности по переходу на МСФО составляются на основе подготовки отчетов в соответствии с национальными стандартами путем внесения корректировок. Метод трансформации реализуется аудиторскими или консалтинговыми организациями.

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В сборнике: Инженерная экономика и управление в современных условиях. Материалы научно-практической конференции, приуроченной к 50-летию инженерно-экономического факультета. Ответственный редактор В.В. Жильченкова. 2019. С. 406-411.

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ВОЗМОЖНОСТИ ПРИМЕНЕНИЯ ТЕЛЕКОММУНИКАЦИОННЫХ ТЕХНОЛОГИЙ В ДИСТАНЦИОННОМ ОБУЧЕНИИ

***Аннотация.** В статье рассмотрены вопросы применения телекоммуникационных технологий в дистанционном обучении. Представлены программы и онлайн образовательные ресурсы. Показаны необходимые условия и подходы к оценке эффективности технологий дистанционного образования.*

***Ключевые слова:** дистанционное обучение, электронные ресурсы, тестирование, smart-технологии, электронный журнал, Wi-Fi роутер, компьютер, веб-камера, микрофон.*

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POSSIBILITIES OF USING TELECOMMUNICATION TECHNOLOGIES IN DISTANCE EDUCATION

***Annotation.** The article examines the application of telecommunication technologies in distance learning. Programs and online educational resources are presented. The necessary conditions and approaches to assessing the effectiveness of distance learning technologies are shown.*

***Keywords:** distance learning, electronic resources, testing, smart technologies, electronic journal, Wi-Fi router, computer, webcam, microphone.*

Фундаментальной основой развития современного общества является повсеместное проникновение сетевых технологий, изменяющих все стороны человеческой деятельности, в том числе и систему образования. Сетевые инфокоммуникационные технологии создали новую социокультурную среду жизни человека, в которой множество участников взаимодействуют между собой посредством огромного количества устройств, в том числе с «умным» функционалом и сервисом, где «цифра» из новых возможностей превратилась в новую среду существования человека. Развитие цифровых инструментов социального взаимодействия

оказывает влияние высших психических и когнитивных процессов человека (память, мышление, внимание)

События последних месяцев, связанные с пандемией, сделали ещё более актуальными вопросы расширения использования технологий дистанционного образования различных видов (курсового, школьного, специального и высшего). Поэтому в образовательных учреждениях создаются условия для организации и проведения дистанционного обучения: преподаватели объясняют учебный материал, проверяют его усвоение и консультируют в режиме онлайн

В процессе дистанционного обучения проводится:

- планирование занятий через онлайн-сервисы с указанием предметов и тем, в соответствии с этим обучающиеся изучают образовательные материалы дисциплин, выполняют задания и проверочные тесты;
- применение видеуроков, интернет-чатов, тестирований;
- ведение электронных дневников и журналов (рис. 1).

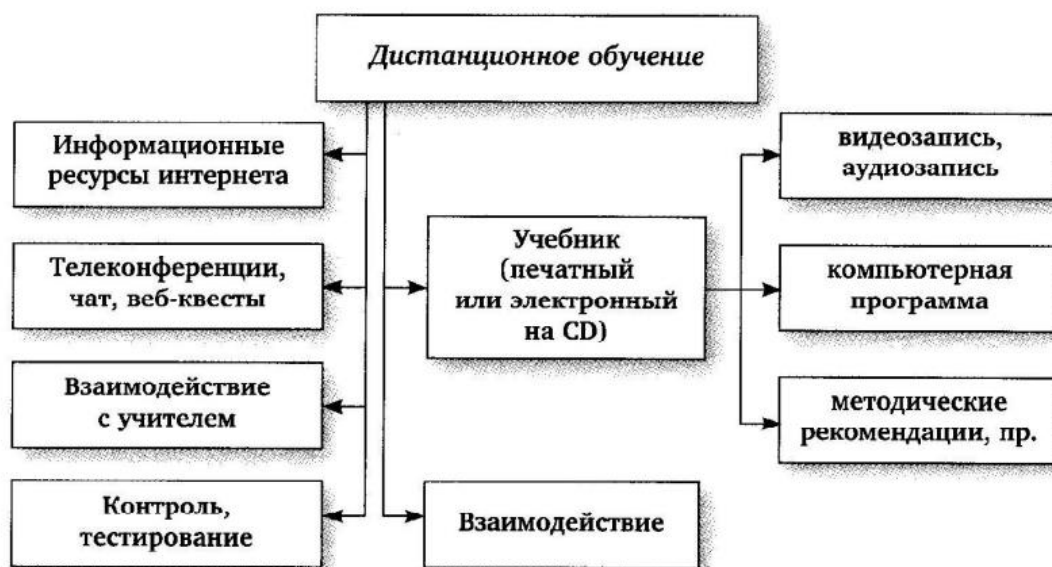


Рис. 1. Схема организации учебного материала при дистанционном обучении

Основными требованиями к дистанционному образованию являются формирование необходимых для данного курса компетенций при сохранении комфортной образовательной среды и обеспечении всех необходимых санитарных норм.

Студенты и школьники изучают материал, усваивают знания, умения и (при возможности реализации) навыки в соответствии с программой обучения, проходят рубежные и промежуточные аттестации. Результаты проверки знаний и умений отражаются в электронном журнале.

Для дистанционного изучения материала должно быть подготовлено автоматизированное рабочее место, электронный образовательный процесс невозможен без применения компьютера, оснащённого веб-камерой,

микрофоном и наушниками, устройствами ввода и вывода информации (рис. 2).



Рис. 2. Телекоммуникационные устройства компьютера для дистанционного обучения.

Телекоммуникационное оборудование и соответствующее программное обеспечение должно обеспечивать возможность прямой и (в оптимальном случае) обратной связи между преподавателем (образовательной платформой) и обучающимся, хранение данных учебного материала и проверочных тестов, подключение информационного сервера сетевого доступа к облачным технологиям сети Интернет (рис. 3).



Рис. 3. Схема организации телекоммуникационного взаимодействия между серверами и рабочими станциями преподавателя и студента

Присутствовать очно на занятиях при переходе на удаленное обучение нет необходимости, график сдачи отчётов и практических заданий претерпевает изменения, сессии и защита выпускных работ могут быть также организованы в интерактивном формате. Все вопросы по подготовке и оформлению выпускных квалификационных работ решаются дистанционно с научным руководителем по онлайн интернет связи.

Наряду с положительными сторонами дистанционного обучения имеются и существенные трудности. Они возникают у обучающихся с недостаточным уровнем мотивации к получению образования в онлайн формате, им необходима поддержка со стороны родителей. Низкая мотивация может привести к отставанию при выполнении заданий учебной программы для определенных групп обучающихся.

Также важной проблемой являются последствия статической нагрузки на здоровье школьников и студентов, которые работают в этот период больше по времени за экранами компьютеров, и поэтому им важно совмещать интерактивную дистанционную учебу с двигательной активностью.

Для облегчения усвоения материала в электронном формате необходимо построить систему, применяя привычное расписание с учетом распорядка дня, при этом дистанционное образование позволит организовать обучение на новом технологическом уровне с учётом основных принципов организации современного интерактивного образования.

Преподаватели и студенты для обеспечения качественной дистанционной работы в домашних условиях должны иметь рабочее место (станцию) или рабочие станции для семьи с несколькими детьми, в которых

применяются беспроводные каналы связи. Такой системой может быть локальная вычислительная сеть с телекоммуникационными устройствами: сервером, Wi-Fi роутером, маршрутизатором, компьютерами, планшетами, смартфонами и многофункциональным устройством (принтером, сканером, ксероксом) для работы с информацией на электронных и бумажных носителях (рис. 4).

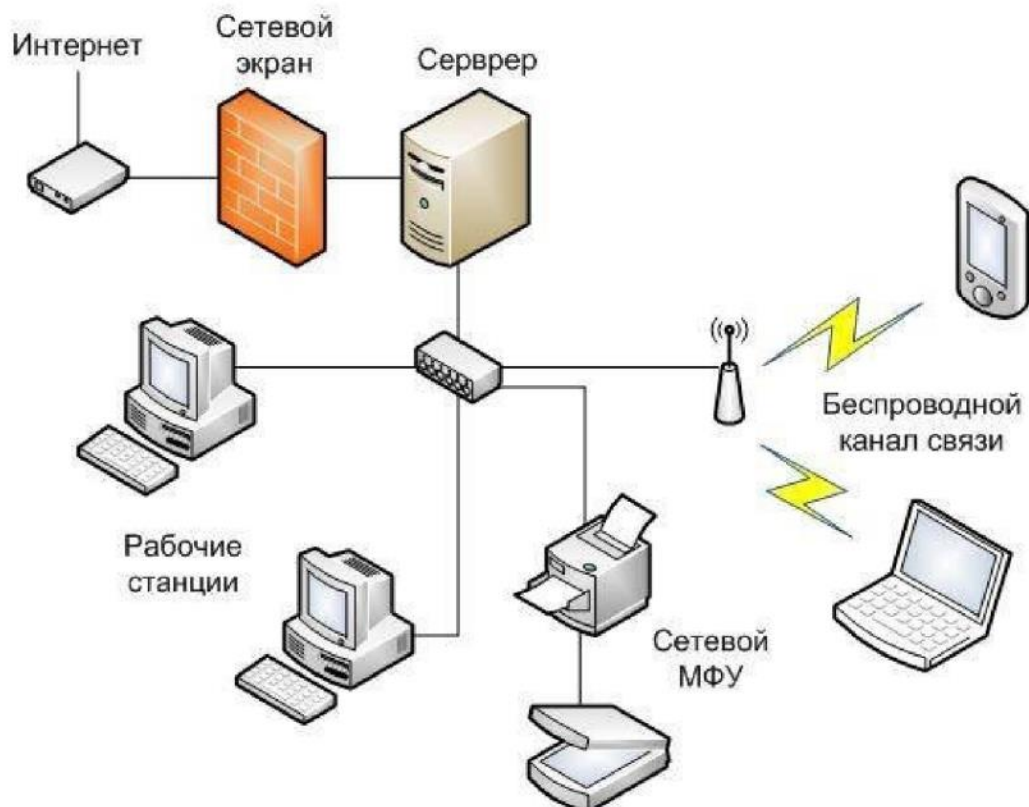


Рис. 4. Схема локальной вычислительной сети в пределах ограниченного пространства

В системе дистанционного образования известные телекоммуникационные корпорации предлагают свои инструменты и программные решения для работы преподавателей и обучающихся. При переходе к дистанционному формату используются не только отсканированные страницы обычных книг, а также интерактивные учебники, презентации, учебные видеоролики и цифровые среды для самообразования.

Важным моментом при реализации дистанционного обучения является постоянный мониторинг качественного усвоения обучающимися образовательной программы. Студентам воспринимать информацию без очного общения с преподавателем сложнее, поэтому в платформе онлайн-обучения необходимо обязательно использовать обратную связь. Благодаря обратной связи необходимо в конце каждого занятия проводить опросы для

понимания ситуации в группе, и одно из применений этой функции - сбор информации от обучающихся о качестве преподавания (рис. 5).

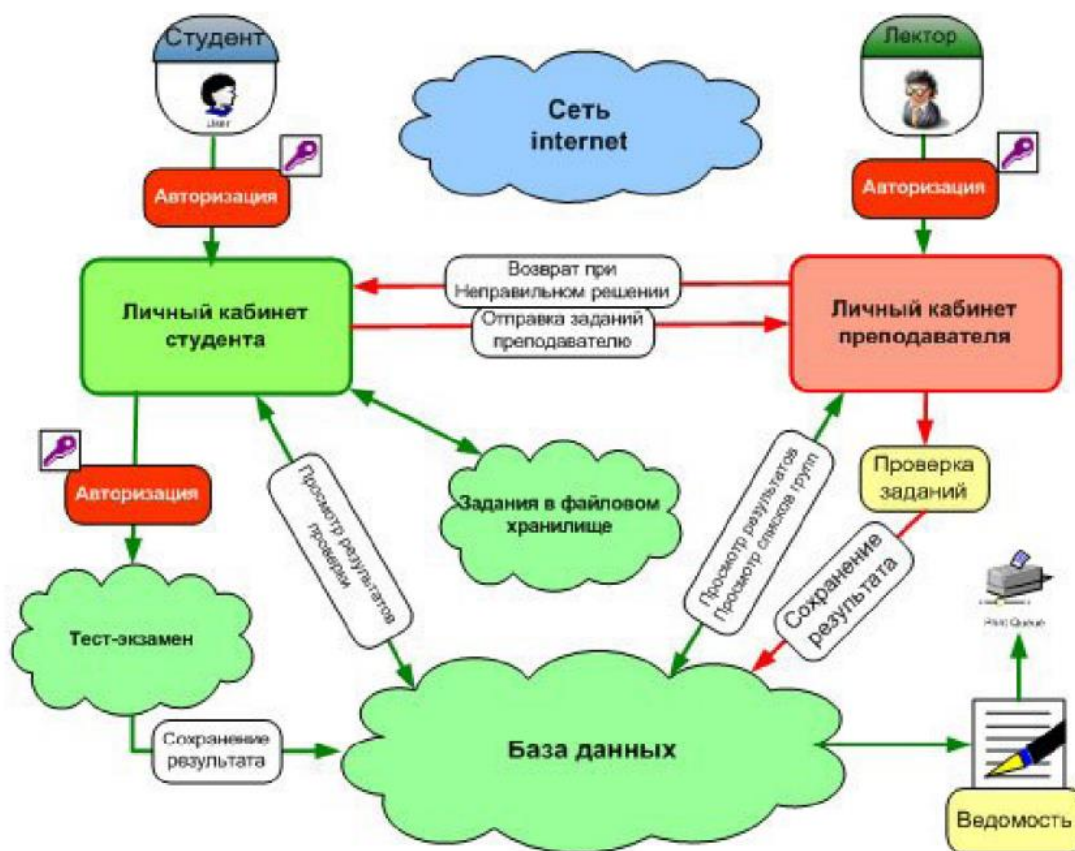


Рис. 5. Схема взаимодействия преподавателя и студента в учебном дистанционном процессе.

Также актуальны вопросы информационной этики и безопасности в процессе дистанционных занятий. Сообщения, которые отправляют обучающиеся и преподаватели должны быть корректными по вопросам тем и консультаций, преподаватель или администратор чата конференции сначала видит сообщение обучающего, а потом решает, направлять это сообщение в открытый чат или нет.

Вариантами технологий дистанционного и электронного образования являются:

- ❖ Передача образовательной информации через телевидение для регионов с ограниченными ресурсами Интернета –телевизионные трансляции уроков с уч ётом часовых поясов;
- ❖ Каталог ресурсов для предоставления актуальной информации об электронных образовательных ресурсах для преподавателей и обучающихся;
- ❖ Обеспечение равных возможностей для каждого участника образовательного процесса, т.е. получение доступа к онлайн и дистанционным учебным решениям;

❖ В онлайн занятиях в группе студенты могут проявлять большую активность, чем при пассивном освоении онлайн-контента. Применяются видео-платформы типа Zoom для онлайн-классов при подключении из разных точек страны и мира;

❖ Методики оценки уровня усвоения учебного материала;

❖ Открытый набор инструментов для дистанционного обучения и вебинары по образовательным темам;

❖ Информационные ресурсы создания учетной записи, логина, пароля, и предоставления информации о порядке работы в конкретной образовательной платформе;

❖ Внедрение проектного подхода в обучении. Онлайн-курс и работа в коллективе для изучения образовательного опыта студентов, преподавателей и сотрудников организаций, т.е. работа над проектами, в сотрудничестве с коллегами, в интерактивном пространстве, в том числе и с использованием компьютерного моделирования;

❖ Поддержание двигательной активности для обучающихся. Пакет мультимедийных здоровьесберегающих мероприятий, которые помогают развивать двигательную активность при дистанционном обучении, а также справляться с эмоциональным стрессом позитивными способами.

Сформулируем существенные, основные требования к образовательным платформам:

1. Информационная безопасность персональных внутриплатформенных систем коммуникаций, обеспечивающих неприкосновенность личных данных;

2. Регулярное обновления контента, его соответствие современным научным представлениям, нормам и правилам поведения, цифровой этики;

3. Научные и методические основания построения платформы и размещенных на ней цифровых сервисов;

4. Образовательная деятельность обучающихся на платформе не может ограничиваться рамками учебника и учебная программа, должна отвечать самым современным достижениям науки и технологий;

5. Обеспечение общедоступности для всех категорий обучающихся, прозрачности процесса обучения и объективности оценивания

Для образовательных целей возможно применение следующих образовательных платформ:

1. «Coursera» – более 3500 доступных программ известных вузов и корпораций;

2. «Открытое образование» - курсы ведущих вузов России для обучающихся по разным программа подготовки;

3. «Лекторий» - лекции и курсы по физике, информационным технологиям, математике и другим направлениям;

4. «ПостНаука» - лекции и практики по разным темам;

5. «Универсариум» - программы и курсы институтов, компаний и преподавателей;

6. «Открытый университет» - система программ по гуманитарным дисциплинам на русском языке; 7. «Teach-in» – лекции занятий преподавателей по основным направлениям университета;

8. «Яндекс.Практикум» - электронный портал обучения специалистов различных цифровых профессий;

9. «Udemy» - онлайн-видеокурсы преподавателей на образовательные темы;

10. «Microsoft Learn» - образовательная платформа Microsoft для современных профессий.

Во время онлайн обучения увеличивается востребованность инструментов для организации удалённой работы – мессенджеров компаний Google, Microsoft, Facebook, Line Corporation (рис. 6).



Рис. 6. Логотипы мессенджеров телекоммуникационных компаний.

В образовательных целях можно применять мессенджеры и программные приложения:

1. Skype. Приложение используется для бесплатных звонков по всему миру и переписки.

2. Discord. Изначально приложение разрабатывалось для игр, поэтому имеет небольшой размер и в фоновом режиме потребляет очень мало ресурсов. Важным достоинством приложения Discord является автоматическое включение микрофона, когда человек начинает говорить и поэтому лишнего шума в видеоконференции не возникает.

3. Zoom. Инструмент изначально не был предназначен для дистанционного обучения, но отлично подходит для онлайн-занятий. Особенностью Zoom является использование виртуальной доски, на которой можно писать или рисовать различные схемы, недостатком –

ограничение бесплатной версии приложения по времени видеоконференции до 40 минут, но можно расширить время платным аккаунтом.

4. Google Hangouts. Это один из сервисов Google, поэтому для доступа к нему нужно иметь аккаунт в этой поисковой системе. Ресурсов почти не требует, но и возможности небольшие, есть видеочат и опция демонстрации экрана.

5. Microsoft Teams. Как и программа Zoom, это приложение для проведения онлайн-конференций. Здесь имеется виртуальная доска, на которой можно писать и рисовать, а также интегрированы приложения Microsoft Office.

6. Приложение для видеоконференций - Cisco WebEx, продолжительность конференций может быть не ограничена, а максимальное число участников до 100 обучающихся.

7. Google Meet, предлагает видеоконференции корпоративного уровня с участием до 100 человек и продолжительностью до 60 минут.

8. WhatsApp, Viber - мессенджеры, которые можно использовать в качестве инструментов для онлайн-обучения, плюс здесь в простоте и доступности мессенджеров.

Многочисленные исследования в области образовательных электронных технологий показывают, что в основе онлайн-обучения лежит спроектированный учебный процесс, поддерживаемый методически целенаправленной последовательностью учебных и оценочных средств для проверки достижения результатов обучения (рис. 7).



Рис. 7. Электронное обучение и сетевые формы реализации образовательных программ в университете

Преимуществом электронного обучения является большое количество инструментов, которыми можно воспользоваться для повышения эффективности образования, например система Moodle (рис. 8).

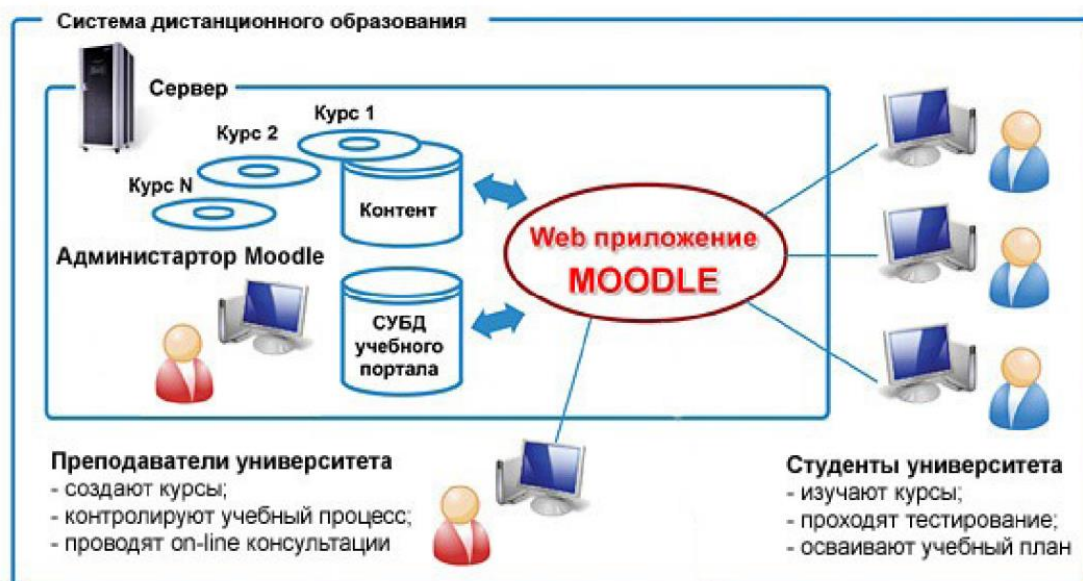


Рис. 8. Система дистанционного образования на платформе Moodle

Ключевым в визуальной подаче учебного материала является дизайн его оформления при разработке онлайн-курса, что важно при переходе на онлайн-модель обучения (при дистанционном электронном обучении, комбинированном подходе с различным соотношением очных и онлайн-занятий и обучении с применением вебинаров). В работе над онлайн-курсами необходимо учитывать:

- педагогические технологии и цель изучения курса;
- роль преподавателя и студента (воспринимает на слух и читает материал; решает задачи и отвечает на вопросы, применяет программы моделирования для лабораторных работ и другие инструменты взаимодействия с преподавателем и другими обучающимися);
- обратную связь (автоматизированная со стороны компьютерной системы) от преподавателя и обучающихся [

Для эффективного применения дистанционного обучения, также необходимо проводить работу по оцифровыванию учебных материалов дисциплин. Доступ к материалам должен быть в любой момент времени у всех преподавателей. Преподаватели учебного заведения обеспечивают образовательный процесс цифровыми лекциями, практическими и лабораторными заданиями, методическими указаниями к работам с учетом компетенций рабочих программ. Между членами групп и старостами налаживается мобильная связь для коммуникации и решения образовательных вопросов. Удаленный доступ к учебным пособиям реализуется за счет вычислительных мощностей заведений, необходимо предусмотреть проведение лекций в видео режиме через веб-камеру с микрофоном.

Обозначим технические проблемы при дистанционном обучении.

Первая проблема: для онлайн-занятий необходим компьютер, смартфон или планшет с доступом в Интернет. Вторая проблема:

обучающиеся не всегда могут самостоятельно авторизоваться или подключиться к онлайн занятию, тогда им помогают родители, но если родители на работе, то обучающийся может и не выполнить подключение к занятию (актуально для школьного возраста). Третья проблема: если компьютер один, а детей двое или больше, и при этом занятия в одно время, тогда по какому принципу выбирать, кто учится, а кто нет? Также возможна путаница с платформами для проведения занятий.

Дистанционное обучение позволяет проводить занятия или семинары без очного присутствия участников образовательного процесса в одном месте, учебной аудитории. Существует несколько вариантов дистанционного обучения: посредством проведения видеоконференций, т.е. очное общение и второй вариант — курс из последовательных видео уроков. У каждого из них есть свои достоинства и недостатки. Основной недостаток дистанционного обучения для школьников и студентов заключается в том, что к нему могут быть не готовы ни учебные заведения с преподавателями, ни обучающиеся с родителями. Необходимо также учитывать опыт проведения очных занятий, осуществлять воспитательную и социальную поддержку при переходе на дистанционное обучение с применением телекоммуникационных технологий.

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СУРХОНДАРЁ ВИЛОЯТИ ШАРОИТИДА ТУРЛИ СОЯ НАВЛАРИНИНГ БАРГЛАР МАЙДОНИ КЎРСАТКИЧЛАРИ

***Аннотация:** Мақолада Сурхондарё вилояти шароитида турли соя навларининг биоэкологик ва морфофизиологик хусусиятларини ўрганиши бўйича олинган маълумотлар келтирилган. Тажрибалар давомида фотосинтетик кўрсаткичлардан -барглари майдони аниқланган. Келтирилган натижалар асосида юқоридаги кўрсаткичларнинг навлар кесимида ҳар хил даражада ўзгариши уларнинг биологик ва нав хусусиятларига боғлиқлиги қайд этилган.*

***Таянч сўзлар:** соя навлари, фотосинтез, барг майдони.*

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LEAF AREA INDICATORS OF DIFFERENT SHADOW VARIETIES IN SURKHANDARYA REGION

***Annotation:** The paper provides information on the study of bioecological and morphophysiological properties of various soybean varieties in the conditions of the Surkhandarya region. In the course of the experiments, such as the area of the leaves, the number of pigments, the net productivity of photosynthesis. According to the results, it was noted that the variability of the above indicators in the assortment of varieties depends on their biological and varietal characteristics.*

***Key words:** soybean varieties, photosynthesis, leaf area.*

Кириш.

Сурхондарё вилоятининг ўзига хос тупроқ-иқлим шароитларида турли соя навлари баргларида фотосинтез жараёнларининг асосий кўрсаткичи – барг сатҳи ўрганилди.

Тадқиқот объекти ва услублари. Тадқиқот ишлари дала ва вегетацион тажрибалар усули асосида амалга оширилди. Тадқиқотлар Пахта селекцияси, уруғчилиги ва етиштириш агротехнологиялари илмий тадқиқот институти Сурхондарё илмий тажриба станциясида далаларида олиб борилди. Ишланишлар объекти сифатида 4 та истиқболли (маҳаллий Барака, Тўмарис Ман-60, Устоз ММ-60 ва хорижий Вилана) соя навларидан

фойдаланилди. Экспериментал тажрибалар дала шароитида тўрт қайтариқли, 24 м² бўлган майдончаларда олиб борилди.

Барг сатҳини аниқлашда энг қулай ва самарали усул ҳисобланган кесмалар методи[4], фотосинтез соф маҳсулдорлигини аниқлаш учун эса А.А.Ничипорович методи (Кидда, Веста и Бриггса формуласи асосида) дан [5] фойдаланилди.

Тадқиқот натижалари ва унинг муҳокамаси. Ҳосилдорликни аниқлашда ўсимликларнинг фотосинтез фаоллигининг асосий кўрсаткичларидан бири бу- барг майдони сатҳининг катталиги ва унинг шаклланиш динамикасидир, чунки ўсимликларининг барг майдони етарлича тез ўсса, оптимал қийматга еришса ва кейин узоқ вақт давомида фаол қолса, буларнинг барчаси фотосинтетик фаол нурланишдан фойдаланиш жараёнига жуда самарали таъсир қилади. Соя ўсимлигидан юқори ҳосил олишнинг энг муҳим шартларидан бири - экиннинг ассимиляция юзасининг оптимал майдони ва унинг ишлаш самарадорли ҳисоблади.

Аммо, ўсимлик баргларининг кўпайган майдони ҳар доим ҳам юқори ҳосил олишга ёрдам бермайди, чунки бу ҳолда ўсимлик экинларида ўрта ва пастки қават баргларининг ўзаро сояланиши кескин ортади. Буларнинг барчаси ўсимликларнинг ўрта ва пастки барглари ёритилишининг кескин ёмонлашишига олиб келади ва фотосинтезнинг аниқ маҳсулдорлиги ҳамда ўсимлик ҳосилининг пасайишига ҳам олиб келиши мумкин

Ўсимликлар ўсиши ва ривожланишининг дастлабки босқичларида барглар майдонининг етарли эмаслиги ва ҳаддан ташқари органик моддаларга эҳтиёжнинг кўплиги ассимиляция маҳсулотларини оқилона қайта тақсимланиши учун фотосинтетик фаол нурлардан фойдаланишнинг камайишига сабаб бўлади. Шу муносабат билан ўсимликларнинг кучли фотосинтез аппаратини шакллантириш ва унинг унумли ишлашини таъминлаш муҳим илмий муаммодир, чунки, ҳосил ҳажми ва барглар майдони ўртасида тўғридан -тўғри боғлиқлик мавжуд.

Турли соя навлари ўсимликларининг ривожланиш даврларида барг сатҳининг ўзгариши бўйича олинган натижалар 1-жадвалда келтирилган.

Тажриба натижаларига кўра ўрганилган барча соя навлари ўсимликларининг барг сатҳи ривожланиш даврлари бўйича ортиб борди. Барака навида бир туп ўсимлигининг барг сатҳи ғунчалаш даврида 295,4±1,77 см² , ялпи гуллаш даврида 865,4±11,32 см², дуккаклар шаклланиш даврида 2662,8±13,85 см² ни ташкил қилди.

Соя навлари барг юзасининг ўзгариши

(см²/туп ҳисобида)

| Соя навлари | Ривожланиш даврлари | | |
|----------------|---------------------|-------------|-------------------|
| | Ғунчалаш | Ялпи гуллаш | Дуккак шаклланиши |
| Барака | 295,4±1,77 | 865,4±11,32 | 2662,8±13,85 |
| Тўмарис ман-60 | 300,4±3,02 | 911,5±12,69 | 1646,7±13,89 |
| Устоз ММ-60 | 320,5±2,74 | 812,9±13,55 | 1662,4±12,16 |
| Вилана | 298,2±1,55 | 729,9±12,47 | 1120,5±11,24 |

Тўмарис ман-60 навида эса бу кўрсаткичлар тегишли тарзда 300,4±3,02, 911,5±11,33 ва 1646,7±13,89 см² га тенг бўлди. Соянинг Устоз ММ-60 навида барг сатҳи тегишли тарзда ғунчалаш даврида 320,5±2,74 см², ялпи гуллаш даврида 812,9±13,55 см², дуккак шаклланиш даврида 1662,4±12,16 см² ни ташкил қилди.

Хорижий - Вилана навида барг сатҳи тегишли тарзда ғунчалаш даврида 298,2±1,55 см², ялпи гуллаш даврида 729,9±12,47 см², дуккак шаклланиш даврида 1120,5±11,24 см² ни ташкил қилди.

Шундай қилиб, ўрганилган соя навлари ўсимликларининг барг юзаси навларнинг биологик хусусиятларига ҳамда шароитнинг бевосита таъсирига боғлиқ равишда шаклланиши кузатилди. Барг юзаси вегетация давомида дуккакларнинг шаклланиш давригача ортиб боради, кейинчалик пастки баргларнинг қуриб тўкилиши ҳисобига кескин камаяди.

Экинларда ассимиляция қиладиган юзанинг шаклланиш динамикасини ўрганиш ва унинг оптимал катталиги учун шароит яратиш катта амалий аҳамиятга эга, чунки улар билан боғлиқ фотосинтез параметрлари экинлар ҳосилдорлигини шакллантиришда катта рол ўйнайди.

Хулоса. Шундай қилиб, ўрганилган соя навларининг барг юзаси навларнинг биологик хусусиятларига боғлиқ ҳолда вегетация давомида ўзгариши аниқланди.

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**СУРХОНДАРЁ ВИЛОЯТИ ШАРОИТИДА ТУРЛИ СОЯ
НАВЛАРИДА ПИГМЕНТЛАР МИҚДОРИ ВА ФОТОСИНТЕЗНИНГ
СОФ МАҲСУЛДОРЛИГИ КЎРСАТКИЧЛАРИ**

Аннотация: Мақолада Сурхондарё вилояти шароитида турли соя навларининг биоэкологик ва морфофизиологик хусусиятларини ўрганиш бўйича олинган маълумотлар келтирилган. Тажрибалар давомида фотосинтетик кўрсаткичлардан - пигментлар миқдори, фотосинтезнинг соф маҳсулдорлиги аниқланган.

Таянч сўзлар: соя навлари, фотосинтез, пигмент, фотосинтез соф маҳсулдорлиги.

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**INDICATORS OF THE QUANTITY OF PIGMENTS AND NET
PRODUCTIVITY OF PHOTOSYNTHESIS IN DIFFERENT SOY
VARIETIES IN SURKHONDARYO REGION**

Annotation: The paper provides information on the study of bioecological and morphophysiological properties of various soybean varieties in the conditions of the Surkhondaryo region. In the course of the experiments, photosynthetic indicators were determined, such as the area of the leaves, the number of pigments, the net productivity of photosynthesis. According to the results, it was noted that the variability of the above indicators in the assortment of varieties depends on their biological and varietal characteristics.

Key words: soybean varieties, photosynthesis, pigment, leaf area, net productivity of photosynthesis.

Кириш. Фотосинтез - бу яшил ўсимликнинг барча органларини тўлиқ ишлашини таъминлайдиган ва ер юзида қайта тикланадиган энергиянинг глобал табиий манбаи. Шу сабабли у қишлоқ хўжалик ўсимликларини ишлаб чиқариш жараёнининг асосий омили бўлиб хизмат қилади, бунинг натижасида ҳосил таркибидаги органик моддаларининг 95 фоизигача ҳосил бўлади [1]. Ўсимликларни озиқлантиришнинг асосий жараёни бўлган фотосинтез уларнинг биологик хусусиятларига ҳамда

комплекс ташқи омиллар- қуёш нури, ҳаво ҳарорати, ундаги карбонат ангидрид миқдори, тупроқ намлиги ва минерал моддалар билан озикланиш даражасига боғлиқ [2].

Ўсимликнинг ҳаётий фаолияти фотосинтезга боғлиқ ва аксинча, метаболизм, ўсиш ва ривожланишнинг барча жараёнлари фотосинтез аппарати тузилишини ва унинг фаолиятини олдиндан белгилаб беради. Шунинг учун асосий эътибор ўсимликларнинг фотосинтез фаоллигига, яъни ассимиляция қилиш юзасининг ўлчамига ва фотосинтез учун қулай шароитлар бўлган даврга энг кўп таъсир кўрсатадиган белгилар ва хусусиятларига қаратилиши керак[3].

Муҳит шароитларининг ҳар қандай ўзгариши авваламбор фотосинтез жараёнларининг жадаллиги ва йўналишига таъсир қилади. Бу эса пировардида ўсимликнинг ўсиши, ривожланиши ва ҳосилдорлигининг ўзгаришларига олиб келади. Ўсимликларнинг турли иқлим ва тупроқ шароитларида ўсиши ва ҳосилдорлиги турли физиологик жараёнларнинг, айниқса фотосинтезнинг муҳит шароитларига мослашишига боғлиқ бўлади.

Шу боисдан, Сурхондарё вилоятининг ўзига хос тупроқ-иқлим шароитларида турли соя навлари баргларида фотосинтез жараёнларининг асосий кўрсаткичлари – пластид пигментларининг миқдори фотосинтезнинг соф маҳсулдорлиги ва бошқалар ўрганилди.

Тадқиқот натижалари ва унинг муҳокамаси. Юқоридаги маълумотлардан келиб чиққан ҳолда, биз соя навларининг фотосинтетик хусусиятларини уларнинг ривожланишининг фазалари бўйича ўргандик.

Ҳосил салмоғи барглар функциясининг жадаллигига боғлиқ бўлиб, у фотосинтезнинг соф маҳсулдорлиги кўрсаткичи билан баҳоланади. Ўсимликлар маҳсулдорлигининг ўсиши уларнинг ҳаётий фаолиятининг иккита асосий жараёни - фотосинтез ва ўсишнинг мувозанати билан таъминланади. Ўсимликлардаги умумий функционал ва метаболик ўзгаришларни акс эттирувчи ўсиш жараёнлари уларнинг биомасса ва куруқ моддалар тўпланиши билан чамбарчас боғлиқдир. Ўсимликларнинг фотосинтез фаоллиги барг аппаратининг ассимиляция қилувчи юзаси катталиги ва унинг иши билан чамбарчас боғлиқ. Шунинг учун, баргларнинг фаоллиги нима эканлигини ва бу ҳар хил таъсирларга боғлиқлигини билиш жуда муҳимдир. Бу кўрсаткичлар экинларнинг фотосинтез потенциали ва фотосинтезнинг соф маҳсулдорлиги ҳисобланади.

Маълумки, фотосинтез жараёнида ўсимликларнинг ўсиши, ривожланиши ва кўпайиши учун зарур бўлган турли бирикмалар ҳосил бўлади. Ўсимлик генотипига ва яшаш муҳитига боғлиқ ҳолда фотосинтездаги ассимилятлардан турлича самарали фойдаланади. Шу боисдан, Сурхондарё вилояти шароитида турли соя навларининг фотосинтез соф маҳсулдорлиги турли вегетация даврларида аниқланди. Олинган натижалар 2-жадвалда келтирилган.

Турли соя навлари ўсимликларида фотосинтез соф маҳсулдорлиги соя навларининг биологик хусусиятларига боғлиқ ҳолда вегетация даврларида турлича эканлиги аниқланди. Соянинг Устоз ММ-60 ва Вилана навларида фотосинтез соф маҳсулдорлиги бошқа навлардагига кўра юқорилиги кузатилди. Барча соя навларида фотосинтез соф маҳсулдорлиги гунчалаш давридан дуккаклар шаклланиш давригача ортиб борди, яъни, унинг максимал қиймати ялпи гуллаш даврига тўғри келди, дуккак шаклланиши даврида эса эса бироз секинлашди.

2-жадвал

Сурхондарё вилояти шароитида соя навларида фотосинтез соф маҳсулдорлиги (г/м²/сут)

| Соя навлари | Ривожланиш даврлари | | |
|----------------|---------------------|-------------|-------------------|
| | Гунчалаш | Ялпи гуллаш | Дуккак шаклланиши |
| Барака | 8,93±1,57 | 9,60±1,12 | 9,11±0,54 |
| Тўмарис ман-60 | 7,34±0,42 | 7,87±0,86 | 7,58±0,63 |
| Устоз ММ-60 | 9,33±1,02 | 10,72±0,75 | 9,57±0,52 |
| Вилана | 8,11±0,73 | 12,39±1,63 | 9,79±0,83 |

Баргларнинг фотосинтетик пигментлари фотосинтез реакциясини ва биосферадаги ялпи бирламчи ишлаб чиқаришни тавсифловчи асосий кўрсаткичдир. Улар фотосистемаларни химоя қилишда ва бошқа ўсиш функцияларида марказий рол ўйнайди [6].

Барглардаги хлорофиллар миқдори фотосинтетик фаолиятнинг асосий кўрсаткичларидан бири бўлиб, у барглар майдони кўрсаткичи каби ўлчовлар билан биргаликда ўсимликларнинг маҳсулдорлиги учун жуда муҳим омил ҳисобланади. Шу боис дала тажрибаларида ўстирилган соя навларининг баргларидаги пластид пигментларининг миқдори ўрганилди. Олинган натижалар 3-жадвалда келтирилган. Тадқиқотлар натижаларига кўра, соянинг Вилана ва Тўмарис ман-60 навлари баргларида хлорофилнинг миқдори бошқа навларларга нисбатан юқори эканлиги аниқланди.

Хулоса. Шундай қилиб, ўрганилган соя навлари баргларидаги пластид пигментлари миқдорининг навларнинг биологик хусусиятларига боғлиқ ҳолда вегетация давомида ўзгариши аниқланди. Пластид пигментларининг юқори миқдорлари ўсимликдаги фотосинтетик жараёнларнинг жадаллигини муайян даражада ифодалаб, уларнинг ўсиши, ривожланиш суръатларини ва ҳосилнинг салмоғини таъминлайди.

Олиб борилган тадқиқотлар шуни кўрсатдики, ўсимликларнинг барг сатҳи, фотосинтезнинг соф маҳсулдорлиги ва баргдаги пластид

пигментларининг микдори соя навларининг биологик хусусиятларига ва етиштириш шароитларига бевосита боғлиқдир.

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СОЯ НАВЛАРИНИНГ ШОНАЛАШ ФАЗАСИДА СУВ АЛМАШИНУВ ХУСУСИЯТЛАРИ

Аннотатсия: Сурхондарё вилояти тупроқ-иқлим шароитида турли соя навларининг дуккаклаш фазасида сув алмашинув хусусиятлари ўрганилди.

Таянч сўзлар: соя навлари, ўсиш, ривожланиш, транспиратсия, қурғоқчилик

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CHARACTERISTICS OF WATER EXCHANGE IN THE STAGE OF SOYBEAN CULTIVARS

Abstract: The characteristics of water exchange during the podding phase of different soybean varieties were studied in the soil and climate conditions of Surkhandarya region.

Key words: soybean varieties, growth, development, transpiration, drought

Ҳозирги кунда вилоят шароитида етиштирилаётган соялар бир неча навлардан иборат бўлиб, улар умумий ҳосилдорлиги ва ҳосил сифатлари билан бир-биридан фарқ қилади. Айрим йилларда ёғингарчилик кам бўлиши ва суғориш учун ишлатиладиган сувларнинг ҳам режадан кам бўлиши умумий ҳосил миқдорига ва сифатига салбий таъсир этади. Шунинг учун ҳам соя навларининг қурғоқчиликка чидамлилик даражасини аниқлаш ва нисбатан чидамли навларни ишлаб чиқишга тавсия этиш долзарб муаммо бўлмоқда. Қурғоқчиликка мослашувчанларини янада кўпайтириш учун далада ҳам, лаборатория шароитида ҳам изланишлар зарур.

Ўсимликларнинг сув алмашинув хусусиятлари уларнинг ўсиши, ривожланиши, ҳосилдорлиги ва ҳосил сифатини таъминлайдиган асосий кўрсаткичлардан бири бўлиб ҳисобланади.

Қурғоқчиликка чидамлилик (сувсизланишга ва ҳаддан ташқари қизиб кетишга ҳосилдорликка катта зарар етказмаслик қобилияти) ноқулай шароитларда кафолатланган ҳосил олишга имкон беради. Уларнинг вегетация даврида ва дуккак ҳосил бўлишида ўсимликларнинг тез ва бир текис униб чиқиши, ўсиши ва ривожланиши асосан экилган уруғлар ва кўчатларнинг сув режимига боғлиқ.

Юқоридаги маълумотлардан келиб чиқган ҳолда, биз соя навларининг сув алмашинув хусусиятларини, уларнинг ўсиш ва ривожланиш фазалари бўйича ўргандик.

1.1- жадвал.

| № | Навлар | Баргларда | | | |
|---|----------------|----------------------|---|-------------------|---------------------|
| | | Умумий сув миқдори % | Транспиратсия жадаллиги, г/м ² с | Сув тақчиллиги, % | Сув сақлаш қобиляти |
| 1 | Барака | 74.5 % | 87.23 | 35.8 % | 76,1 % |
| 2 | Тўмарис ман-60 | 73.3 % | 60.47 | 26.10 % | 76, % |
| 3 | Устоз ММ-60 | 73.9 % | 96.23 | 57.32 % | 69,9% |
| 4 | Вилона | 74.0 % | 75.82 | 30.6 % | 70,4% |

Барака нави баргида умумий сувнинг миқдори 74,5 % га тенг бўлиб, Вилона нави билан бир хил эканлиги кузатилди. Тўмарис ман-60 навининг умумий сув миқдори 73.3 % га тенг бўлиб, Устоз ММ-60 билан деярли бир эканлиги аниқланди.

Бу маълумотлардан аниқланишича, Тўмарис ман-60 ва Устоз ММ-60 соя навларининг баргларидаги сув миқдorigа нисбатан Барака ва Вилона соя навининг баргларида сув миқдори кўп бўлиши аниқланди.

Ўсимлик баргларида содир бўладиган транспирация жадаллиги ҳам ўсимликларни сув алмашинув хусусиятларидан бири ҳисобланади. Жадвалда кўрсатилган (1.1-жадвал) маълумотлардан аниқланишича Устоз ММ-60 навини баргларининг 1 м² барг сатҳида 1 соат давомида 96,23 г сув буғлатилган бўлса шу муддатда Тўмарис ман-60 навининг баргларидан 60.47 г сув буғланган яъни шу муддатда Устоз ММ-60 нави Тўмарис ман-60 навига нисбатан 35.76 г сув кўп буғлатган. Қолган навлар ҳам оралик ўринларни эгаллаб Устоз ММ-60 навига нисбатан камроқ сув буғлатган, яъни Барака нави 9,0 г , Вилона нави эса 20.41 г кам сув буғлатган. Бу кўрсаткич навларнинг транспирация жадаллиги бўйича ҳам бир-биридан кескин фарқ қилишини кўрсатади.

Соя навлари баргларидаги сув тақчиллиги ҳам нав хусусиятларига боғлиқ ҳолда ўзгаради. Устоз ММ-60 навининг баргларида сув тақчиллик 57.32 % га тенг бўлса, Тўмарис ман-60 навиники 26.10 % тенг бўлиб, у Устоз ММ-60 навига нисбатан нисбатан 31.22 %, Вилона навида 26.72 % ва Барака навида 21.52 % Устоз ММ-60 соя нави баргларига нисбатан сув тақчиллиги кўпроқ эканлиги аниқланди.

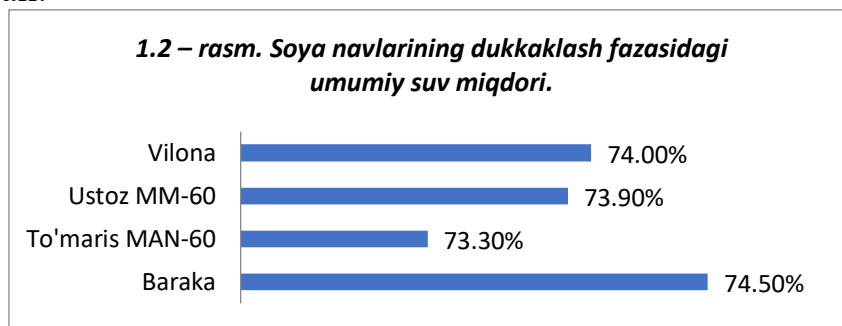
Ҳудди сув тақчиллигига ўхшаш баргларининг сув сақлаш қобиляти ҳам ўсимликларнинг қурғоқчиликка чидамлилик даражасини

характерлайдиган энг муҳим кўрсаткич ҳисобланади. Барака соя нави барглариининг сув сақлаш қобилияти бошқа навларга нисбатан энг юқори бўлиб, 1 соат давомида сарфлаган сув миқдори 23.9 % га тенг бўлса, Устоз ММ-60 соя нави шу муддатда 30.1 % сув сарфлаган ва улар ўртасидаги фарқ 6.2 % га тенг.

Тўмарис ман-60 нави баргларида сарфланган сув миқдори 24 % га тенг бўлиб, у бор ёғи 0,1 % га камроқ, Вилона навининг барглари шу муддатда 29,6 % сув буғлатган бўлиб, 0,5 % га кам сув буғлатган. Бу маълумотлар Устоз ММ-60 навининг сув сақлаш қобилияти энг паст, Барака соя навининг сув сақлаш қобилияти энг юқори эканлигини кўрсатади. Қолган навлар сувни сақлаш қобилияти бўйича оралиқ ўринни эгаллайди. Шундай қилиб соя навлариининг сув сақлаш хусусиятларига асосланган ҳолда уларнинг қурғоқчиликка чидамлиги даражасини куйидаги тартибда жойлаштириш мумкин: Устоз ММ-60 < Вилона < Тўмарис ман-60 < Барака <

Устоз ММ-60 ўрганилган навлар ўртасида қурғоқчиликка чидамлиги энг паст бўлса, Барака навининг қурғоқчиликка чидамлиги энг юқори ва қолган вариантлар оралиқ ўринда жойлашган.

Соя навлариининг қурғоқчиликка чидамлилик даражасини кўрсатувчи энг муҳим физиологик жараён баргларидаги умумий сув миқдоридир. Бошқа кўрсаткичларга нисбатан бу кўрсаткич тўғридан-тўғри навларининг қурғоқчиликка чидамлилик даражасини характерлайди. Бизнинг тажрибамизда олинган бу маълумотлар 1.2-расмда янада аниқроқ тасвирланган.



Соя навлариининг қурғоқчиликка чидамлилик даражасини тасвирловчи яъни уларнинг умумий сув миқдори бўйича тўпланган маълумотлар кўрсатишича барча ўрганилган навлар ўртасида нисбатан қурғоқчиликка чидамли нав бўлиб Барака нави ҳисобланади. Бу навнинг баргларидаги умумий сув миқдори 74.50% эканлиги аниқланди.

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АРПА ДОНИНИ ЗАРАРСИЗЛАНТИРИШДА ЭЛЕКТРОКИМЁВИЙ ИШЛОВ БЕРИЛГАН КИСЛОТАЛИ СУВДАН ФОЙДАЛАНИШ

Аннотация: Мақолада биолоборатория шароитида трихограмма кўпайтиришида арпа донини ва лаборатория хоналарини зарарли микроорганизмлардан тозалашида электрокимёвий фаоллаштирилган сувнинг кислотали муҳитли (pH=3-4) қисмидан фойдаланиш бўйича олиб борилган тадқиқот натижалари келтирилган.

Калим сўзлар: трихограмма, арпа дони, дон куяси (*sitotroga cerealella oliv*), биологик усул, электрокимёвий фаоллашган сув, электролизёр, диафрагма, pH, электрод, анолит, католит.

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USE OF ELECTROCHEMICALLY TREATED ACIDIC WATER IN DETERMINING BARLEY GRAIN

Annotation. The article presents the results of studies on the cultivation of trichograms in biolaboratory conditions on the use of barley grains and an acidic environment (pH=3-4) of a part of electrochemically activated water when cleaning laboratory premises from harmful microorganisms.

Keywords: trichogram, barley grain, grain moth (*sitotroga cerealella oliv*), biological method, electrochemically activated water, electrolyzer, diaphragm, pH, electrode, anolyte, catholyte.

Аннотация: В статье представлены результаты исследований разведения трихограмм в биолобораторных условиях по использованию зерна ячменя и кислой среды (pH=3-4) части электрохимически активированной воды при очистке лабораторных помещений от вредоносных микроорганизмов.

Ключевые слова: трихограмма, зерно ячменя, зерновая моль (*sitotroga cerealella oliv*), биологический метод, электрохимически активированная вода, электролизер, диафрагма, pH, электрод, анолит, католит.

Қишлоқ хўжалигида зараркунанда ҳашаротларга қарши курашиш, соҳанинг энг муҳим тадбирларидан бири ҳисобланади. Шу нуқтаи назардан ўсимликларнинг зараркунандаларига қарши курашда қўлланилиб келинаётган трихограммани электрокимёвий фаоллаштирилган сув асосида кўпайтириш технологиясини яратиш ва уни амалиётга жорий этиш бўйича тадқиқотлар ўтказиш долзарбдир. Чунки технология биологик воситалар ишлаб чиқаришга қаратилган бўлиб, биологик усул ҳам иқтисодий, ҳам экологик жиҳатдан самарадор ҳисобланади [1,2,3].

Тажрибалар 3 вариантдан иборат бўлиб, уч такрорийликда 3 та лаборатория хонасида ўтказилди. Бунда 1 вариант (назорат) 1 хонада амалдаги усул бўлиб, хона ҳавосини вентиляция ёрдамида тозалаш (шамоллатиш) ва дон намлигини меъёрлаштишда водопровод сувидан фойдаланишга, 2 вариант 2 хонада хона ҳавосини электрокимёвий фаоллашган сувнинг кислотали муҳитга эга бўлган ($\text{pH}=3\pm 0,5$) қисми билан зарасизлантириш ва дон намлигини меъёрлаштишда ишлатиш, 3 вариант 3 хонада эса хона ҳавосини электрокимёвий фаоллашган сувнинг кислотали муҳитга эга бўлган ($\text{pH}=4\pm 0,5$) қисми билан зарасизлантириш ва дон намлигини меъёрлаштиришга асосланди.

Лаборатория хоналари ҳаво муҳитидаги зарарли микроорганизмларни аниқлаш учун тажриба ўтказилаётган ҳар бир хонанинг тўртта бурчагига ҳар бирида 25 грамдан эндо озуқа моддаси солинган Петри идиши 9.02.2021 йил кuni эрталаб 8:30 да қопқоғи очик ҳолда жойлаштирилди ва 60 минут қолдирилди. Шундан сўнг намуналар қопқоғи ёпилиб, озуқа моддага тушган микроорганизм униб чиқишини таъминлаш учун 37 градус ҳароратда термостатда 24 соат сақланди. Озуқа моддага тушган микроорганизм униб чиққандан сўнг қайси турга мансублиги Грамм усулида аниқланди. Натижа назорат учун танланган 1 лаборатория хонаси ҳавоси таркибида 25% грамм мусбат ва 7% грамм манфий кокклар, тажриба учун танланган 2 лаборатория хонаси ҳавоси таркибида 24% гача грамм мусбат ва 6% грамм манфий кокклар ва 3 лаборатория хонаси ҳавоси таркибида 25% гача грамм мусбат ва 7% грамм манфий кокклар борлигини аниқланди.

Ўз навбатида хона ҳавоси таркибида бўлган микроорганизм шартли равишда лабораториядаги арпа дони таркибида ҳам мавжуд бўлади. Шу мунасабат билан ишлаб чиқариш жараёнидаги зарарлаш учун кюветаларга тақсимланган лекин ситатрога тухими билан зараланмаган арпа донидан ҳам ундаги зарарли микроорганизмлар миқдорини аниқлаш мақсадида жами 100 грамм намуна олинди. Олинган намуна тўғридан-тўғри “Бактериология” лабораториясига олиб борилди ва лабораторияда 24 соат давомида 200 грамми стаканда дистирлинган сувда ивитилди. Шундан сўнг Пастер пипеткаси ёрдамида стакандаги ҳосил бўлган экстрактдан 0.5 мл намуна олиб бактериология лабораторияси бокс хонасида спирт лампаси устида эндо озуқа муҳитига экиш жараёни амалга оширилди. Намуна экстракти экилган эндо озуқа муҳити ТС-80 термостатида 37°C да 24 соат

ўстирилиб, ўсиб чиққан колонияларни микраскоп ёрдамида кўриб, унга тавсиф берилди. Унга кўра петри идишдаги эндо озуқа мухитида майда жуда кўплаб юмалоқ шарсимон ҳажмли мошдек келадиган четлари пушти ва ҳаворанг колониялар ҳосил қилган. Натижа ишлаб чиқариш жараёнидаги арпа донида 26% атрофида грамм мусбат ва 8% гача грамм манфий кокклар борлигини аниқланди.

Лаборатория хоналаридаги арпа дони ситарога билан 11.02.2021 йил куни зарарланди. Шу кундан бошлаб тажрибларда 1-лаборатория хонаси ҳавоси назорат варианты сифатида амалдаги усулда вентиляция ёрдамида тозалаб турилди. Тажриба вариантлари учун танлаб олинган 2-лаборатория хонасига ЭФС $pH=3\pm 0,5$ га тенг бўлган қисми билан, 3-лаборатория хонасига эса ЭФС $pH=4\pm 0,5$ га тенг бўлган қисми билан ишлов бериб борилди. Текшириш натижалари назорат учун танланган 1 лаборатория хонасидаги арпа наъмунаси таркибида 26% гача грамм мусбат ва 8% грамм манфий кокклар, тажриба учун танланган 2-лаборатория хонасидаги арпа дони таркибида 15% гача грамм мусбат ва 4% грамм манфий кокклар ва 3-лаборатория хонасидаги ҳавоси таркибида 20% гача грамм мусбат ва 5% грамм манфий кокклар борлиги аниқланди. Бундан кўринадики, ЭФС $pH=3\pm 0,5$ га тенг бўлган қисми билан ишлов берилган 2-лаборатория хонасидаги арпа наъмунасидаги зарарли микроорганизмлардан бошқа вариантларга нисбатан яхши тозаланган.

Электрокимёвий фаоллаштирилган сувнинг кислотали муҳитга ($pH=3-4$) эга бўлган қисмидан лаборатория хоналарини зарарли микроорганизмлардан тозалашда фойдаланиш, кимёвий ишлов беришдан фарқли равишда бевосита ишлаб чиқариш жараёнида амалга оширилиши билан самаралидир. Электрокимёвий фаоллаштирилган сувнинг кислотали муҳитга ($pH=3-4$) эга бўлган қисми, ишқорий муҳитдаги қисмидан фарқли равишда турғун бўлиб, ундан олинган кундан бошлаб 15 кунгача фойдаланиш мумкин. Арпа донидан дон куясини кўпайтиришда электрокимёвий фаоллаштирилган сувнинг кислотали муҳитга эга бўлган қисмидан донни зарарланган кундан 10-12 кун ўтиб, дастлабки капалаклар учиши кузатилган кунгача фойдаланиш мумкин.

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**ЭЛЕКТРОКИМЁВИЙ ФАОЛЛАШТИРИЛГАН СУВНИНГ
КИСЛОТАЛИ (АНОЛИТ) ҚИСМИДАН БИОЛАБОРАТОРИЯЛАРДА
ДОН КУЯСИ (SITOTROGA CEREALELLA OLIV)
КЎПАЙТИРИШДА ФОЙДАЛАНИШ**

Аннотация. Мақолада биолаборатория шароитида дон қуясини кўпайтиришда электрохимёвий фаоллаштирилган сувнинг кислотали қисмидан донни зарарсизлантириши ва намлигини меъёрлаштириши жараёнида фойдаланиши бўйича ўтказилган тажрибаларнинг келтирилган.

Калит сўзлар: трихограмма, арпа дони, дон қуяси, биологик усул, электрохимёвий фаоллашган сув, рН, анолит, католит.

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**USE OF THE ACIDIC PART (ANOLYTE) OF
ELECTROCHEMICALLY ACTIVATED WATER IN THE BREEDING
OF GRAIN MOTH (SITOTROGA CEREALELLA OLIV) IN
BIOLABORATORIES**

Annotation. The article presents experiments on the use of the acidic part of electrochemically activated water in the process of neutralizing grain and regulating humidity when breeding grain moths in biolaboratory conditions.

Key words: trichogramma, barley grain, grain moth, biological method, electrochemically activated water, pH, anolyte, catholyte.

Қишлоқ хўжалик ўсимликларини зараркундалар, касалликлар ва бегона ўтлардан ҳимоя қилишни таъминлаш, ўсимликларни ҳимоя қилиш воситаларининг инсон соғлиғига, атроф табиий муҳитга зарарли таъсирининг олдини олиш билан боғлиқ муносабатларни тартибга солиш,

қишлоқ хўжалиги экинлари зараркунандалари билан курашишнинг биологик усулларини кенг қўламда ривожлантириш ва қўллашга кўмаклашиш, биоматериаллар сифатини яхшилаш, биологик лабораторияларнинг моддий-техник базасини кучайтириш, биологик препаратларни ишлаб чиқариш, ўсимликлар клиникалари ва биологик лабораториялар тизимини ривожлантириш бугунги кундаги долзарб масаладандир.

*Ҳозирги кунда Республикамизда заракунанда ҳашоратлар хусусан илдиш ва кусак қуртига қарши курашда трихограммадан фойдаланиб келинмоқда. Трихограмма биофабрика ва биологик лабораторияларда дон куяси (*Sitotroga cerealella* Oliv) тухуми (ситатрога)да кўпайтирилади. Дон куясини кўпайтириш жараёни асосан - арпа донини ситатрога личинкалари билан зарарлашга тайёрлаш, арпа донини ситатрога личинкалари билан зарарлаш, ситатрога личинкаларини парвариш қилиш ва дон куяси тухумини йиғиб олиш каби босқичларни ўз ичига олади [1].*

Бу усулда кўпайтирилган трихограмманинг сифати, яъни табиий биологик хусусиятларини сақлаб қолиши биоматериал кўпайтириш технологиясига ва лабораториядаги мавжуд шароитларга (хона ҳарорати, нисбий намлиги, хонани зарарли микроорганизмлардан тозаланганлиги ва бошқалар) боғлиқ бўлади.

Шу нуқтаи назардан биз биофабрикаларда дон куяси капалаги тухумини кўпайтириш жараёнининг арпа донини ситатрога личинкалари билан зарарлаш босқичида ишлаб чиқаришда фойдаланилаётган арпа донини зарари микроорганизмлардан тозалаш мақсадида электрохимий фаоллаштирилган сувнинг кислотали муҳитга эга бўлган (анолит, рН=3-4) қисмидан фойдаланган ҳолда тажрибалар ўтказдик.

Тажрибалар 3 та вариантдан иборат бўлиб, уч такрорийликда 3 та ўтказилди. Бунда амалдаги усул асосида назорат варианты сифатида танланган 1 вариантда оддий водопровод сувидан, 2 вариантда электрохимий фаоллашган сувнинг кучли кислотали муҳитга эга (рН=3-3,5) бўлган қисмидан ва 3 вариантда электрохимий фаоллашган сувнинг кучсиз кислотали муҳитга эга (рН=4-4,5) бўлган қисмидан зарарлаш учун қўйилган донни зарарсизлантириш ва дон намлигини меъёрлаштиришда фойдаланилди.

Зарарланган арпа донидан бирламчи капалаклар учиши кузатилиши билан ундаги зарари микроорганизмлар миқдорини аниқлаш учун ҳар бир хонадан 100 грамдан намуналар олинди ва бактериология лабораториясида таҳлил қилинди.

Таҳлил натижалари назорат учун танланган 1-лаборатория хонасидаги арпа намунаси таркибида 26% гача грамм мусбат ва 8% грамм манфий кокклар, тажриба учун танланган 2 лаборатория хонасидаги арпа дони таркибида 16% гача грамм мусбат ва 4% грамм манфий кокклар ва 3-лаборатория хонасидаги арпа дони таркибида 20% гача грамм мусбат ва 5% грамм манфий кокклар борлигини аниқланди.

Дон куяси кўпайтиришда зарарлаш учун қўйилган арпа дони таркибидаги зарарли микроорганизмларга электрохимёвий ишлов берилган сувни таъсири

| Т/р | Тажриба вариантлари | Дон оғирлиги, кг | 1кг дон учун ЭФС сарфи, мл | Арпани зарарсизлантириш ва намлигини меъёрлаштириш учун сарф этилган ЭФС хажми, л | Зарарли микроорганизмлар микдори, % | |
|-----|----------------------|------------------|----------------------------|---|-------------------------------------|---------------------|
| | | | | | Грамм мусбат коклар | Грамм манфий коклар |
| 1 | Амалдаги усул | 130 | - | - | 26 | 8 |
| 2 | Кучли кислотали ЭФС | 130 | 23 | 12,0 | 16 | 4 |
| 3 | Кучсиз кислотали ЭФС | 130 | 23 | 12,0 | 20 | 5 |

Бундан кўринадики, кучли кислотали муҳитга эга бўлган электрохимёвий фаоллашган сув ($pH=3-3,5$) билан ишлов бериш зарарлаш учун ишлатилган арпа дони зарари микроорганизмлардан бошқа вариантларга нисбатан яхши тозаланган.

Хулоса. Электрохимёвий фаоллаштирилган сувнинг кучли кислотали муҳитга ($pH=3-3,5$) эга бўлган қисмидан лаборатория хоналарини зарарли микроорганизмлардан тозалашда фойдаланиш, кимёвий ишлов беришдан фарқли равишда бевосита ишлаб чиқариш жараёнида амалга оширилиши билан самаралидир. Электрохимёвий фаоллаштирилган сувнинг кучли кислотали муҳитга ($pH=3-3,5$) эга бўлган қисми, ишқорий муҳитдаги қисмидан фарқли равишда турғун бўлиб, ундан олинган кундан бошлаб 15 кунгача фойдаланиш мумкин.

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ДИНАМИКА РАЗВИТИЯ ГЕОЭКОЛОГИИ И ЛАНДШАФТНОЙ ЭКОЛОГИИ В УЗБЕКИСТАНЕ И ИХ ГЕОЭКОЛОГИЧЕСКИЕ ОСНОВЫ

***Аннотация:** В данной статье рассматривается динамика развития геоэкологии и ландшафтной экологии в Узбекистане, научные и практические аспекты их геоэкологической основы, в чем она состоит, значение охраны природы, рационального использования природных ресурсов, а также ученые, которые способствовали их развитию.*

***Ключевые слова:** Экология, экология ландшафтов, геоэкология, геосистемы, геоэкологические проблемы, геологическая экология, оценка, мониторинг, экспертиза, географическая оболочка, биосфера, декларация, резолюция.*

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DEVELOPMENT DYNAMICS OF GEOECOLOGY AND LANDSCAPE ECOLOGY IN UZBEKISTAN AND THEIR GEOECOLOGICAL FOUNDATIONS

***Abstract:** This article examines the dynamics of the development of geoeology and landscape ecology in Uzbekistan, the scientific and practical aspects of their geoeological basis, what it consists of, the importance of nature conservation, the rational use of natural resources, as well as the scientists who contributed to their development.*

***Key words:** Ecology, landscape ecology, geoeology, geosystems, geoeological problems, geological ecology, assessment, monitoring, examination, geographical envelope, biosphere, declaration, resolution.*

ВВЕДЕНИЕ: Во второй четверти прошлого века экология впервые вошла в страну в результате развития науки ландшафтной экологии В.В. Докучаевым в 1939 году немецким учёным и географом К. Троллем. Геоэкология – учение «географическая экология» впервые было использовано в 1967 году А.В. Сидоренко в статье «Человек, техника, земля». В 80-х и 90-х годах XX века А.А. Рафиков доказал первоначальную сущность геоэкологии в исследованиях, проведенных в Мирзачольском, Кызылкумском, Арольском и Аралбойском районах, которые доказали, что экологические изменения непосредственно отражаются на природно-географических комплексах [1].

Социально-экономические последствия, возникающие из отношений природы и общества с геоэкологической точки зрения, глобальные, региональные и локальные геоэкологические проблемы были оценены с естественной точки зрения А. Рафиковым впервые в его работе «Геоэкологические проблемы». Было предложено изучать воздействие загрязнения окружающей среды на здоровье человека на основе комплексного географического подхода.

МЕТОДЫ И ИССЛЕДОВАНИЯ: Географическая экология — область науки, изучающая локальные, региональные, комплексные, систематические и периодические особенности взаимодействия природы и общества в геосистемах, закономерности и закономерности, основанные на обмене веществом и энергией, развивающая знания, умения и компетенции на основе на этом и оптимизирует его для народного хозяйства. Географо-экологические исследования занимаются разработкой научно обоснованных принципов географии и экологии. Изучает геоэкологические аспекты адаптации экономики к определенной природе при использовании или воздействии ландшафтов, взаимодействии общества (человека) и природы. Геоэкологические исследования базируются на изучении динамики, устойчивости и взаимодействия природных, природно-антропогенных и антропогенных геосистем, созданных в результате взаимодействия общества и природы [2].

А. Г. Исаченко объясняет использование термина геоэкология как термина экологическая география или экогеография. По его мнению, эколого-географические концепции служат теоретической основой природных геосистем или современной ландшафтной науки. Ландшафтная экология и развитие геоэкологических наук связаны с географией.

В 90-е годы прошлого века в Российской Федерации раздел геологической экологии в системе геологических наук получил значительное развитие. По мнению ряда исследователей, геоэкология — раздел экологии, изучающий экосистемы в природных и техногенных условиях на предмет социального (человеческого) фактора. Геоэкология изучает положительные и отрицательные связи геологической среды с другими компонентами природной среды — атмосферой, литосферой,

гидросферой и биосферой, оценивает различные сферы влияния хозяйственной деятельности человека.

Абиотическая основа ландшафтов – геологическая среда определяет экологическое состояние и развитие территории, исследует горные породы, почвы, геологические и геологические воды, геохимический состав, геодинамические и геологические процессы объектов исследования, а также геолого-техногенные системы, которые влияют на геологическую среду и ее параметры. Ландшафтная экология (рельеф, геоэкологическое строение, климат и водные ресурсы, почвенно-растительный покров) изучает геоэкологические комплексы в пределах каждой ландшафтной системы в результате природных и антропогенных воздействий [3].

РЕЗУЛЬТАТЫ И АНАЛИЗ: Геоэкология – ландшафтная экология сформировалась на основе постепенного развития и заняла место в системе географических наук. Геоэкология анализирует географические аспекты закономерностей развития биосферной оболочки при применении экологических принципов в географии. Методологической основой геоэкологии является принцип единства окружающей среды, сочетающий в себе жизнь и природные, антропогенные и техногенные факторы. Поскольку геоэкология всесторонне охватывает отношения и воздействия общества и природы, ее предмет, объект и содержание трактуются исследователями по-разному. По мнению М.Петрова (2004), объект геоэкологии интерпретирует единство географической оболочки, связей биосферы и техносферы. Дж. Боер (1988) рассматривал ландшафтную экологию с географической точки зрения как науку, изучающую систему биотических и абиотических факторов в некоторых местах поверхности Земли, причем эти места следует рассматривать как целостные, геосистемы - как производные.

Геоэкология Н. Голубева показывает тонкую, поверхностную оболочку, где сталкиваются и пересекаются атмосфера, гидросфера, литосфера и биосфера, т. е. где живут и работают люди.

По мнению многих исследователей, согласно модели экологического подхода, объектом изучения геоэкологии являются интегрированные геосистемы всех размеров. Эти системы рассматриваются как (Герасимов, 1985) природная система (Хаггет, 1979; Реймерс, 1990; Вронский, 2002) экосистема, (С.Б. Аббасов, С.А. Абдуллаев) геосистема.

По мнению А.Рафикова, геоэкология доказывает запрет живых организмов и людей в их взаимоотношениях с окружающей средой на определенных природных ограниченных территориях. По его словам, географические системы изучаются в масштабе географической коры, начиная с фаций. При системном подходе планетарные геосистемы формируются географической корой. Отсюда можно сделать вывод, что географическая оболочка исследуется как объект изучения географии [4.].

Геоэкология — изучение строения, состава, явлений и процессов географической коры, среды обитания человека и других живых

организмов. Местом столкновения интересов природной среды и географической среды является ландшафтная сфера или географическая оболочка.

Экология — область науки, изучающая взаимодействие организмов и баланс между компонентами окружающей их природы на локальном, региональном, биосферном этапе экологической оболочки Земли (экосферы).

По мере развития общества баланс между природой и обществом меняется. Поэтому наука геоэкология ставит перед собой следующие цели и задачи:

- разработка научно-теоретических основ;
- разработка геоэкологической оценки, прогнозирования, мониторинга и экспертных заключений регионов;
- изучение особенностей регионов с геоэкологической точки зрения и широкое использование в сферах народного хозяйства;
- выявление причин планетарных, региональных, локальных геоэкологических проблем, оценка, прогнозирование, мониторинг и разработка четкого и последовательного плана мер по их предотвращению;
- необходимо установить отношения сотрудничества на местном и соседском уровне и учитывать правовые аспекты при разработке стратегических программ по решению глобальных, региональных и местных проблем.

ЗАКЛЮЧЕНИЕ: При изучении геоэкологических характеристик ландшафтов Ферганской долины мы должны учитывать природные связи с соседней Кыргызской Республикой и реализовывать проекты стратегического сотрудничества для решения этих проблем.

В последующие годы в результате развития орошаемого земледелия в горах соседней Кыргызской Республики стало возникать множество геоэкологических проблем в результате попадания в реку Шахимардан отходов цветных металлов в процессе ее спуска. множество месторождений полезных ископаемых в районах Хайдаркан и Кадамджой. Решение этих проблем требует установления стратегических отношений между республиками Узбекистан и Кыргызстан, разработки природоохранных программ. Любое соглашение, декларация, резолюция и механизм их реализации, касающиеся природных ресурсов и их охраны, должны разрабатываться на основе международно-правовых документов и решаться в двустороннем порядке. Эти проблемы особенно важны в случае наших трансграничных рек [5].

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ГЕОЭКОЛОГИЧЕСКИЙ АНАЛИЗ ОХРАНЫ ПРИРОДЫ И ИСПОЛЬЗОВАНИЯ ПРИРОДНЫХ РЕСУРСОВ В ФЕРГАНСКОЙ ДОЛИНЕ

***Аннотация:** В данной статье подробно анализирующая эколого-геоэкологические исследования, проводимые в Ферганской долине и прилегающих территориях, делаются специальные выводы и предложения, а также рассматриваются сильные последствия антропогенной нагрузки на природу долины. и рациональное использование природных ресурсов.*

***Ключевые слова:** антропогенная нагрузка, водные ресурсы, почвенные ресурсы, животные ресурсы, растительные ресурсы, антропогенное загрязнение, эрозия, высотная поясность, промышленные отходы, загрязнение природы, природопользование.*

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GEOECOLOGICAL ANALYSIS OF NATURE CONSERVATION AND USE OF NATURAL RESOURCES IN THE FERGHANA VALLEY

***Abstract:** This article analyzes in detail the ecological and geoecological studies carried out in the Fergana Valley and adjacent territories, draws special conclusions and proposals, and also examines the strong consequences of anthropogenic pressure on the nature of the valley. and rational use of natural resources.*

***Key words:** anthropogenic load, water resources, soil resources, animal resources, plant resources, anthropogenic pollution, erosion, altitudinal zones, industrial waste, environmental pollution, environmental management.*

ВВЕДЕНИЕ: Постоянное развитие производства в Ферганской долине, усиление антропогенной нагрузки на окружающую среду, беспорядочный выброс в природную среду различных промышленных, транспортных, строительных и сельскохозяйственных отходов стали ухудшать экологическую ситуацию в регионе в 70-е и 80-е годы.

В 70-х и начале 80-х годов прошлого века вопросы охраны природы и серьезности экологической ситуации только начали ставиться на повестку дня в Ферганской долине. Впервые опубликованы научные мнения Ю. Султонова (1973, 1989) и А. Максудова по географическим аспектам рационального использования имеющихся водных ресурсов, изменения ландшафтов под влиянием антропогенных факторов в орошаемом регионе и его экологические последствия.

В конце прошлого века Ю. Султанов (1989) провел всесторонний и глубокий анализ региональной и местной экологической ситуации и природоохранных проблем, возникших в Ферганской долине. Данная статья стала первым глубоким научным анализом территории в области охраны природы. В работе автор поднял множество острых вопросов. Например, все промышленные города конусных равнин (Кокан, Янгикокан, Фергана, Кувасой и Хакозо) начали загрязнять своими отходами подземные и поверхностные воды. Если не остановить этот процесс, возникнет гидроэкологическая проблема. в будущем увеличится, и региональная проблема станет проблемой и т. д. Принимая во внимание, что Ферганская долина окружена горами, он подчеркнул необходимость снизить до нормы газообразные выбросы промышленных предприятий, иначе ее экологические и социально-экономические последствия приведут к неприятным событиям. Он пояснил, что поля, сады, виноградники, сады рядом с ним серьезно повреждены отходами промышленных предприятий Киргулинского района Ферганы.

В связи с интенсивным освоением земель на территории автора резко сократилась площадь лесов, рощ и пастбищ, и этот процесс быстро прогрессирует, как и о его нежелательных последствиях, которые он обнаружит [1].

И. Абдуганиев с соавт. (1995) впервые указали, что благодаря приоритету высотно-ландшафтного районирования в Ферганской долине обмен веществом и энергией осуществляется двусторонне, а гравитационный поток веществ направлен вниз. склонах гор и под действием ветра на равнине отмечено, что движение веществ к склонам гор хорошо выражено.

Интенсивность антропогенного воздействия и его распространенность в территориальном масштабе означают, что небольшие по размерам микрозаповедники и микрозаказники будут иметь большое значение в Ферганской долине в целях сохранения природных комплексов и

защиты их разнообразия, а также в охране важных они подчеркнули местные особенности геосистем.

МЕТОДОЛОГИЯ: Ферганская долина издавна была страной рощ, каналов и канав, шоссе и нескольких рядов фруктовых и неплодовых деревьев. И. Абдуганиев и др. (1995) утверждает, что существующие рощи декоративных деревьев по краям главных улиц очищают большую часть выбросов от автомобильного движения и положительно влияют на естественную очистку городского воздуха. В настоящее время 110-120 тыс. тонн в год из г. Ферганы, 50-60 тыс. тонн из Ошской области. газообразные выбросы поднимаются в воздух.

В этой ситуации функция мусоросборочных полей на дорогах города еще больше возрастет. Наиболее устойчивыми к отходам и эффективными при их очистке считаются тополь бальзамический, дерея белая, акация белая, дерево сассик (айлант), кипарис, шумтол обыкновенный, каштан, клен, кипарис серебристый и другие. Эту идею можно считать наиболее оптимальным вариантом очистки воздуха от отходов в сложных орографических и климатических условиях густонаселенной долины [2].

Природа Ферганской долины оказалась под давлением с двух направлений: первое — процесс всестороннего и экстенсивного использования природных ресурсов, второе — давление, связанное с промышленностью и другими видами общественного производства (Султанов, 2001). До 90-х годов прошлого века продолжалось экстенсивное использование природных ресурсов (кое-где и сейчас). Всем понятно, насколько важно разумно использовать их в условиях густонаселенности, дефицита земли, воды и пастбищ. Но в действительности при использовании богатств кое-где допускаются бесхозяйственность, расточительность, нарушается их качество, в результате чего развиваются такие нежелательные явления, как обнищание, искусственный дефицит, изъятие из обращения. Это, в свою очередь, оказывает негативное влияние на умеренно стабильный рост фермерских хозяйств, что имеет серьезные социальные и экономические последствия. Речь идет об оптимизации давления антропогенного фактора на окружающую среду.

Автор самостоятельно описывает влияние промышленности, транспорта и строительного производства на природную среду на втором месте по уровню антропогенной нагрузки. Это логично, и масштабы, последствия и сила этого угнетения возрастают. Уделить этому особое внимание важно в условиях долины. В дальнейшем важно придать первостепенное значение обоим видам давления и определить соответствующие практические задачи. В этом отношении геоэкологическая идея Ю. Султанова отличается глубиной, практичностью и широтой масштабов воздействия.

В связи с масштабным развитием сельского хозяйства и промышленного производства в Наманганской области в регионе

существуют взаимосвязанные геоэкологические проблемы. А. Казоков, К. Боймирзаев и другие. (2003) сообщили, что в последующие годы из-за того, что вода с очень низкой температурой (на 5-6 градусов выше нормы) поступала из Тохтагульского водохранилища через реку Норин в результате использования ее для орошения посевов, их вегетация длилась в среднем 20-25 дней (например, у хлопка) задерживается, что вызывает снижение урожайности на 25-30 процентов. В предгорьях Курамы и Чоткальских гор в последующие годы были освоены крупные земельные массивы, расширена площадь орошаемых земель, а также построены новые водохранилища и водоемы (более 20), более 100 насосных станций, Катта Наманган. и Чустский каналы были введены в эксплуатацию. С 1994-1995 годов было установлено, что уровень грунтовых вод повышается на равнинах, расположенных между холмами Янгикорганского, Уйчи-Чортковского районов. Авторы представляют актуальные идеи по решению широкого круга вопросов, имеющих большое практическое значение.

Повышение уровня грунтовых вод на равнинах между холмами и за их пределами приводит к засолению и заболачиванию почв. Тот факт, что этот гидроморфный процесс происходит вместо автоморфных условий, отрицательно влияет на процесс почвообразования и развития. Эта идея экологического ландшафта требует тщательного изучения и положительного решения. С древних времен люди всегда держали русла рек открытыми и готовыми к паводкам. Отсюда практический призыв авторов состоит в том, что поймы и поймы следует всегда держать наготове.

РЕЗУЛЬТАТЫ И АНАЛИЗ: Высотно-ландшафтная зональность в Ферганской долине выражена четко в классическом смысле. Каждый регион имеет естественно-историческую особенность, многообразие хорошо выражено в природе, ресурсах, экономике, размещении населения. При этом природопользование отличается уникальностью и территориальностью. Самое главное, что высотно-ландшафтные регионы неразрывно связаны друг с другом, в этом процессе первостепенное значение имеет обмен веществом и энергией. С этой точки зрения важны научные взгляды и эколого-географические идеи К. Боймирзаева и А. Назарова (2002).

Авторы выделили горные, предгорные, холмистые и равнинные высотно-ландшафтные районы, проанализировали существующие ландшафтно-экологические проблемы в каждом из них и разработали вопросы их решения. Тот факт, что природные условия Ферганской долины изменяются в результате антропогенной нагрузки, показывает, насколько важно сохранить некоторые ее характерные территории «в их естественном состоянии». По мнению И. Абдуганиева и др. (1995), небольшие по размерам микрозаповедники и микрозаказы играют важную роль в охране важных местных особенностей геосистем. Вот почему пора создавать на территории каждого колхоза такие микрозаповедники. Это отличная идея, даже если она организована на ферме большой площади. Освоение холмов

является одной из важных возможностей развития орошаемого земледелия в условиях малоземелья.

В связи с этим необходимо придавать значение рассуждениям и идеям географов с учетом мнения специалистов и земледельцев, поскольку в основе этих научных рассуждений лежит совокупность природных, сельскохозяйственных, экономических, управленческих факторов. В связи с этим А. Максудов с соавт. (1998), С. Джалолов и др. (2001), А. Ибрагимов и др. (2001), А. Казоков и др. (1983, 2001), Ю. Султонов (1999), А. Нигматов и др. (2000), К. Боймирзаев и др. (2002). Прежде всего, это зависит от конкретных природных условий разрабатываемого холма, в частности литолого-геоморфологических, почвенных условий, мощности почвы, наличия в выработке солей-гипсов, литолого-состава почвы, уклон рельефа, эффективное использование воды при орошении, насколько важно придавать значение такому фактору, как уровень современного совершенствования техники орошения.

Предотвращение всех видов эрозии, высокоэффективное использование воды, предотвращение вырубки лесов, повышение плодородия почв являются наиболее необходимыми и обязательными рекомендациями. Они представлены в идеях и взглядах вышеуказанных авторов.

В высокогорных районах Ферганской долины сформировались различные природные и природно-антропогенные геосистемы: пустыни, холмы, горы и пастбища. Это оазис, издревле орошаемый, индустриально-аграрный регион с быстро растущим и плотным населением, развитой промышленностью, сельским хозяйством, транспортом и другими отраслями производства. Из-за этого в результате антропогенного воздействия меняется природа долины, и год за годом в ней возникают неблагоприятные геоэкологические проблемы.

Основной задачей естественно-географических и геоэкологических исследований, проводимых на территории долины, является оценка современного состояния геосистем с целью рационального использования ее природных ресурсов, разработка методов и мероприятий, позволяющих сохранить соотношение естественной эволюции геосистем. и тенденция антропогенного воздействия в условиях оптимального комфорта. Важно определить роль и значение природных компонентов в формировании геосистем и в управлении негативными экологическими последствиями, вызванными хозяйственной деятельностью человека.

Для решения геоэкологических проблем долины необходимо также изучение особенностей регионального распределения современной экологической ситуации. Потому что тип и масштабы антропогенного воздействия на каждую геосистему и уровень устойчивости геосистемы по отношению к этому воздействию различны.

Поэтому в каждой геосистеме экологическая ситуация и способы ее оптимизации различны. В частности, в пустынных оазисных геосистемах долины происходит уменьшение или ухудшение загрязнения атмосферного воздуха, воды, почвенного покрова, водная и ветровая эрозия, удушье, засоление, коррозия, заболачивание, уплотнение и т. д., посевов природных и естественно- объясняется изменением состава флоры и фауны в антропогенных геосистемах, эвтрофикацией водоемов и т. д.

В геосистемах Адыра наблюдаются водная эрозия, паводковые потоки, изменение и загрязнение почвенного покрова, уменьшение содержания биогенных компонентов, засоление и заболачивание почв и т.д.

Развиваются водная эрозия горных геосистем, наводнения, вырубка лесов, изменение и загрязнение природной среды при добыче полезных ископаемых, оползни, оползни, карстовые явления, лавины, землетрясения, изменение состава биогенных компонентов и другие.

Свои научные заключения опубликовали Ю. Султонов (1973, 1995, 1999, 2001), А. Максудов (1974, 1974) 1995), А. Казоков, К. Боймирзаев (1995, 2003) и другие. В частности, большая часть воды рек, вытекающих из окрестностей долины (Акбура, Аравон, Исфайрам, Сох, Косонсой и др.), до достижения Сырдарьи используется для орошения. Тот факт, что орошение находится в экстенсивном режиме, неразумное использование воды в Центрально-Ферганской области обусловило особенности ландшафта, не характерные для региона: заболачивание, подъем грунтовых вод и т.д. В результате орошения бургандских степей и холмов в верхней части бассейна Соха поднялся уровень подземных вод и ухудшилось мелиоративное состояние земель. Помимо этого, аналогичную ситуацию можно наблюдать и в окрестностях водоемов, расположенных на территории долины. Водные ресурсы, особенно подземные, загрязняются промышленными предприятиями [3].

Азот, фосфор, калий и другие химические вещества, поступившие со сточными водами в водоемы оазисных геосистем, вызывают ухудшение качества вод и их загрязнение (эвтрофикацию). Все это создает необходимость разработки мероприятий по рациональному использованию поверхностных и подземных вод на территории долины. Возникновение связанных с водой гидроморфных процессов на месте автоморфных условий приводит к изменению природных ландшафтов.

Рациональное использование и охрана земельных ресурсов Ферганской долины является задачей огромной государственной важности. Земли в долине очень ограничены, поэтому необходимо разработать и внедрить интенсивные системы управления использованием земельных ресурсов. Сегодня земельные ресурсы с каждым годом сокращаются из-за отравления, заболачивания, засоления, эрозии почв, уплотнения, использования земель для строительства и других целей. Сейчас основной вопрос заключается в интенсивном использовании земельных ресурсов

Ферганской долины, целесообразно организовать иххотовые леса в западных частях региона с целью уменьшения ветровой эрозии и сохранения гумусового слоя почвы (Мирзаджонов, 1973) в Центральной Фергане управление дренажными системами для предотвращения засоления, заболачивания и других условий окружающей среды, решение вопросов, связанных с водной эрозией (овраги, карсты, карманы, оползни и т.д.), становятся актуальными задачами современности (Султанов, 2001).

Западная часть долины находится напротив ветров «Кокан» и «Бекабад». Когда дуют эти ветры, сельскохозяйственные угодья серьезно повреждаются. В результате ветровой эрозии урожайность хлопка на этом участке снизилась с 34,5 ц до 22,1 ц. Основная причина этого в том, что по идее К.М. Мирзаджонова с 1962 года для предотвращения эрозии почв в районах Коканской зоны были созданы Ихотские леса. Позже подобные ситуации происходили из-за вырубki этих лесов населением. Настало время дальнейшего развития этой идеи, показывающей оптимальный путь мероприятий по борьбе с ветровой эрозией в условиях долины.

Помимо эрозии почв, большие площади земель в юго-восточной, южной и юго-западной частях долины стали сильно засоленными, что, в свою очередь, снижает урожайность сельскохозяйственных культур и нарушает структуру почвы. Что касается интенсивного развития сельского хозяйства, то большое внимание следует уделить промывке этих засоленных земель, водоснабжению, открытым и закрытым дренажным системам.

ОБСУЖДЕНИЕ: Со второй половины прошлого века в связи с освоением больших территорий в Ферганской долине площади естественно произрастающих растений сильно сократились. Экстенсивное развитие фермерских хозяйств привело одновременно к сокращению площади пастбищ. Выращивание питательных растений для животноводства в условиях Ферганской долины обусловлено не только севооборотом, но и целесообразной организацией агрофитоценозов в районах засушливого земледелия. Известно, что флора долинного региона очень разнообразна, это разнообразие отчетливо видно, особенно в районировании ее ландшафтов по высоте. Р. Шоназаров (1995) отмечал, что в долине имеются разбросанные участки лекарственных растений. Поэтому для сохранения флоры и вообще полезных растений на территории необходимо не привлекать в сельскохозяйственный оборот природные ландшафты и организовывать агрофитоценозы.

Сейчас под влиянием человеческого фактора более 60% площади долины имеет вид антропогенных и природно-антропогенных ландшафтов. Все это связано с быстрым ростом населения в долинной местности, широким развитием сельского хозяйства, наличием водных ресурсов, легким доступом к минеральным ресурсам и другим.

Именно в пустынных, холмистых, горных, пастбищных ландшафтах, то есть в диапазоне высот от 350 до 4000 метров над уровнем

моря, для сохранения природных ландшафтов и интенсивного использования существующих антропогенных ландшафтных видов используется и идея. Какие направления экономики могут быть развиты в каждом вертикальном регионе, предложены А.А.Рафиковым и А.А.Назаровым (2002). Эта идея позволяет научно и практически защитить эколого-географическую основу равнинных, высокогорных и горных геосистем Ферганской долины.

Природные ландшафты вокруг городов Ферганской долины сильно изменяются под воздействием антропогенных факторов. В этом вопросе кыргызские географы С. Эргашев и другие глубоко проанализировали изменения ландшафтов вокруг городов под влиянием антропогенных факторов и выразили сокращение площади природных ландшафтов в процентах [4].

В идее, выдвинутой И. Абдуганиевым (1995), подчеркивается, что большое внимание следует уделять видам лиственных деревьев с целью улучшения атмосферы городов. При этом основное внимание следует обратить на способность деревьев поглощать пыль, все виды пыли, токсичные газы и в то же время на способность разных видов деревьев, посаженных рядом друг с другом, быть зелеными.

Как уже говорилось выше, результаты исследований, проведенных в процессе изучения природных компонентов, ландшафтных исследований, картографирования, естественно-географического, сетевого районирования, в дальнейшем повысили значимость геоэкологических исследований на территории.

ВЫВОДЫ И ПРЕДЛОЖЕНИЯ: Изменения природной среды и обострение геоэкологической ситуации в Ферганской долине, ее географическое положение, специфические природно-географические условия и факторы, действующие региональные и местные законы и правила, устойчивость, изменчивость природных комплексов, популяционная характеристика экономической деятельности зависит также от ряда других признаков, например особенностей развития производства.

Основные логические признаки геоэкологической значимости естественно-географических исследований в долинной зоне видятся прежде всего в следующем:

- в составе различных природных и природно-антропогенных ландшафтов высокогорных регионов, таких как пустыни, холмы, горы и пастбища, в использовании рельефа и высокогорья;
- при использовании поверхностных и подземных вод в современных рыночных условиях;
- при использовании климатических ресурсов;
- при использовании почв в сельском хозяйстве и в фермерском хозяйстве в целом;

- при использовании растительных и животных ресурсов и их исчезновении или сокращении их площадей;
- в промышленном производстве, использовании ресурсов;
- в развитии транспорта, строительства, жилищно-коммунального хозяйства и т.д.

С нашей стороны местными учёными были выдвинуты концепции по предотвращению и решению геоэкологических проблем, формировавшихся на протяжении многих лет. Сейчас главная задача – реализовать это на практике.

В заключение следует отметить, что при разработке геоэкологических основ охраны природы территории, рационального использования ее природных ресурсов необходимо работать не на политико-административной границе, а на уровень естественных географических границ, является одновременно научным и практическим. Сама жизнь доказывает, что это правильный путь [5].

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ОХРАНА ОРОШАЕМЫХ ЗЕМЕЛЬ В ФЕРГАНСКОЙ ДОЛИНЕ И ИХ РАЗУМНОЕ ИСПОЛЬЗОВАНИЕ

Аннотация: В данной статье подробно рассмотрены охрана и рациональное использование орошаемых земель Ферганской долины, включая юг Ферганской области, а также вопросы загрязнения земельных ресурсов различными видами отходов и сделаны уникальные выводы.

Ключевые слова: Конусное распространение, грунтовые воды, подземные и поверхностные воды, эрозия почвы, ветровая эрозия, природный ландшафт, антропогенный ландшафт. Природно-антропогенные ландшафты, литологические отложения

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PROTECTION OF IRRIGATED LAND IN THE FERGHANA VALLEY AND THEIR SMART USE

Abstract: This article examines in detail the protection and rational use of irrigated lands in the Fergana Valley, including the south of the Fergana region, as well as issues of pollution of land resources by various types of waste and draws unique conclusions.

Key words: Cone distribution, groundwater, groundwater and surface water, soil erosion, wind erosion, natural landscape, anthropogenic landscape. Natural-anthropogenic landscapes, lithological deposits

ВВЕДЕНИЕ: Тот факт, что южная часть ландшафта Ферганской долины окружена высокими горными хребтами и соединяется с

Ташкентско-Мирзачольской высокогорной равниной лишь узким коридором (Ходжандскими воротами) на западе, а из нее вытекает только Сырдарья, определяет многие ее индивидуальные, местные особенности. Сток множества ручьев со склонов гор с южной части долины вызывает накопление в их конусах природных и техногенных веществ.

За счет потока грунтовых вод, протекающих через приповерхностные слои склонов, они растворяют различные вещества и насыщаются солями, ионами тяжелых металлов, нефтепродуктами, пестицидами, минеральными удобрениями, моющими средствами, промышленными отходами и т. д. Сохский, Шохимардонсойский, Исфайрамсойский, Исфаринский конусы являются не только местами накопления солей, но и техногенных отходов, часть из которых с подземным стоком попадает на аллювиально-пролювиальную равнину-Центральную Фергану.

При стоке подземных и поверхностных вод из Южной Ферганы водоносная способность литологических отложений в ландшафтах Центральной Ферганы в основном очень слабая, преобладает вертикальное перемещение влаги в почве на этом участке, поэтому возникает состояние соленакопления в почва. Решение таких проблем требует плотных сетей коллектор-потребитель. Именно поэтому ежегодно в Сырдарью через канаво-коллекторные системы сбрасывается 20-30 тонн соли с гектара.

В течение 2011-2020 годов в Ферганской области приобретено 20 407 га дополнительных земель, из них уровень фильтрационных вод находится в показателе минерализации на земельных участках с глубиной 0-1, 1-1,5 метра и землях с глубиной 1,5-2 и 5,0-10 метров. Установлено, что поля имеют положительный знак. Чем ближе поверхность просачивающейся воды к поверхности, тем выше ее соленость.

МЕТОДЫ И ИССЛЕДОВАНИЯ: Отсюда следует сделать вывод, что в южной части района исследований грунтовые воды залегают глубоко, а в северной части суша приближается к берегам реки Сырдарья или у поверхности реки в нижних частях. В результате, в зависимости от рельефа, вода движется по склону, вызывая миграцию различных солей и других химических элементов. Именно поэтому в верхнем индексе зафиксировано засоление земель Дангаринского, Бувайдинского районов Южно-Ферганской области.

В Бешарыкском районе, расположенном в холмистой части ландшафта Ферганской долины, имеется площадь 31708 га, из них засоление почв наблюдалось в 2019 году на 2522 га, т.е. 10%, в 2020 году на 2304 га-10. %, в 2021 году на 1895 га -8%. В районе исследований установлено, что уровень просачивающихся вод расположен близко к поверхности земли преимущественно в Кувинском, Риштонском, Учкоприкском, Дангаринском, Бувайдинском районах. На то, что в этих районах грунтовые воды расположены близко к поверхности земли, главным образом влияют фактор рельефа и литологический состав места. Установлено, что в районах

Узбекистана, Фуркатском и Ферганском районах площади с просачивающимися водами у поверхности очень малы.

РЕЗУЛЬТАТЫ: В 1985 году в бассейне реки Сох было запущено Новококандское химическое предприятие, завод специализировался на производстве серной кислоты и аммофоса. Благодаря литологическому распространению конусной равнины она состоит из пролювиальных пород и имеет высокую водопроницаемость. Химический завод в основном расположен в бассейне чистой и пресной артезианской воды с большим запасом пресной питьевой воды.

После ввода предприятия в эксплуатацию водоем начал загрязняться. Поднятые в атмосферу пыль и различные вещества оказали серьезное воздействие на воздух окрестных районов. В результате это стало причиной развития различных заболеваний. По этой причине в 1990-е годы предприятие было остановлено и переоборудовано под выпуск другой продукции. [1].

Загрязнение подземных вод вызвано несколькими факторами, такими как горнодобывающая, химическая, нефтеперерабатывающая промышленность, минеральные удобрения и пестициды. По оценкам специалистов, в районе Ферганского предприятия фурановых соединений обнаружено наличие сероводорода в количестве 0,58-2,40 мг/л колодезной воды.

Район цветных металлов и радиоактивных веществ Нокат-Кадамжой-Хайдаркон на южных склонах Ферганской долины влияет на загрязнение горных подземных вод. Большое количество тяжелых металлов обнаружено в подземных водах Кувасой-Фергонского-Маргилан-Ко'канского районов.

Это явление также объясняется наличием рудного района на склонах горы Алой и его миграцией в сторону предгорий, растворенной в потоке подземных вод.

Если масса тяжелых металлов в несколько раз превышает РЗМ, то в подземных водах при их потреблении живыми организмами возможно развитие различных серьезных заболеваний. Например, отходы сурьмяных и ртутных рудников на юге Ферганы через почвенно-водные растения попадают к людям и скоту, вызывая в их организме различные эндемические заболевания.

В густонаселенных и орошаемых земледельческих районах, где воды мало, максимально эффективное использование воды и предотвращение ее загрязнения должны быть наиболее актуальной и приоритетной задачей.

Наиболее актуальной проблемой в Южной Фергане является эффективное использование существующих орошаемых земель, постоянное улучшение плодородия почв, разработка научно обоснованных принципов использования орошаемых земель и их экономической эффективности в условиях, когда население растет с каждым годом.

В ситуации, когда земельные и водные ресурсы крайне ограничены, развитие технологий капельного орошения в орошаемом земледелии региона требует весьма рационального использования земель.

В начале 1970-х годов с целью освоения новых земель холмы были отведены под орошаемое земледелие. Южные Ферганские холмы сложены преимущественно слоями конгломерата, песчаника, песка, гравия, известняка, гипса, грубые породы покрыты маломощными отложениями лёсса, местами слои песка и суглинков полностью смыты. Рельеф более крутой и волнистый, слабый, местами умеренно глубокий. Вопрос с водой для орошения в горах сложен [2].

В результате эксплуатации земель без учета специфических особенностей холмов на больших площадях произошли размывы почв, овражная эрозия, удушье долин, карстовые явления, засоление, эрозия и другие процессы. По мнению К. Боймирзаева и других, возникает множество нарушенных ландшафтов.

В соответствии с природно-географическими особенностями и мелиорацией региона Ферганской долины равнины и предгорья конусов склонны к засолению почв. В 1960-е и 1970-е годы в этих регионах сильно развивалось засоление почв. Это явление было тщательно изучено специалистами М.А. Панкова и почвомелиоративной станции Федченко. Основной причиной засоления была крайне низкая водоносность лессовых отложений, большое количество остаточных запасов солей в них, неровность земли и т. д. В 70-80-е годы были построены магистральные коллекторы (Северный Сох-Исфаринский, Аччиккольский, Пишкаронский, Каракалпакский, Файзибадский, Дангаринский, Бувайдинский районы), густые (25-30 м на гектар и более) дренажные сети, главное - колодцы вертикального дренажа крупных размеров. Масштабное строительство в ландшафтах Южной Ферганы позволило предотвратить процесс засоления почв, в результате чего региональный солевой баланс снизился. В некоторых местах до сих пор встречаются отложения соли, но их можно контролировать.

Южная Фергана является типичным регионом, где в больших масштабах происходят дефляционные и эрозионные процессы. В западной части Ферганы до меридиана Алтыарик активен ветер, дующий в долину с большой скоростью (15-20 м/с) каждый год из Ходжандского коридора. При этом будет нанесен серьезный ущерб всему Коканскому оазису, особенно территории Дангаринского и Бешарикского районов. В отдельные годы из-за сильного поражения хлопчатника семена пересаживают 2-3 раза.

Ветровой вынос почвы (100 тонн на гектар), перегноя, песка, уничтожающий посевы и сады, наносящий ущерб сельскохозяйственным объектам, является обычным явлением в регионе. Поэтому его экологические и социально-экономические последствия должны отличаться комплексностью и масштабностью противодействия [3].

Основной задачей естественно-географических и геоэкологических исследований, проводимых в ландшафтах Ферганской долины, является оценка современного состояния геосистем с целью рационального использования ее природных ресурсов, разработка методов и мероприятий, позволяющих сохранить соотношение естественной эволюции геосистем и тенденция антропогенного воздействия в условиях оптимального комфорта.

Важно определить роль и значение природных компонентов в формировании геосистем и в управлении негативными экологическими последствиями, вызванными хозяйственной деятельностью человека.

Для решения геоэкологических проблем Ферганской долины необходимо также изучение особенностей современной экологической ситуации. Потому что тип и степень антропогенного воздействия на каждую геосистему и уровень устойчивости геосистемы по отношению к этому влиянию различны.

Поэтому в каждой геосистеме экологическая ситуация и способы ее оптимизации различны. В частности, в пустынно-оазисных геосистемах долины загрязнение атмосферного воздуха, вод, почвенного покрова, сокращение или ухудшение земельных ресурсов вследствие водной и ветровой эрозии, удушья, засоления, коррозии, заболачивания, уплотнения и т. д. посевов, флора и фауна природных и природно-антропогенных геосистем, характеризующихся изменением состава, загрязнением водных объектов;

В геосистемах Адыра наблюдаются водная эрозия, паводковые потоки, изменение и загрязнение почвенного покрова, уменьшение содержания биогенных компонентов, размыв плодородных почв, засоление и заболачивание почв и т.д.;

В горных геосистемах развиваются водная эрозия, паводковые потоки, вырубка лесных деревьев, изменение и загрязнение природной среды при добыче полезных ископаемых, оползни, горные обвалы, карстовые явления, лавины, землетрясения, изменение состава биогенных компонентов и т. д.;

Азот, фосфор, калий и другие химические вещества, поступившие со сточными водами в водные объекты геосистем, вызывают ухудшение качества воды и ее загрязнение. Все это создает необходимость разработки мероприятий по рациональному использованию поверхностных и подземных вод в Южной Ферганской области. Протекание гидроморфных процессов, связанных с водой, на месте автоморфных условий также приводит к изменению природных ландшафтов;

Рациональное использование земельных ресурсов Ферганской долины и их охрана являются задачей огромной государственной важности. Земельные ресурсы в регионе очень ограничены, поэтому необходимо разработать и внедрить интенсивные системы управления использованием земельных ресурсов. В настоящее время земельные ресурсы из года в год

сокращаются из-за отравления, заболачивания, засоления, эрозии почв, уплотнения, использования земель для строительства и других целей [4].

Сейчас главный вопрос - интенсивнее использовать земельные ресурсы и почвы, сохранить гумусовый слой почвы в западных частях региона, уменьшить ветровую эрозию, целесообразно организовать иххотные леса.

В целях предотвращения засоления, заболачивания и других экологических условий в Центральной Фергане становится актуальным управление дренажными системами, решение вопросов, связанных с водной эрозией (обрывы, карст, очаги, оползни и т.д.) в горных равнинах, холмах и предгорьях. актуальные вопросы современности.

Западная часть региона находится напротив ветров «Коканд» и «Бекабад». Когда дуют эти ветры, они наносят большой ущерб сельскохозяйственным угодьям. В результате ветровой эрозии урожайность хлопка на этом участке снизилась с 34,5 ц до 22,1 ц. Основная причина этого в том, что с 1962 года по идее К.М.Мирзаджонова в районах Кокандской зоны с целью предотвращения эрозии почв были созданы Ихотаские леса.

Позднее было замечено, что эти ихотовые леса были вырублены населением, в результате чего усиливается процесс дефляции на орошаемых землях. Необходимо разработать ряд мероприятий по охране орошаемых почв, поддержанию их плодородия, предотвращению ирригационной эрозии. Во избежание ирригационной эрозии необходимо учитывать степень уклона земельных участков [5].

Помимо эрозии почв, значительные площади земель в юго-восточной, южной и юго-западной частях долины сильно засолены, что, в свою очередь, снижает урожайность сельскохозяйственных культур и нарушает структуру почвы. В целях интенсивного развития сельского хозяйства большое внимание следует уделить промывке засоленных земель солью, оросительной воде, открытым и закрытым дренажным системам.

Сейчас под влиянием человеческого фактора более 70% площади долины имеет вид антропогенных и природно-антропогенных ландшафтов. Все это связано с быстрым ростом населения в долине, широким развитием сельского хозяйства, наличием водных ресурсов, легкостью доступа к минеральным ресурсам и др. [6].

ЗАКЛЮЧЕНИЕ: В целом участие антропогенных факторов в возникновении и развитии геоэкологических ситуаций в урбанистически-селитебных геосистемах ландшафтов Ферганской долины существенно. Геоэкологические ситуации, возникшие внутри ландшафтных комплексов и компонентов, усложняются, взаимодействуя и влияя друг на друга. В некоторых регионах экологический стресс создает проблемы.

Идея сохранения природных ландшафтов и интенсивного использования существующих антропогенных ландшафтных видов и того, какие направления хозяйства можно развивать в каждом вертикальном

регионе, заключается именно в пустынных, полупустынных, холмистых, горных, пастбищных ландшафтах, т.е. в высотных ландшафтах. диапазоне от 350 до 4000 метров над уровнем моря. Эта идея позволяет научно и практически защитить эколого-географическую основу равнинных, высокогорных и горных геосистем в ландшафтах Ферганы.

Природные ландшафты вокруг городов Южной Ферганы сильно изменяются под воздействием антропогенных факторов. В этом вопросе киргизские географы С.Эргашев и другие глубоко проанализировали изменения ландшафтов вокруг городов под влиянием антропогенных факторов и выразили сокращение площади природных ландшафтов в процентах [7].

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ПРИОРИТЕТНЫЕ НАПРАВЛЕНИЯ РАЗВИТИЯ НАЦИОНАЛЬНОГО РЫНКА ЦИФРОВЫХ ТЕХНОЛОГИЙ

***Аннотация.** Статья посвящена анализу основных тенденций и стратегий развития национального рынка цифровых технологий. В работе рассматриваются ключевые направления, способствующие ускорению цифровизации в экономике, такие как развитие инфраструктуры связи, внедрение инновационных технологий (искусственный интеллект, большие данные, блокчейн), поддержка стартапов и инновационных компаний, а также формирование эффективной нормативно-правовой базы.*

***Ключевые слова.** Цифровая экономика, цифровизация, электронная коммерция, электронная торговля.*

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FEATURES OF DIGITAL ECONOMY DEVELOPMENT

***Abstract:** The phrase "digital economy" is increasingly being mentioned in the modern world. It seems that new technologies, actively developing on a global scale, will soon change our understanding of opportunities. The rapid growth of social networks, the smartphone market, broadband Internet access, machine learning technologies and artificial intelligence are changing the world.*

***Keywords.** Digital economy, digitalization, e-commerce, e-commerce.*

Введение. Цифровые технологии – это неограниченный доступ к большому разнообразию информации. Они предназначены для более простой и быстрой передачи данных. Цифровые технологии (англ. Digital

technology) — технологии, основанные на отображении сигналов не в виде непрерывного спектра, а в дискретных полосах на аналоговом уровне. Все уровни этих технологий представляют собой одно и то же состояние сигнала в диапазоне. В отличие от аналоговых, цифровые технологии работают с дискретными, а не с непрерывными сигналами. Кроме того, сигналы имеют небольшой набор значений, обычно два. В реальной жизни системы, особенно системы бухгалтерского учета, имеют три значения.

Обычно это 0, 1, НОЛЬ, которые в булевой алгебре имеют значения “FALSE”, “TRUE” и «нет результата», когда присутствует НОЛЬ. Цифровые схемы в основном состоят из логических элементов, таких как И, ИЛИ, НЕ и т. д., а также могут быть соединены со счетчиками и триггерами. Цифровые технологии в основном используются в цифровой электронике, прежде всего в компьютерах, различных областях электротехники, таких как игровые автоматы, робототехника, автоматика, измерительные приборы, радио- и телекоммуникационное оборудование и многие другие цифровые устройства.

Цифровая экономика – это экономическая деятельность, основанная на цифровых технологиях, которая за счет развития цифровых технологий в отраслях экономики приводит к повышению производительности труда и конкурентоспособности продукции, снижению издержек производства, созданию новых рабочих мест.

Цифровые технологии настолько прочно вошли в нашу жизнь, что сегодня без них невозможно представить не только нашу повседневную деятельность, но и развитие социальной и экономической сферы. Естественно, что, как и в других сферах, внедрение передовых технологий в налоговом администрировании кардинально меняет его деятельность. Оно не только связано с взаимоотношениями налогоплательщиков и налоговых органов, но и вносит новшества от подачи деклараций до способов уплаты налогов и хранения данных. В частности, за счет создания единой электронной площадки в системе налажен современный метод ввода, сбора, формирования и анализа данных. В результате процесс подачи налоговой отчетности сократился в 5-7 раз. В настоящее время внедрен веб-портал Единого электронного классификатора товаров и услуг Республики Узбекистан, который состоит из 112 групп и 1348 классов товаров и услуг. С использованием идентификационных кодов продуктов и услуг было создано более 900 000 электронных счетов-фактур.

Сегодня цифровые технологии стремительно проникают во все сферы и жизнь людей. Развитие цифровой экономики стало важнейшей задачей в нашей стране. В решении Президента от 28 апреля 2020 года «О мерах по широкому внедрению цифровой экономики и электронного правительства» к 2023 году доля цифровой экономики в валовом внутреннем продукте страны должна быть увеличена в 2 раза, объем Объем услуг в этой сфере

должен быть увеличен в 3 раза, а их экспорт должен достичь 100 миллионов долларов США. Поставлена задача по поставке в доллар.

По статистике, доля цифровой экономики в валовом внутреннем продукте стран составляет 10,9% в США, 10% в Китае и 5,5% в Индии. Исследователи портала Vouchercloud опубликовали список 25 самых «умных» стран мира. По результатам проведенного исследования первое место заняла Япония. Страна Кунчикар получила высший рейтинг по основным показателям исследования — количеству нобелевских лауреатов, среднему уровню IQ (интеллекта) населения и темпам обучения в школах. В настоящее время многие страны используют преимущества искусственного интеллекта во многих областях, таких как здравоохранение, транспорт, оборона и национальная безопасность. Исследование консалтинговой компании PricewaterhouseCoopers (PwC) показывает, что к 2030 году глобальный искусственный интеллект принесет мировой экономике 15,7 триллиона долларов США. Это увеличит мировой ВВП на 26%.

Число стран, использующих технологии искусственного интеллекта в своей налоговой системе, увеличивается с каждым годом. В частности, в 2018 году Дания потеряла почти 325 миллионов долларов США в результате уклонения от уплаты налогов. Правительство страны успешно выявило 85 из 100 случаев уклонения от уплаты налогов в результате применения инструментов искусственного интеллекта к своей налоговой системе. Правительство Индии также входит в число стран-лидеров по использованию искусственного интеллекта для борьбы с уклонением от уплаты налогов и выявления фейковых фирм.

1-таблица

Доля валовой добавленной стоимости, созданной в секторах информационной экономики и электронной коммерции, в ВВП (в % ВВП)⁶⁵

| Индикаторы | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Изменение в 2022 году по сравнению с 2017 годом, % |
|---|------|------|------|------|------|------|--|
| Информационная экономика и сектор электронной коммерции | 2,3 | 2,0 | 1,7 | 1,9 | 2,5 | 3,3 | 1,0 |
| Сектор информационных и коммуника | 2,1 | 1,8 | 1,5 | 1,6 | 1,7 | 1,9 | -0,1 |

⁶⁵ Составлен на основе данных Агентства по статистике при Президенте Республики Узбекистан.

| | | | | | | | |
|--------------------------|-----|-----|-----|-----|-----|-----|------|
| ционных технологий (ИКТ) | | | | | | | |
| Производство ИКТ | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,1 | 0,0 |
| Торговля ИКТ | 0,1 | 0,1 | 0,1 | 0,0 | 0,1 | 0,1 | 0,0 |
| ИКТ-услуги | 1,9 | 1,7 | 1,4 | 1,5 | 1,6 | 1,8 | -0,1 |
| Контент-сектор и СМИ | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,0 |
| Электронная коммерция | 0,0 | 0,0 | 0,1 | 0,1 | 0,6 | 1,2 | 1,2 |

Согласно анализу, доля валовой добавленной стоимости, созданной в информационной экономике и секторе электронной коммерции, в ВВП в 2022 году составит 3,3 процента, увеличившись на 1 процент по сравнению с 2017 годом. Видно, что доля валовой добавленной стоимости, созданной в электронной коммерции, в ВВП в 2022 году составила 1,2 процента.

В целях создания благоприятной среды для национального рынка цифровых технологий и развития перспективных «цифровых» стартапов будут проведены следующие мероприятия:

развитие современных конкурентоспособных и экспортоориентированных программных продуктов и услуг, местного производства путем организации деятельности технопарков и коворкинг-центров, в том числе на основе государственно-частного партнерства;

формирование механизмов совершенствования законодательной базы с учетом стремительного развития цифровых технологий и их влияния на практику ведения бизнеса и появления новых цифровых услуг или продуктов;

стимулирование развития национальных стартапов и поддержка предприятий и малых предприятий, начинающих новый бизнес в сфере информационных технологий, в том числе посредством венчурного финансирования;

создание условий для развития местного рынка программных продуктов, в том числе разработки новых инновационных решений и их последующей реализации путем обеспечения эффективного сотрудничества субъектов предпринимательства и государственных органов;

поддержка и развитие спроса на отечественную технологическую и программную продукцию на внешнем рынке;

упрощение процедур регистрации объектов интеллектуальной собственности, создание возможности включения интеллектуальной собственности в уставный капитал;

создание «регулятивной песочницы» для содействия развитию венчурных экосистем;

внедрение единой платформы агрегации данных различных сервисов (данных мобильных операторов, приложений и т.п.) для определения мобильности населения при планировании транспортных процессов (кроме конфиденциальной информации);

внедрение альтернативных механизмов системы финансирования проектов стартапов и субъектов предпринимательства в сфере информационных технологий;

создание благоприятных условий для развития устойчивой цепочки финансирования инновационных идей, стартапов и венчурных проектов;

содействие вновь созданным и малым предприятиям в сфере информационных технологий в реализации start-up проектов, привлечении инвестиций от результатов инновационной деятельности;

создание сети компьютерных спортивных центров (профессиональных клубов) для подготовки спортсменов компьютерному спорту, в том числе на основе государственно-частного партнерства;

реализация комплексных мер по поддержке развития индустрии компьютерных игр, привлечение иностранных инвестиций в разработку и продвижение отечественных ИТ-продуктов, подбор и подготовка квалифицированных специалистов в этой области;

создание необходимых организационно-технических и финансово-экономических условий для развития рынка аутсорсинговых услуг в сфере информационных технологий;

повышение качества высшего образования в сфере информационных технологий за счет внедрения обучения управлению проектами, а также организации деятельности инкубационных и акселерационных центров поддержки стартап-проектов;

Представление интересов местных разработчиков программного обеспечения путем открытия представительств ИТ-парка в зарубежных странах и помощи им в продвижении их продукции на внутреннем и внешнем рынках;

на основе комплексных аналитических и практических исследований оценить влияние процессов цифровизации на производственно-экономический сектор и разработать предложения по расширению цифровой трансформации экономики страны в перспективе;

развитие исследований и разработок, направленных на создание наукоемкой продукции с высоким потенциалом коммерциализации в сфере информационных технологий;

Стимулировать развитие «умных решений» для приоритетных отраслей с использованием передовых технологий (Big Data, IoT, AI-блокчейн и т.д.) на базе ИТ-парка;

поддерживать создание центров и кластеров высокотехнологичного предпринимательства на основе сотрудничества между бизнес-

предприятиями, университетами, научно-исследовательскими институтами и научными центрами;

систематическая государственная поддержка и грантовое субсидирование технопарков, акселераторов и инкубаторов посредством хакатонов, конкурсов и конференций.

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УМЕНИЕ УЧИТЕЛЯ ИСПОЛЬЗОВАТЬ СОВРЕМЕННЫЕ ОБРАЗОВАТЕЛЬНЫЕ ТЕХНОЛОГИИ ПРИ ПОДГОТОВКЕ УЧАЩИХСЯ К ПЕДАГОГИЧЕСКОЙ ДЕЯТЕЛЬНОСТИ НА ОСНОВЕ ОБРАЗОВАТЕЛЬНЫХ ЦЕННОСТЕЙ

Аннотация: В данной статье автором подробно рассмотрены проблемы реформирования образования на уровне современной потребности, поднятия его качества до уровня высокой востребованности, а также широко освещен отечественный и зарубежный опыт подготовки высококвалифицированных кадров. . Выявляется ориентация образовательных ценностей на социально-личностный фактор. Социальные ценности, в том числе образовательные, служат формированию личности, повышению его ценности, обеспечивают признание педагогами индивидуального фактора ведущим субъектом воспитательного процесса, в котором свободное и независимое мышление, а также социальное желательное, чтобы оно помогло. формировать навыки деятельности.

Ключевые слова: Образование, социальный менеджмент, глобализация, менеджмент, координация, специалист, персонал, высшее образование, процесс, культура, ценность, технология, педагогическое мастерство, Социальные ценности, образовательные ценности, достоинство, педагог, образовательные процессы.

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THE TEACHER'S ABILITY TO USE MODERN EDUCATIONAL TECHNOLOGIES IN PREPARING TEACHERS FOR TEACHING ACTIVITIES BASED ON EDUCATIONAL PRICES

Abstract: In this article, the author examines in detail the problems of reforming education at the level of modern need, raising its quality to the level of high demand, and also widely highlights the domestic and foreign experience in

training highly qualified personnel. . The orientation of educational values on the socio-personal factor is revealed. Social values, including educational ones, serve to form a personality, increase its value, and ensure that teachers recognize the individual factor as the leading subject of the educational process, in which free and independent thinking, as well as social thinking, is desirable so that it helps to form business skills.

Keywords: *Education, social management, globalization, management, coordination, specialist, staff, higher education, process, culture, value, technology, pedagogical skills, Social values, educational values, dignity, teacher, educational processes.*

Реформы, проводимые в нашем обществе, могут быть успешно реализованы только при условии возрождения и дальнейшего развития наших национальных ценностей, обычаев и традиций, ведь только человек духовно зрелый, просвещенный, духовно устойчивый, способный мыслить по-новому, может чтить путь независимости и развития может пройти. Поэтому глубокое и всестороннее изучение культурного наследия и высоких нравственных ценностей нашего народа, внедрение их в сознание каждого человека, живущего в нашей Республике, особенно воспитание молодого поколения духовно зрелыми и самоотверженными людьми является одной из актуальных задач. проблемы.

Выявляется ориентация образовательных ценностей на социально-личностный фактор. Социальные ценности, в том числе образовательные, служат формированию личности, повышению его ценности, обеспечивают признание педагогами индивидуального фактора ведущим субъектом воспитательного процесса, в котором свободное и независимое мышление, а также социальное желательное, чтобы оно помогало. формировать навыки деятельности. Поэтому необходимость воспитания компетентной личности и квалифицированного специалиста к взрослой жизни приобретает более актуальный смысл и сущность в современных условиях, когда складываются новые общественные отношения.

«Воспитание свободных, всесторонне развитых людей, осознающих свои права, рассчитывающих на собственные силы и возможности, самостоятельно относящихся к происходящим вокруг событиям, строящих свои личные интересы в гармонии с интересами страны и народа. нуждаться". И это зависит от образовательных ценностей. Именно поэтому он подчеркивает актуальность выбранной темы, обучая молодежь образовательным ценностям.

Ценности делятся на несколько типов по своей природе. В частности, человек и его жизнь считаются высшей ценностью. Абсурдно говорить о ценности чего-либо в отсутствие человека. Поэтому уважение достоинства человека, улучшение его жизни, развитие его знаний и культурного уровня, сохранение его здоровья, защита его жизни являются основными

направлениями политики нашего государства. Все фундаментальные изменения и реформы, которые происходят в нашем обществе, направлены на то, чтобы жизнь людей была полноценной, богатой, красивой, чтобы люди чувствовали себя по-настоящему свободными, были собственниками результатов своего труда, своей судьбы, своей страны. направленный на обеспечение того, чтобы

Исходя из этого, мы стараемся дать заключение на основе комплексного подхода к ценностям. Достоинство – место человека в обществе, репутация – внимание, уважение, престиж. Ценность – понятие, показывающее положительное или отрицательное значение окружающих вещей, человека для общества и являющееся моральным принципом.

Ценность включает в себя общечеловеческие ценности – определенные моральные нормы, передовое, прогрессивное культурное наследие. Ценности делятся на материальные, социальные, политические, духовные ценности, а также положительные и отрицательные ценности. Ценности ценны не только для прошлого, но они ценны и для развития будущего. Подразумевается комплекс философских и т. д.

Типы значений:

- природные ценности;
- материальные ценности;
- моральные ценности;

Ценности и задачи, связанные с их использованием в процессе организации социально-педагогических отношений, должны быть включены в основу организации содержания образования, его процесса и взаимоотношений в системе «педагог-ученик». Также необходимо решить проблемы педагогических отношений. Педагогический феномен, связанный с подготовкой будущего учителя начальных классов, нельзя оставить без внимания. Это сложный и многогранный процесс социализации – сегодня это важное творческое направление, требующее особого внимания как социально-педагогическая ценность.

В организации дошкольного образования не разработаны современные педагогические технологии, дидактические задачи и разработки, современные формы и методы подготовки детей к школе, недостаточно проанализирован опыт развитых стран и, как и им, социальные, личностные, эмоциональные, речевые, математических, физических и творческих. К факторам можно отнести отсутствие реализации специальных государственных образовательных программ, направленных на развитие, приобщение к окружающей среде, то, что большинство работающих педагогов не являются творческими, контроль качества образования не проводится.

Кроме того, поскольку структурно и организационно контроль качества дошкольного образования не предусмотрен, оценка качества и

эффективности образовательного процесса в организациях дошкольного образования не отвечает требованиям времени.

На современном этапе развития системы образования в дошкольном образовании, которое считается ее первым звеном, происходят быстрые изменения, которые проявляются в следующем: совершенствуется нормативно-правовая база деятельности организаций дошкольного образования; дошкольные образовательные организации переходят на новые виды финансово-хозяйственной деятельности; расширяется сеть негосударственных организаций дошкольного образования; внедряются передовые образовательные технологии; совершенствуется система обучения сотрудников; внедряются альтернативные формы организаций дошкольного образования на основе краткосрочных групп.

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ҚИШЛОҚ ХЎЖАЛИГИ ТАРМОҚЛАРИДА ТАДБИРКОРЛИКНИ РАЎБАТЛАНТИРИШ

Аннотация. Мақолада минтақалар қишлоқ хўжалиги тармоқларида тадбиркорликни рағбатлантиришининг назарий масалалари баён этилган. Қоракўлчилик тармоғида чўл-яйлов ҳудудларини соф экологик ва атроф-муҳитини табиий ҳолда сақлаш, биохилмахиллигини тиклаш ва ривожлантириш бўйича инновацион фикрлар билдирилган.

Калим сўзлар: тадбиркорлик, яйлов, чорвачилик, қоракўлчилик, самара, иқтисодий ислоҳот, жамғарма, экотизим, инвестиция, инновацион технология, ресурстежамкор ишланма, таназзуллик, биохилма-хиллик.

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DEVELOPMENT OF ENTREPRENEURSHIP IN THE AGRICULTURAL SECTORS

Abstract. The article deals with theoretical issues of stimulating entrepreneurship in the agricultural sectors of the regions. Innovative ideas for the preservation of desert ecological and natural environment, restoration and development of biodiversity were expressed in the karakul industry.

Keywords: entrepreneurship, pasture, livestock, karakul, productivity, economic reform, savings, ecosystem, investment, innovative technology, resource-efficient development, degradation, biodiversity.

Кириш. Қишлоқ хўжалиги Ўзбекистон иқтисодиётининг муҳим бўғини бўлиб, тармоқ мамлакат аҳолисининг озиқ-овқат маҳсулотларига, қайта ишлаш саноатининг эса хом ашёга бўлган талабини қондириш билан бирга, экспорт салоҳиятини мустаҳкамлашнинг истиқболли манбаларидан бири ҳисобланади. Мамлакатимизда таркибий ўзгаришлар ва тизимли институционал ислоҳотларни амалга ошириш, барқарор иқтисодий ўсишни таъминлашнинг омили сифатида тадбиркорлик фаолиятининг аҳамияти ортиб бормоқда.

Бозор иқтисодиёти шароитида тадбиркорлар иқтисодий муносабатларнинг муҳим субъекти ҳисобланиб, улар ўз хўжалик фаолиятини иқтисодий, ҳуқуқий ва мулкый жавобгарлиги эвазига ихтиёрий равишда амалга оширадилар. Ишлаб чиқариш воситаларига тўла эгалик

қилиш ва ишлаб чиқаришни эркин ташкил қилиш тадбиркорлар мустақиллигининг асоси ҳисобланади.

Бугунги кунда минтақадаги кескин иқтисодий-экологик шароитда қишлоқ хўжалигида тадбиркорликни рағбатлантириш стратегиясини ишлаб чиқиш муаммоси, экологик таъсирини ҳисобга олган ҳолда қишлоқ хўжалиги маҳсулотларидан самарали тақсимотини таъминлашни рағбатлантиришнинг замонавий концепциясини қўллаш имкониятларини тизимли тадқиқ этиш мураккаб илмий-амалий масалалардан ҳисобланади. Ушбу муаммоларнинг назарий ва услубий ечимлари етарли даражада ўрганилмаганлиги мазкур тадқиқот ишимиз йўналишини танлашда асос бўлди.

Ўзбекистон Республикасининг чўл ҳудудларидаги биологик хилмахилликда яйловлардан самарасиз ва тизимсиз фойдаланиш, яйлов ҳосилдорлигини пасайиши, чорва молларини озиклантиришда ресурстежамкор технологияларнинг қўлланилмаслиги, чорвачилик тармоғига хизмат кўрсатиш ва таъминот тизимини пастдаражада ривожланганлиги салбий таъсир кўрсатаётган асосий омиллардан ҳисобланади.

Қоракўлчилик соҳасида ислохотларни янада чуқурлаштириш, яйлов чорвачилиги билан шуғулланаётган наслчилик масъулияти чекланган жамиятлар (МЧЖ), шахсий ёрдамчи, деҳқон ва фермер хўжаликларини ривожлантириш, уларни иқтисодий барқарор фаолият кўрсатишини таъминлаш, чорвадорлар меҳнатини моддий рағбатлантириш мақсадида Ўзбекистон Республикаси Президентининг 2019 йил 28 мартда “Ветеринария ва чорвачилик соҳасида давлат бошқаруви тизимини тубдан такомиллаштириш чора-тадбирлари тўғрисида”ги ПФ-5696-сон фармони, 2018 йил 14 мартда “Қоракўлчилик соҳасини жадал ривожлантириш чора-тадбирлари тўғрисида” ПҚ-3603-сон ва 2019 йил 18 августда “Қоракўлчилик тармоғини комплекс ривожлантириш чора-тадбирлари тўғрисида”ги №4420-сон қарорлари қабул қилинди.

Сўнгги йилларда қоракўлчиликда ишлаб чиқаришни диверсификация қилиш, бозор талабларига мувофиқ маҳсулот ишлаб чиқаришни таъминлаш, хўжаликларни даромадини кўпайтиришга қаратилган замонавий усулларни амалиётга жорий қилиш талаб қилинмоқда.

Тадқиқот жараёнида қоракўлчилик наслчилик МЧЖ фаолиятига ва яйловлардан самарали фойдаланишга таъсир кўрсатаётган омиллар яхлит бир тизимга келтирилиб, тавсифланди.

Қоракўлчилик хўжаликларининг фаолиятига ва яйловлардан самарали фойдаланишга таъсир этувчи омиллар мажмуаси қуйидагилардан иборат:

Институционал омиллар:

- худудий даражада тегишли вазирлик ва идоралар томонидан яйлов чорвачилиги субъектлари фаолиятини бошқаришда уйғунлашган

режалаштириш ва мувофиқлаштириш тадбирларини барқарор механизмлар ёрдамида амалга оширилмаслиги;

- туман хокимликлари, яйлов чорвачилигига ихтисослашган фермер хўжаликларида яқин ва узоқ муддатли ривожлантириш дастурларини ишлаб чиқилмаганлиги;

- маҳаллий давлат органлари, қорақўлчилик наслчилик МЧЖ, чорвачиликка ихтисослашган хўжалик субъектларида экотизимни муҳофаза қилиш, чўлланишни олдини олиш ва бошқа амалдаги қонун талабларига тўлиқ риоя қилмаслик;

- маҳаллий ўз-ўзини бошқариш органлари, қорақўлчилик наслчилик МЧЖ, тармоқ вазирлик ва идораларида қорақўлчилик тармоғини ривожлантириш бўйича молиявий имкониятларнинг етишмаслиги;

- айланма маблағларнинг етишмовчилиги, табиий ресурслардан фойдаланиш самарадорлигининг пастлиги.

Ижтимоий, маданий ва иқтисодий омиллар:

- яйлов чорвачилиги ҳудудларини ижтимоий-иқтисодий ривожлантириш тадбирлари бошқа ҳудудларга нисбатан орқада эканлиги;

- яйлов чорвачилиги ҳудудларида янги доимий ишчи жойларини ташкил этиш имкониятларининг чегараланганлиги;

- яйлов чорвачилиги тармоғига инновацион ишланмалар ва инвестициялар жалб қилиш жозибадорлигини паст даражадалиги;

- яйлов чорвачилиги хўжаликларида замонавий ресурстежамкор илғор тажрибаларни жорий қилинишида хўжалик раҳбарлари ва мутахассис ходимларида касбий малакалари ҳамда кўникмаларнинг паст даражадалиги;

- хўжаликлар бўйича ички-ташқи иқтисодий-шартномавий муносабатларни талаб даражасида амалга оширилмаслиги натижасида меҳнатга қобилиятли аҳолини иш билан тўлиқ банд қилиш имкониятларининг чекланганлиги;

- қорақўлчилик наслчилик МЧЖнинг молиявий-иқтисодий ривожлантириш суръатининг пастлиги пировард натижада маҳаллий фуқароларнинг иқтисодий аҳволига салбий таъсир кўрсатади.

Аҳолининг яшаш даражаси:

- маҳаллий аҳолининг турмуш кечириши ва кундалик ҳаёти учун зарур бўлган эҳтиёжларнинг етишмаслиги;

- маҳаллий аҳолини соғлигини яхшилаш бўйича ижтимоий инфратузилма шохобчалари ва малакали касбга эга мутахассисларнинг етишмаслиги;

- аҳоли орасида меҳнатга қобилиятли фуқаролар, айниқса ёшларни бошқа ҳудудларга кўчиб кетиш суръатининг юқорилиги;

- ижтимоий-демографик таркибда номутаносиблик ҳолатининг мавжудлиги (меҳнатга қобилиятли ёшларни бошқа ҳудудга кетиши, хотин-қизлар ва қишлоқларда кекса кишилар сонининг кўпайиши).

Инфратузилма, хизмат кўрсатиш ва ердан фойдаланиш омили:

- қишлоқ ҳудудларида сув таъминоти ва экологик ҳолатнинг нисбатан ёмонлашаётганлиги;

- қишлоқларда инфратузилма субъектларини, жумладан йўл қурилиши, ирригация, ижтимоий, хизмат кўрсатиш ва таъминот йўналиши соҳаларини паст суръатда ривожланаётганлиги;

- қишлоқ ҳудудларида ижтимоий-иқтисодий соҳаларда хизмат кўрсатиш, жумладан қишлоқ врачлик пунктлари, мактабгача таълим муассасалари, оилавий тадбиркорлик, кичик ва хусусий тадбиркорлик фаолиятларини шохобчаларини паст суръатларда ривожланиши;

- қишлоқларда ахборот-коммуникация технологиялари, замонавий алоқа воситаларидан фойдаланишнинг чегараланганлиги;

- қорақўлчилик наслчилик МЧЖда яйлов ер участкалари, табиий ва бошқа ресурслардан фойдаланиш самарадорлигининг пастлиги;

- қорақўлчилик наслчилик МЧЖда яйлов ерларидан фойдаланишни бошқаришни ва унинг самарадорлигини оширишда уйғунлашган режалаштириш тадбирларини йўқлиги.

Биофизик ва экологик омиллар:

- қорақўлчилик наслчилик МЧЖда отарлар ва яйлов чорвачилиги мавжуд қишлоқ ҳудудларида ичимлик сувининг етишмовчилиги ёки таъминланмаганлиги;

- қорақўлчилик наслчилик МЧЖда яйлов ерларини таназзуликка учраши, биохилмахилликни ривожлантиришга салбий таъсир кўрсатилаётганлиги;

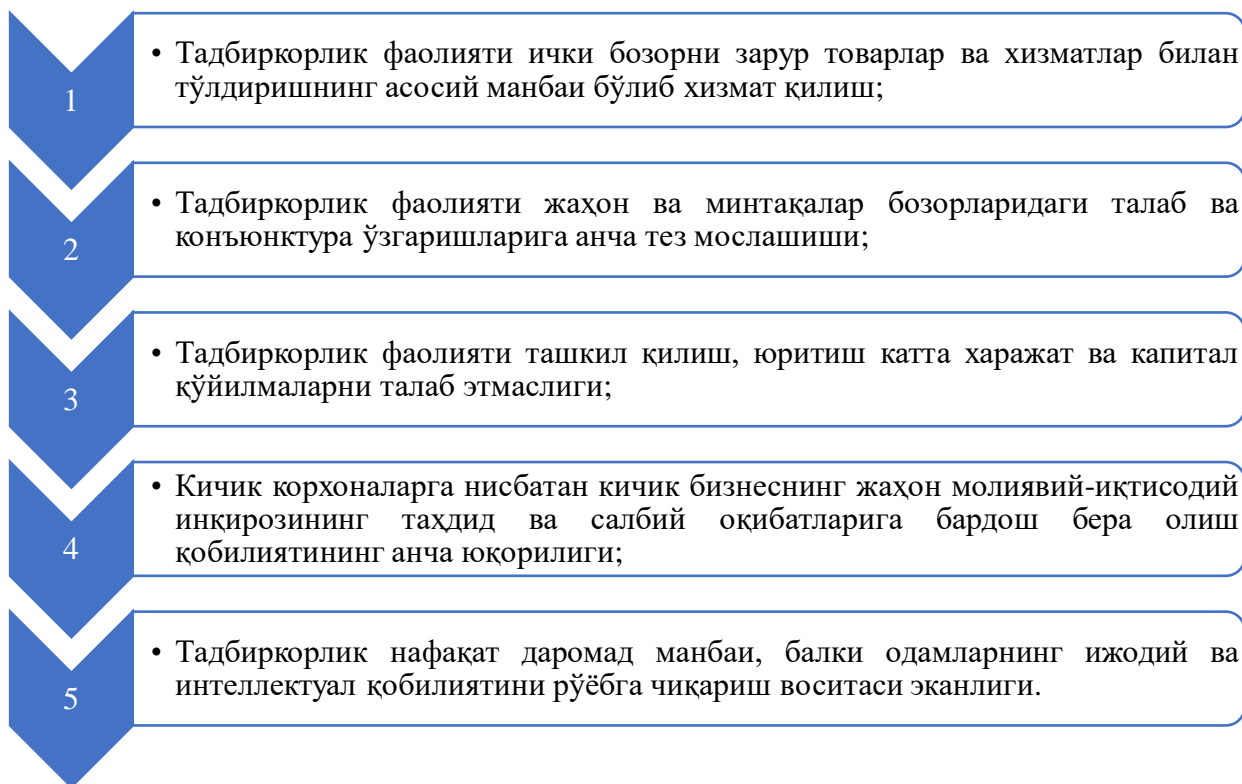
- аҳоли яшайдиган қишлоқ атрофларида ва яйловларда таназзуликка учраган ҳудудлар ҳажмининг кўпаяётганлиги;

- қайтадан тикланадиган ва тикланмайдиган табиий ресурслардан самарасиз фойдаланиш оқибатида атроф-муҳитни ифлосланиш даражасининг кўпаяётганлиги;

- биохилмахиллик ва экотизим бузилганлиги сабабли ўсимликларни нобуд бўлиш ҳолатини кучаяётганлиги;

- инсон омили натижасида табиий ресурсларга қарши салбий таъсир ва босимни кучаяётганлиги.

Тадқиқотлар олиб боришимиз натижасида ривожланган давлатлар тажрибалари шуни кўрсатмоқдаки, тадбиркорлик фаолиятини ривожлантирмасдан туриб бозор иқтисодиётининг барча ички ва ташқи бўғинларини ҳаракатга келтиришнинг имконияти йўқлиги. Амалга оширилаётган иқтисодий ислохотлар ва ривожланган давлатлар тажрибасига таяниб, тадбиркорликни жадал ривожлантиришни устувор йўналиш сифатида белгилашнинг сабабларини кўрсатиб ўтиш мумкин (1-расм).



1-расм. Тадбиркорлик фаолиятини ривожлантиришнинг устувор йўналишлари⁶⁶

Ўзбекистон Республикаси Президентининг 1998 йил 9 апрел кунги “Хусусий тадбиркорлик, кичик бизнесни ривожлантиришни янада рағбатлантириш чора-тадбирлари тўғрисида”ги Фармони. Ҳамда Ўзбекистон Республикаси Вазирлар Маҳкамасининг 1998 йил 27 майдаги “Кичик тадбиркорликни ривожлантиришни рағбатлантириш механизмини такомиллаштириш тўғрисида”ги Қарорлари қабул қилинди. Мазкур қабул қилинган Қарор ва Фармонлар иқтисодий ислохотларни амалга оширишда кичик бизнес ва хусусий тадбиркорликни ривожлантириш учун кенг шароит ва имкониятлар яратишга катта эътибор қаратилди. Фермер ва деҳқон хўжаликлари қишлоқ хўжалиги маҳсулотларини етиштириш, уларнинг қайта ишлаш, сақлаш, тайёр маҳсулотларни сотиш ва хизматлар кўрсатиш каби кўп тармоқли фаолият билан шуғулланишлари мумкин.

Илмий изланишларимизнинг ҳам асосий мақсади ҳозирги кунда республикамиз иқтисодиётини юксалтириш имкониятларидан бири бўлмиш тадбиркорлик фаолиятдан унумли фойдаланишни таъминловчи механизм яратишдан иборат. Илмий тадқиқотларимизнинг асосий моҳияти ҳам ушбу хусусият ва ўзига хослигини ифода этишга алоҳида эътибор беришга ҳаракат қилишдан иборатдир. Қишлоқ хўжалигида фаолият юритаётган кичик тадбиркорлик субъектлари уларнинг ўзига хос алоҳида хусусиятлари ва йўналишлари бўйича қуйидагича тавсифлаш мумкин (2-расм).

⁶⁶ Муаллифларнинг илмий-тадқиқотлари асосида тузилган.



2-расм. Қишлоқ хўжалигида кичик бизнес ва хусусий тадбиркорлик субъектларининг таснифи⁶⁷

Ҳозирги кунда экологик талабларни ҳисобга олувчи механизмларни такомиллаштириш, айниқса кичик бизнес ва хусусий тадбиркорлик фаолиятида атроф муҳитни муҳофаза қилиш борасидаги ҳаракатларни рағбатлантиришларни кучайтириш керак. Шу сабабдан, бизнинг фикримизча, ҳозирги бозор муносабатлари шароитида кичик бизнес субъектларининг экологик талабларига жавоб бериш борасидаги ягона рағбатлантириш механизмларини ҳар бир иқтисодий минтақанинг хусусияти, географик жойлашуви, ижтимоий ва иқтисодий ҳолатини инобатга олиши зарурдир.

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⁶⁷ Муаллифларнинг илмий-тадқиқотлари асосида тузилган

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СОЛИҚ НАЗОРАТИ ВА УНИНГ НАЗАРИЙ АСОСЛАРИ

Аннотация. Мақолада солиқ назоратининг асослари бўйича иқтисодчи олимларнинг тадқиқотлари ўрганилган. Солиқ текшируви шакллари, турлари ҳамда давлат бюджетининг даромадлари таҳлил қилинган ва хулосалар шакллантирилган.

Калим сўзлар: Солиқ, солиқ назорати, солиқ текширувлари, солиқ мониторинги, камерал солиқ текшируви, сайёр солиқ текшируви, солиқ аудит, бюджет даромадлари.

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TAX CONTROL AND ITS THEORETICAL BASIS

Abstract. The article examines the research of economists on the basics of tax control. The forms and types of tax audits and state budget revenues are analyzed and conclusions are made.

Key words: Tax, tax control, tax audits, tax monitoring, desk tax audit, on-site tax inspectorate, tax audit, budget revenues.

Кириш. Мамлакатимизни янгилаш ва модернизация қилиш шароитида солиқ соҳасидаги ислохотларни амалга ошириш ва солиқ муносабатларини такомиллаштириш, солиқ назоратининг шакллари ва уларнинг амал қилиш ҳолатини илмий таҳлил қилиш муҳим ва долзарб муаммоли масалалардан бири ҳисобланади.

Солиқ назорати давлат ва жамият ҳаётида жуда муҳим ўрин тутаяди, чунки унинг воситасида давлат олдида турган иқтисодий-ижтимоий вазифаларнинг бажарилишини таъминлаш учун зарур бўлган моддий-молиявий ресурслар жамланади, яъни ички маҳсулотнинг зарур қисми давлат ва жамият эҳтиёжлари учун ажратилади.

Дунё мамлакатлари рақамли иқтисодиётга ўтаётган шароитда солиқ назорати солиқ тўловчилар томонидан солиқ мажбуриятларининг бажарилиши тўғрисидаги маълумотларни таҳлил қилиш ва таққослаш қўшимча солиқлар, жарималар ва пенялар шаклидаги бюджетга қўшимча тўловларни ундириш имконини берувчи ҳамда бу орқали солиқ қонунчилиги бузилишининг олдини олиш ёки минималлаштиришни

таъминлайдиган турли рақамли ахборот комуникация технологияларини кенг жорий этиш ва қўллашга асосланади.

Солиқ назорати мамлакатдаги назорат тизимининг ажралмас таркибий қисми бўлиб ҳисобланади ва шу сабабли солиқ қонунларига риоя этилишига эришишни таъминлаш қонунчиликни мустаҳкамлаш, ҳуқуқ тартиботига риоя этилишига эришишни англатади.

Солиқ назоратига меъёрий ҳужжатлар ва илмий тадқиқот ишларида турли мазмунда таърифлар берилган ва эътироф этилган.

Солиқ назоратининг аҳамиятини Э.Н.Голик ва А.Г.Асатрян ўз тадқиқотларида қуйидагича эътироф: “сўнги йилларда солиқ тўлашдан бўйин товлашнинг асосий мақсадини кўзловчи турли “кулранг” схемаларни амалий қўллаш муҳим аҳамият касб этади. Ушбу муаммони ҳал қилиш солиқ назоратини амалга ошириш орқали таъминланади, у давлат томонидан тартибга солишнинг шакллари ва усуллари тизими сифатида ишлайди ва Россия хавфсизлигини нафақат ҳуқуқий, балки иқтисодий характердаги чора-тадбирлар орқали таъминлайди” [1].

А.С.Адвокатова солиқ назоратига қуйидагича таъриф берган: “солиқ назорати, солиқ маъмуриятчилиги тизимининг ажралмас қисми сифатида жамиятнинг барча жавҳаларида давлат олдида турган муаммоларни ҳал этишни таъминлайдиган давлатнинг молиявий ресурсларини энг самарали шакллантириш, тақсимлаш ва улардан фойдаланишнинг ҳуқуқий механизмини такомиллаштириш учун йўналишлар ва йўлларни таъминлайдиган давлатнинг молиявий сиёсатини амалга оширади” [2].

Т.А.Ефремованинг таъкидлашича, “самарали солиқ назоратини ташкил этишнинг биринчи навбатдаги шарти эса солиқ ва бухгалтерия ҳисоботларини электрон тарзда тақдим этишнинг замонавий илғор ахборот-технологик тизимга асосланган солиқ назорати ҳисобланади [3].

Ўзбекистон Республикаси солиқ Кодексининг 135-моддасида солиқ назорати қуйидагича эътироф этилган: “ваколатли органларнинг солиқ тўловчилар ва солиқ агентлари томонидан солиқ тўғрисидаги қонун ҳужжатларига риоя этилиши устидан назорат қилишга доир фаолият солиқ назоратидир” [4].

Л.И.Гончаренко., Ю.В.Малкова., А.С.Адвокатоваларнинг фирича, солиқ назорати учун рақамли технологиялардан фойдаланиш мақсадлари қуйидагилар: - солиқ тўловчиларнинг йўқотишларини камайтириш; - солиқ назорати тизимининг назарий ва амалий асосларини такомиллаштириш; - қулай солиқ муҳитини яратиш мақсадида модернизация қилиш; - таҳлилий аппаратни такомиллаштириш [5].

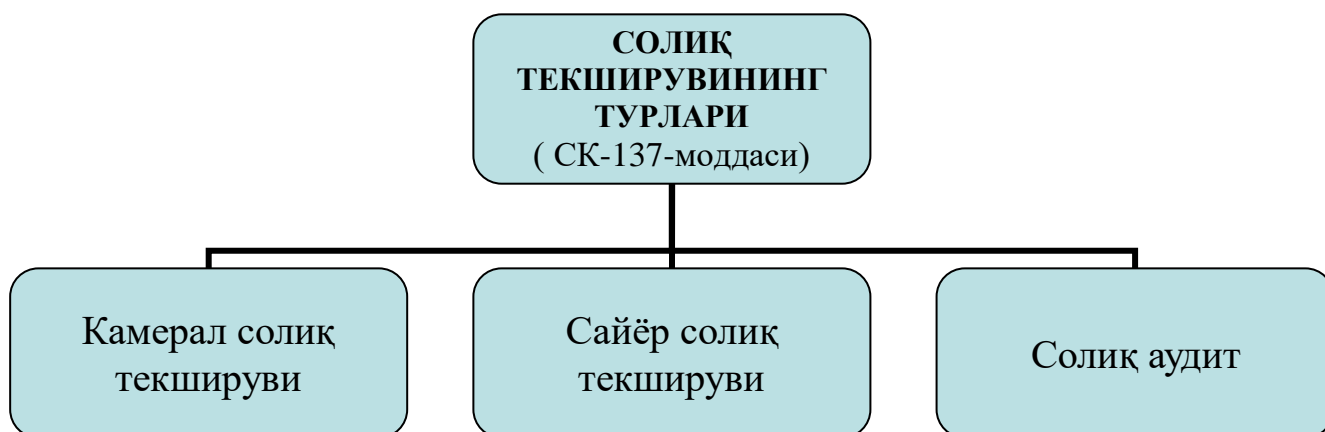
Ф.А.Акрамовнинг таъкидлашича, “мамалакатимизда молиявий назоратни халқаро амалиётга яқинлаштириш, молиявий ҳисобот ва аудитнинг халқаро стандартларига мослаштириш борасида ишлар фаол олиб борилмоқда. Солиқ назорати жаҳон амалиётида ҳам, мамалакатимизда ҳам молиявий назорат турларидан бири ҳисобланади” [6].

А.Тагаев., Ф.Хашиматов., Ғ.Рўзиев., К.Хотамовлар таъкидлашларича, “солиқ назорати солиққа тортиладиган субъектлар ва объектларни ҳисобга олишнинг, шунингдек солиқ тўғрисидаги қонун ҳужжатларига риоя этилишини назорат қилишнинг ягона тизимидан иборат” [7].

Ўзбекистон Республикаси солиқ Кодексига асосан солиқ назорати шакллари ва турлари мавжуд: (1-расм)



1-расм. Солиқ назорати шакллари.



2-расм. Солиқ текшируви турлари

Солиқ назоратининг асосий вазифаси солиқ ва йиғимларни ўз вақтида, белгиланган ҳажмда йиғилишини таъминлаш йўли билан давлат бюджети даромадларини шакллантиришдан иборат (1-жадвал)

1-жадвал

Ўзбекистон Республикаси Давлат бюджети даромадлари 2021-2023 йилнинг ижроси. млрд сўм

| № | Солиқ турлари | 2021 йил | 2022 йил | 2023 йил |
|---|-------------------|----------|----------|----------|
| I. ДАРОМАДЛАР (МАҚСАДЛИ ЖАМҒАРМАЛАРСИЗ) - ЖАМИ | | 164 799 | 202 043 | 231 721 |
| 1. | Бевосита солиқлар | 58 930 | 64 447 | 73 104 |
| 1.1 | Фойда солиғи | 38 363 | 37 650 | 40 779 |
| 1.2 | Айланмадан солиқ | 1 649 | 2 513 | 2 407 |

| | | | | |
|-----|---|--------|----------|----------|
| 1.3 | Жисмоний шахслардан олинадиган даромад солиғи | 18 918 | 24 285 | 29 917 |
| 2. | Билвосита солиқлар | 56 290 | 71 390 | 83 326 |
| 2.1 | Қўшилган қиймат солиғи | 38 439 | 52 189 | 57 885 |
| 2.2 | Акциз солиғи | 13 087 | 13 455 | 15 834 |
| 2.3 | Божхона божи | 4 765 | 5 746 | 9 606 |
| 3. | Ресурс тўловлари ва мулк солиғи | 23 036 | 23 913 | 28 079 |
| 3.1 | Мулк солиғи | 2 457 | 4 015 | 5 098 |
| 3.2 | Ер солиғи | 4 083 | 5 306 | 6 890 |
| 3.3 | Ер ости бойликларидан фойдаланганлик учун солиқ | 15 812 | 13 887,0 | 15 300,0 |
| 3.4 | Сув ресурсларидан фойдаланганлик учун солиқ | 684 | 704 | 791 |
| 4. | Бошқа даромадлар | 26 542 | 42 293 | 47 212 |

1-жадвал маълумотларидан кўриниб турибдики, солиқлар давлат бюджети даромадларини, яъни, мақсадли жамғармаларсиз 2021 йида 164799 млрд сўмни, 2022 йилда 202043 сўмни, 2023 йилда эса 231721 млрд сўмни ташкил этган.

Хулоса қилиб айтадиган бўлсак, солиқ назорати соҳасида амалга оширалаётган ўзгаришлар солиқлар ва йиғимларни ундириш даражасини ошириш, юқори маданиятини шакллантириш ва давлатнинг иқтисодий хафсизлигини мустаҳкамлашга, шунингдек, энг муҳими давлат бюджетига даромадларини шакллантирувчи солиқ тушумларининг барқарорлигини таъминлашга хизмат қилади.

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ЎЗБЕКИСТОНДА КОРХОНАЛАР КЎЧМАС МУЛКЛАРИДАН ОЛИНАДИГАН СОЛИҚЛАР ҲИСОБИ

Аннотация: Ушбу мақолада давлат бюджети даромадларини тўлдиришида кўчмас мулкларнинг иқтисодий аҳамияти, кўчмас мулкка солиқ солиши мулкнинг рақобатбардошлигини ошириб, солиқ солиши базасини белгилашдаги муҳим ўринга эга эканлиги ва улар ҳисобини тўғри ташкил этишининг аҳамияти, бухгалтерия ҳисоби миллий стандартлари ҳамда халқаро стандартлар асосида мол-мулк солиғи ҳисобини юритишдаги алоҳида хусусийатлари очиқ берилган.

Калим сўзлар: Кўчмас мулк, маҳаллий солиқ, мулкнинг бозор қиймати, кўчмас мулк, кадастр қиймати, шахсий карточка, бино, ер участкаси, иншоот, ҳисоб, назорат, таҳлил, кўчмас мулк ҳисоби, бухгалтерия вазифалари.

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ACCOUNT OF TAXES RECEIVED FROM REAL ESTATE OF ENTERPRISES IN UZBEKISTAN

Abstract: In this article, the economic importance of real estate in supplementing state budget revenues, the fact that real estate taxation increases the competitiveness of property and has an important role in determining the taxation base, and the importance of properly organizing their accounts, the calculation of property tax based on national accounting standards and international standards special features in the management are disclosed.

Keywords: Real estate, local tax, market value of property, real estate, cadastral value, personal card, building, plot of land, structure, account, control, analysis, real estate accounting, accounting tasks

Kirish. Ўзбекистон Республикаси Президентининг 2017 йил 7 февралдаги «Ўзбекистон Республикасини янада ривожлантириш бўйича ҳаракатлар стратегияси тўғрисида» ги ПФ-4947-сонли Фармони маҳаллий бюджетлар даромадлари базасини кенгайтириш масалалари ёритиб берилган асосий ҳужжатлардан бири ҳисобланади (1).

Ўзбекистон Республикаси Президенти Ш.М.Мирзиёевнинг 2018 йил 29 июнда «Ўзбекистон Республикасининг солиқ сиёсатини такомиллаштириш концепцияси тўғрисида» ПФ-5468-сонли Фармонини имзолаб,

унда солиқ соҳаси олдида турган бир қатор долзарб муаммоларни санаб ўтди (2).

Фармонда еттинчи муаммо сифатида қуйидагиларни эътироф этди:

«...Маҳаллий солиқ ва йиғимларнинг маъмуриятчилиги механизмларининг самарасизлиги оқибатида уларнинг йиғилувчанлик даражаси етарли эмаслиги, шунингдек, кўчмас мулк ва ер участкаларини тўлиқ ҳисобга олиш ва қийматини объектив аниқлашнинг имкони мавжуд эмас.»

Кўчмас мулкни тасарруф этиш ва ундан оқилона фойдаланиш кўчмас мулкларнинг иқтисодий аҳамиятини белгилаб беради.

Маҳаллий бюджет даромадлари базасини ташкил этишда кўчмас мулкларнинг иқтисодий аҳамияти юқори бўлиб, даромад манбаидан бири ҳисобланади.

Дарҳақиқат Маҳаллий солиқ ва йиғимларнинг маъмуриятчилиги механизмларининг самарасизлиги оқибатида уларнинг йиғилувчанлик даражаси етарли эмаслиги бу соҳада тегишли чора-тадбирларини амалга ошириш, бунда илмий таклиф ва амалий тавсияларни ишлаб чиқиш ҳамда кенг қўллаш орқали ушбу масалага тизимли ёндашиш кераклигини тақозо этади.

Янги Ўзбекистон иқтисодиётни исчил ривожлантришда солиқ тушмларнинг ўрни бекиёсдир. Солиқ тушмлари мамлакат бюджетни асосий қисмни ташкил этмоқда. Ўзбекистонда кўчмас мулкни баҳолаш, бухгалтерия ҳисобини ташкил этиш ва амалиётга МҲХСларини қўллаш, кўчмас мулк объектларини солиққа тортишни такомиллаштириш муҳимлигини белгилайди. Кўчмас мулк объектларини баҳолашда бозор қийматига яқин бўлган кадастр қийматини ҳисоблашнинг аниқ методикаси ишлаб чиқилмаганлиги, солиққа тортиладиган кўчмас мулк объектларининг рўйхати тўлиқ шаклланмаганлиги, уларнинг молиявий ҳисобини ташкил этишда МҲХСлар амалиётда тўлиқ қўлланилмаётганлиги долзарб масала ҳисобланади.

Давлат кучли ижтимоий-сиёсий тадбирларни амалга ошириш учун пенсионерлар, талабалар, кўп болали оналар ва бошқаларни маблағ билан таъминлаш зарурлигини англаб, айрим чекланган товарлар баҳосидаги фарқни бюджет ҳисобидан қоплайди ва ундан ташқари маҳаллаларда ижтимоий ҳимояга муҳтож кам таъминланганларга моддий ёрдамлар кўрсатади. Шу билан бирга, давлат жамият аъзолари осойишталигини сақлаш мақсадида ўзининг мудофаа қобилятини сақлаб ва мустаҳкамлаб туришга ҳам маблағлар сарфлайди, қолаверса, давлат фуқаролар хавфсизлигини сақлаш, мамлакатда тартиб-интизом ўрнатиш, уни бошқариш функцияларини бажариш учун ҳам кўплаб маблағ йўналтиришга мажбурдир. Бундай ҳаражатларни амалга оширишнинг мажбурийлиги улар учун манба бўлган солиқларни объектив зарур қилиб қўяди.

Mavzuga oid adabiyotlar tahlili. Янги Ўзбекистон шароитида солиқ сиёсатининг устувор йўналишлари сифатида бюджет даромадларини ошириш, солиққа тортиш маъмуриятчилигини такомиллаштириш орқали маҳаллий бюджет даромадлари базасини кенгайтириш, солиқларни унификация қилиш қаралади. Жумладан, мол-мулк ва ер солиқлари давлат бюджетининг асосий қисмини ташкил этмасда бироқ давлат бюджетини шакллантиришда ўз ўрнига эга. Ер ва молмулкни солиққа тортиш тизими азалдан мавжуд бўлиб иқтисодий соҳа олимлари уни солиққа тортиш бўйича турли хил қарашларини ифода этиб келганлар.

Жумладан, Физиократлар таълимотининг асосчиси Франсуа Кэне (1694–1774) Давлат харажатларини қоплашнинг йўналишларидан

- ер эгаларидан олинадиган солиқ;

- уй ёки кўчмас мулкни ижарага беришдан олинган даромадларини солиққа тортиш орқали давлат харажатларини қоплаш йўлларида бири сифатида эътироф этди.

Ушбу фикрга биз ҳам қўшиламыз ва бу амалиёт Ўзбекистон Республикасининг ҳар йилги давлат бюджети параметрларида ўз аксини топмоқда.

Россиялик олимлардан Дрожжина И.А. ўзининг қарашларида юридик шахсларнинг мол-мулк солиғи, жисмоний шахслардан олинадиган мол-мулк солиғи ва ер солиғини бирлаштириб кўчмас мулк солиғи жорий этишни таклиф қилган (3).

Михина Е.В. ўзининг қарашларида кўчмас мулк солиғини жорий қилишнинг маҳаллий бюджет даромадлари базасига таъсирини таҳлил қилиб тегишли тавсияларни берган (4).

Ўзбек олимларидан Ниязметов Исламбек Машарипович ҳам бу борада фикр юритиб мол-мулк солиғи объекти таркибида фақат кўчмас мулк объектларини қолдириб, уни ер солиғи билан бирлаштириб юридик ва жисмоний шахслар учун бир хил тартибда амал қиладиган кўчмас мулк солиғига босқичма-босқич ўтиш таклифини илгари сурган(5). Биз ҳам юқоридаги айтилган фикрга қўшилган ҳолда кўчмас мулк солиғини босқичма-босқич жорий этиш, юридик шахслар учун мол-мулк солиғини белгилашда ўртача йиллик қолдиқ қиймат, жисмоний шахслар учун кадастр ёки (бозор) нархига яқин нархда белгилаш тизимини ривожлантириш лозимлигини таъкидламоқчимиз.

Ўзбекистон Республикаси давлат бюджети даромадларининг асосий кўрсаткичлари куйидаги 1-жадвалда кўришимиз мумкинки давлат бюджетига мол-мулк солиғи 2023-йил 31 декабр ҳолатига 2022-йил 31 декабр ҳолатига қараганда ўсиш бўлган бундан ташқари бюджетимизнинг 12 % ресурс тўловлари ва мол-мулк солиқларидан келиб тушади ва бу кўрсаткич 2022 йилга нисбатан 117 % га ўсганлигини кўриш мумкин. Хусусан, кичик бизнес ва хусусий тадбиркорлик мамлакатимиз иқтисодиётининг асосий бўғини ҳисобланиб, бугунги кунда мазкур соҳани

жадаллик билан ривожлантириш, тадбиркорлар фаолиятини кўллаб-қувватлаш, уларнинг сафини янада кенгайтириш ва рағбатлантириш бўйича кенг кўламли ишлар амалга ошириляпти. Жумладан, 2024 йил 1 апрель ҳолатига республикада фаолият кўрсатаётган корхона ва ташкилотларнинг сони фермер ва деҳқон хўжаликларидан ташқари 469,1 мингтани ташкил этди, улардан кичик корхона ва микрофирмалар 401,3 мингта. Шунингдек, ушбу даврга 695,9 мингта корхона рўйхатдан ўтиб, ўтган йилнинг мос даврига нисбатан ўсиш суръати 107,0 фоизни ташкил этганлигини статистик маълумотлардан кўриш мумкин.

1-жадвал

Ўзбекистон Республикаси давлат бюджети даромадларининг асосий кўрсаткичлари 2022-2023 йилар (млрд сўмда)⁶⁸

| № | Солиқ турлари | 2022 йил ҳолатига тушми | 2023 йил ҳолатига тушми | Ўлуши (фойизда) | Ўсиш сурати |
|---|-------------------------------------|-------------------------|-------------------------|-----------------|--------------|
| 1 | Бевосита Солиқлар | 64 447,1 | 73 103,6 | 32 | 113 |
| 2 | Билвосита Солиқлар | 71 390,2 | 83 325,8 | 36 | 117 |
| 3 | Ресурс тўловлари ва мол-мулк солиғи | 23 912,8 | 28 079,5 | 12 | 117 |
| 4 | Бошқа даромадлар | 42 113,7 | 47 212,5 | 20 | 112 |
| | Бюджет тушмлари жами | 201863.8 | 231721.4 | 100 | 114.8 |

Президент Шавкат Мирзиёевнинг 2024 йил 19 октябрдаги Тошкент вилоятидаги йиғилишида ҳам фойдаланилмай бўш туган 72 000 кв бўлган 70 та кўчмас мулкни сотиш кераклигини айтиб ўтгани ва энг муғими бу объектларнинг нархини тушириш ҳамда корхоналарга беш-ўн йилга бўлиб-бўлиб тўлашга берилишини айтиб ўтди. Бу эса корхоналар томонидан ишчи ўринлари яратилишини этироф этди.⁶⁹ Бу эса келгусида корхоналар балансида яна умумий қиймати 72000 кв бўлган 70 кўчмас мулк қўшилади деганидир.

Корхоналар тўлайдиган мол-мулк солиғини ҳисоблашда 2 та кўрсаткич асос қилиб олинади:

- Солиқ базаси
- Солиқ ставкаси

Корхоналарнинг мол-мулкига солинадиган солиқ базаси кўчмас мулкнинг ўртача йиллик қолдиқ қиймати ҳисобланади.

⁶⁸ O'zbekiston Respublikasi Iqtisodiyot va moliya vazirligi huzuridagi Soliq qo'mitasi

⁶⁹ <https://www.youtube.com/watch?v=fekIMCkhAN0>

Кўчмас мулкнинг қолдиқ қиймати ушбу мол-мулкнинг бошланғич (тикланиш) қиймати билан солиқ тўловчининг ҳисоб сиёсатида белгиланган усуллардан фойдаланилган ҳолда ҳисоблаб чиқилган амортизация миқдори ўртасидаги фарқ сифатида аниқланади.

Ўзбекистон Республикаси норезидентларининг кўчмас мулк объектлари бўйича солиқ базаси мазкур объектларга бўлган мулк ҳуқуқини тасдиқловчи ҳужжатларда кўрсатилган қиймат асосида аниқланади.

Мол-мулк солиғининг солиқ базаси ҳар бир солиқ солиш объекти бўйича алоҳида аниқланади.

Солиқ ставкаси эса ҳар йили бюджет параметрларида кўрсатилган қиймат ҳисобланади.

Ушбу мақсадларини амалга ошириш ва кохоналардаги кўчмас мулклардан қанча тўланаётганлиги ҳамда уланинг самаадорлигини таҳлил қилиш мақсадида бухгалтерия ҳисоби счётининг 6420 “Кўчмас мулклардан тўланадиган мол-мулк солиғи ” счётида алоҳида юритилиши мақсадга мувофиқдир.

Чунки ҳозиги кунда корхоналада тўланадиган барча солиқлар 6410 “Бюджетга тўловлар бўйича қарз” счётида олиб борилмоқда ва бу ахборот фойдаланувчиларининг аксарият ҳолларда корхона томонидан тўланган солиқлар ҳақида аниқ маълумотларга эҳтиёжларнинг мавжудлиги кўриш қийин эмас.

Солиқ тўловчи томонидан солиқни тўлаш назарда тутилмаган фаолият турлари амалга оширилган тақдирда, солиқ базаси солиқ солинадиган ва солиқ солинмайдиган мол-мулк ҳисобини алоҳида-алоҳида юритиш асосида аниқланади. Алоҳида-алоҳида ҳисоб юритишнинг имкони бўлмаса, солиқ базаси солиқ тўланиши назарда тутилган фаолиятдан олиннадиган соф тушумнинг жами соф тушум ҳажмидаги улушига қараб аниқланади.

Фикримизча, Бугунги кунда юридик ва жисмоний шахслар эгаллигидаги мол-мулк ва ер солиқларини ҳисобга олишда, белгиланган тартибда солиқлар ҳисобланишида, имтиёзлар қўллашда ва бошқа бир қатор солиқ элементларини ҳисобга олишда такрорланишлар ва ер солиғи ҳисоблашнинг мураккаблиги мавжудлиги солиқ тўловчилар учун қийинчилик ва муаммолар мавжуд.

Шу жумладан:

- Бир объект учун иккита шахсий карточка юритилиши;
- Бир объект учун иккита ҳисоб рақамга тўловлар қилиниши;
- Солиқ тўловчилар битта объект учун иккита ҳисоб рақамга тўловларни тўлаши.

Татқиқотлар натижасида қуйидагиларни таклиф қиламиз:

1. Ривожланшган давлатлар тажрибасидан келиб чиқиб, мол-мулк ва ер солиқларини бирлаштириб кўчмас мулк солиғини жорий этиш. Натижасида солиқни ҳисоблаш механизми соддалашади ва адолатлилик,

шаффофлик принциплари таъминланади. Уларнинг ҳисобини юритиш, тўлавлар жараёнлари соддалашди.

2. Мулкдорларга тегишли бўлган ортиқча шахсий карточкалар камаяди.

3. Мулкдорларга тегишли бўлган мол-мулк ёки ер солиғидан қарздорлик мавжуд ортиқча тўловлар ҳисобидан камаяди.

4. Солиқни тўлаш механизми янада соддалашади.

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ИСПОЛЬЗОВАНИЕ СОВРЕМЕННЫХ ТЕХНОЛОГИЙ В КОМПЬЮТЕРНОЙ ГРАФИКЕ

***Аннотация:** В статье рассматриваются основные методы и программные средства для выполнения графических работ на компьютере. Компьютерная графика, включая 2D и 3D моделирование, нашла широкое применение в таких областях, как дизайн, архитектура, инженерия и развлечения. Рассмотрены популярные программы, такие как Adobe Photoshop, CorelDRAW, AutoCAD и Blender, и их роль в создании графических проектов. Описаны методы работы с растровой и векторной графикой, а также преимущества использования специализированных программ для различных типов графических задач. В исследовании подчеркивается важность выбора подходящих инструментов для повышения эффективности и качества графических работ.*

Ключевые слова

компьютерная графика, 2D графика, 3D моделирование, Adobe Photoshop, CorelDRAW, AutoCAD, Blender, растровая графика, векторная графика, графический дизайн, анимация.

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USING MODERN TECHNOLOGIES IN COMPUTER GRAPHICS

***Abstract.** The article discusses the main methods and software for performing graphic work on a computer. Computer graphics, including 2D and 3D modeling, have found wide application in such areas as design, architecture, engineering and entertainment. Popular programs such as Adobe Photoshop,*

CorelDRAW, AutoCAD and Blender and their role in creating graphic projects are considered. Methods of working with raster and vector graphics, as well as the advantages of using specialized programs for various types of graphic tasks are described. The study emphasizes the importance of choosing the right tools to improve the efficiency and quality of graphic work.

Keywords. *Computer graphics, 2D graphics, 3D modeling, Adobe Photoshop, CorelDRAW, AutoCAD, Blender, raster graphics, vector graphics, graphic design, animation.*

Введение

Компьютерная графика в последние десятилетия стала одной из ключевых технологий, используемых в самых разных отраслях. Она охватывает процессы создания, редактирования и отображения визуальной информации с помощью компьютера. В сфере дизайна, архитектуры, инженерии, киноиндустрии, видеоигр и научных исследований графические технологии играют важную роль, позволяя создавать как простые 2D изображения, так и сложные 3D модели и анимации.

Современные программные средства для работы с графикой предлагают обширные возможности для визуализации и моделирования. Программы, такие как **Adobe Photoshop, CorelDRAW, AutoCAD и Blender**, стали незаменимыми инструментами для дизайнеров, инженеров и художников. С их помощью можно создавать как растровые, так и векторные изображения, а также строить сложные трехмерные объекты и сцены.

Современные технологии играют ключевую роль в развитии компьютерной графики, предлагая широкие возможности для визуализации и моделирования объектов, создания чертежей и анимаций. Эти технологии находят применение в самых разных сферах — от образования и науки до промышленности, архитектуры и развлечений.

Одним из важных направлений использования современных технологий в компьютерной графике является **трёхмерное моделирование (3D)**. С помощью программ, таких как Blender, Autodesk 3ds Max, SketchUp, можно создавать детализированные 3D-модели зданий, объектов, технических устройств и даже анимационных персонажей. 3D-моделирование позволяет будущим учителям технологического образования наглядно представлять сложные технические объекты и процессы, что значительно упрощает их объяснение ученикам.

Визуализация данных — ещё одна важная область, где используются современные графические технологии. Программы, такие как MATLAB и AutoCAD, позволяют не только создавать чертежи, но и визуализировать большие объёмы информации в виде графиков, схем, диаграмм. Это облегчает процесс анализа данных и способствует их наглядному представлению в образовательной и профессиональной деятельности.

Важным трендом является **использование искусственного интеллекта (ИИ)** в графике. Технологии ИИ помогают автоматизировать многие процессы, например, создавать реалистичные изображения, улучшать качество изображений с низким разрешением, а также оптимизировать работу с 3D-моделями. Будущие учителя могут использовать ИИ-инструменты для создания наглядных учебных материалов и визуализации сложных инженерных решений.

Дополненная (AR) и виртуальная реальность (VR) также активно развиваются и находят применение в сфере образования. С их помощью можно создавать интерактивные учебные материалы, позволяющие студентам и школьникам погружаться в виртуальные миры для изучения сложных процессов и объектов. Например, в учебных лабораториях можно использовать виртуальную реальность для моделирования технических процессов, что делает обучение более увлекательным и эффективным.

Таким образом, современные технологии в компьютерной графике открывают новые горизонты для подготовки учителей технологического образования, обеспечивая их инструментами для создания наглядных учебных материалов, визуализации данных и проектирования сложных объектов. Их использование способствует повышению качества преподавания и делает учебный процесс более интерактивным и интересным.

Потребность в компьютерной графике постоянно растет, так как она позволяет улучшить визуализацию данных, ускорить рабочие процессы и добиться высокого уровня точности и реалистичности. В данной статье рассматриваются основные технологии, методы и программы, которые используются для выполнения графических работ, а также их практическое применение в различных областях.

Материалы и методы (Methods and Materials)

Для исследования были проанализированы различные программные средства, используемые в области компьютерной графики, такие как:

Adobe Photoshop — программа для создания и редактирования растровых изображений;

CorelDRAW — программное обеспечение для создания и работы с векторной графикой;

AutoCAD — программа для инженерной графики и создания чертежей;

Blender — инструмент для 3D-моделирования, анимации и рендеринга.

Изучены методы выполнения графических работ, включая создание двумерных (2D) и трёхмерных (3D) объектов, а также технологии их обработки и визуализации.

Результаты

Анализ использования различных программ для выполнения графических работ показал, что каждая из них обладает уникальными возможностями и эффективно решает конкретные задачи. Результаты исследования включают следующие ключевые выводы:

2D графика:

Adobe Photoshop и CorelDRAW зарекомендовали себя как наиболее эффективные инструменты для создания и редактирования двумерных изображений.

Adobe Photoshop отлично подходит для обработки фотографий и работы с растровыми изображениями. Программа предоставляет широкий набор инструментов для ретуширования, коррекции цветов и наложения эффектов. Она также эффективна для создания рекламных материалов и художественных работ.

CorelDRAW показал высокую производительность при работе с векторной графикой. Векторные иллюстрации, созданные в CorelDRAW, легко масштабируются без потери качества, что делает эту программу незаменимой в области полиграфии, рекламного дизайна и создания логотипов.

3D графика:

Программы для трёхмерного моделирования, такие как Blender и AutoCAD, продемонстрировали высокие результаты в создании сложных 3D объектов.

Blender был использован для моделирования и анимации трёхмерных сцен. Программа позволяет создавать сложные геометрические формы, текстуры, анимации и визуальные эффекты. Blender также обладает мощным рендеринг-движком, что обеспечивает высокое качество финальных изображений и видео.

AutoCAD продемонстрировал свою незаменимость в инженерных и архитектурных задачах. Благодаря точным инструментам для создания чертежей и трёхмерных моделей, AutoCAD стал основным инструментом в проектировании зданий, механизмов и инженерных конструкций. Программа обеспечивает высокую точность и детализацию, что важно в профессиональной среде.

Редактирование и визуализация:

Редактирование изображений и визуализация моделей прошли успешно благодаря широкому спектру возможностей Adobe Photoshop и Blender. Photoshop был использован для постобработки изображений, что позволило улучшить качество и внешний вид графических объектов. Blender предоставил отличные возможности для рендеринга 3D моделей, обеспечивая фотореалистичное качество визуализации.

Таким образом, результаты показали, что выбор программного обеспечения играет ключевую роль при выполнении графических работ.

Каждая программа обладает своими сильными сторонами и подходит для выполнения специфических задач.

Обсуждение (Discussion)

Полученные результаты подтверждают, что выбор программного обеспечения играет важную роль при выполнении графических работ. В зависимости от конкретной задачи, выбор инструмента может значительно влиять на качество и скорость выполнения работы. Например, Adobe Photoshop является незаменимым инструментом для обработки растровой графики и фотографий, тогда как CorelDRAW обеспечивает высокую точность при создании векторных иллюстраций. Blender, в свою очередь, позволяет создавать сложные трёхмерные сцены и анимации, что делает его популярным выбором среди 3D-художников и аниматоров. AutoCAD продолжает оставаться основным инструментом для точных инженерных чертежей и технической графики.

Заключение

Компьютерная графика сегодня является неотъемлемой частью множества отраслей, от дизайна и архитектуры до инженерии и киноиндустрии. В ходе исследования было выявлено, что использование специализированного программного обеспечения, такого как **Adobe Photoshop**, **CorelDRAW**, **AutoCAD** и **Blender**, значительно упрощает выполнение графических задач, обеспечивая высокую точность и профессиональное качество.

Программы для 2D графики, такие как Photoshop и CorelDRAW, оказались наиболее эффективными для работы с растровыми и векторными изображениями. Photoshop идеально подходит для редактирования фотографий и создания рекламных материалов, тогда как CorelDRAW более предпочтителен для создания масштабируемых векторных иллюстраций, особенно в полиграфии и бренд-дизайне.

Для задач 3D моделирования и анимации наилучшие результаты были получены с использованием Blender и AutoCAD. Blender обеспечивает высококачественную анимацию и визуализацию, что делает его популярным в творческих индустриях, а AutoCAD остается ведущим инструментом для точного проектирования и создания инженерных чертежей.

Таким образом, правильный выбор программного обеспечения и его грамотное использование играют решающую роль в успехе выполнения графических работ. Эти инструменты не только расширяют творческие возможности, но и ускоряют рабочие процессы, делая их более эффективными и качественными.

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СОВРЕМЕННЫЕ НАУКИ И ОБРАЗОВАНИЕ:

УДК-37

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ОБУЧЕНИЕ И ПРЕПОДАВАНИЕ В ЦИФРОВОМ ОБЩЕСТВЕ С ИСПОЛЬЗОВАНИЕМ ЦИФРОВЫХ ИНСТРУМЕНТОВ

Аннотация. В статье рассмотрена проектная форма обучения студентов как способ повышения их мотивации. Роль цифровых инструментов в обучении и преподавании. Наше общество и деловая жизнь в высшей степени цифровизованы, но образовательные организации только делают первые шаги, чтобы стать цифровыми. При этом оцифровка преподавания и обучения не может быть достигнута путём покупки компьютеров, планшетов или интерактивных досок. Каким бы нелогичным это ни казалось, бездумно приобретённое технологическое оборудование часто оказывается препятствием, замедляющим цифровизацию.

Ключевые слова: информационные технологии, инновационное образование, образовательный процесс, интерактивные методы.

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LEARNING AND TEACHING IN A DIGITAL SOCIETY USING DIGITAL TOOLS

Abstract: The article discusses the project-based form of teaching students as a way to increase their motivation. The role of digital tools in learning and teaching. Our society and business life are highly digitalized, but educational organizations are only taking their first steps to become digital. At the same time, the digitalization of teaching and learning cannot be achieved by purchasing computers, tablets or interactive whiteboards. No matter how illogical it may seem, thoughtlessly purchased technological equipment often turns out to be an obstacle that slows down digitalization.

Key words: information technology, innovative education, educational process, interactive methods.

В этой статье подробно описываются и объясняются некоторые из наиболее заметных социальных изменений, вызванных цифровыми

технологиями. Для описания основных социальных сил, сформировавших общество, используются различные названия. В то время как в прошлом веке доминировала индустриализация, последние десятилетия часто называют "информационным" или "обществом знаний" в той мере, в какой компьютеры и цифровизация глубоко изменили общество.

Практически каждое устройство, используемое в настоящее время, включает в себя мобильные технологии, которые позволяют получать доступ к отдельным лицам, учреждениям и услугам в любое время и в любом месте. Благодаря технологиям мобильной связи можно найти информацию и работать практически везде. Все больше внимания уделяется образованию и профессиональной подготовке, и в частности способы, с помощью которых цифровые и мобильные технологии формируют результаты обучения и образования. Центральными являются последствия того, что эти технологии, а не сами технологии, являются агентами, изменяющими ключевые компетенции, а также требующими новых цифровых компетенций. Другая сторона-это влияние на знания, профессиональные требования и образование в целом.

Цифровое общество

Мы живем в решающий момент в истории образования, когда мир, в котором учителя выполняют свою работу, глубоко меняется, и демографический состав учителей резко меняется, и преподавание теперь снова становится профессией молодых людей. Он подчеркивает, что нынешняя экономика знаний, Общество знаний, движима творчеством и изобретательностью. Глобальная экономика современности опирается на технологии, подпитывается информацией и управляется знаниями. В цифровом обществе мобильная связь рассматривается как одна из основных функций. В 1990-х годах, когда Интернет стал общедоступным, рост настольных, а затем и портативных компьютеров привел к появлению новых аспектов подключения. Они, в свою очередь, породили мобильные сети и более продвинутые мобильные телефоны – "смартфоны" – способны получать доступ к растущему числу интернет-услуг практически в любом месте. Такие устройства, как iPhone и iPad (и их эквиваленты), предлагают "полный офис" в кармане с электронной почтой, камерой, GPS, книги, новостные сети и почти любой "облачный" (интернет -) сервис. Новые цифровые устройства и сервисы все чаще используются издателями книг, музыки, фильмов и, конечно же, основными новостными сетями. Последствия того, что потребители стали "цифровыми", привели к резкому сокращению продаж печатных газет, компакт-дисков, DVD-дисков и побудили издателей перейти на цифровые технологии.

Переходя от устройств к сервисам или контенту, мы рассмотрим "то, что доставляется". Если в 'Облаке' или в Интернете ничего не было, то устройства не казались бы революционными. Но не прошло и нескольких лет, как использование новых функций, таких как Facebook (LinkedIn и т.д.)

и YouTube , стало широко распространено не только среди людей всех возрастов, но и среди предприятий и организаций, которые широко используют эти инструменты в своем маркетинге, стратегии и способах работы. Доцент кафедры культурной антропологии Майкл Веш (Michael Wesch) изучил цифровой мир и продемонстрировал эти эффекты в впечатляющей презентации в 2008 году (<http://mediatedcultures.net./mediatedculture.htm>).

Интернет-сервисы оказали огромное влияние на почтовые услуги, банковское дело, финансы и, как становится все более очевидным, на государственное управление. Сегодня клиенты часто выполняют задачи, которые всего несколько лет назад обычно выполняли банковские сотрудники, – такие задачи, как обработка банковских платежей, использование автоматизированных форм, которые не принимаются, если все поля заполнены, и тому подобное. Часть работы и ответственности переходит к отдельным людям. Эти изменения оказывают большое влияние на то, как учреждения укомплектованы персоналом и организованы, тем более что зачастую существуют огромные экономические и юридические последствия.

Обучение и преподавание в цифровом обществе

Неудивительно, что учителя, которые, как и другие специалисты, должны учиться всю жизнь, также должны решать проблемы цифровых и мобильных технологий. Это не просто вопрос овладения новыми технологиями; поскольку вся традиционная парадигма была разрушена, они должны пересмотреть свою профессию и пересмотреть свою роль учителей в процессе обучения. Понимание и овладение технологией – это отправная точка процесса создания новой школы. Поскольку информация – да и само знание – не статична, потребность в обучении должна считаться нормой в постоянно меняющемся мире новых связей и мобильности. Проблема будет заключаться не столько в устройствах, сколько в создании подходящих и устойчивых педагогических моделей, соответствующих требованиям грядущего общества знаний. Если школы и общества не смогут этого сделать, они останутся позади , на самом деле это не просто гипотеза: это очевидная реальность.

Главная задача будет заключаться в том, чтобы привлечь молодых людей к этой профессии и дать им возможность возобновить образование в соответствии с потребностями, включая пересмотр профессии учителя. Необходимо определить новые профили компетенций, отражающие навыки, необходимые в цифровом образовании. Студенты должны стать пожизненными учениками, умеющими обращаться с новыми устройствами и инструментами в любое время, когда это возможно и выгодно, и служащими этой цели. Будучи инновационным и творческим, уметь представлять, что необходимые навыки становятся жизненно важными. В какой- то степени студенты будут больше, чем раньше, переживать, что

навыки, приобретенные по окончании учебы, могут быть "мертвы по прибытии". Обучение на протяжении всей жизни будет императивом для всех профессий, и его необходимо решать в рамках системы образования.

Учебные заведения должны предотвращать саморазрушение, выбрасывая ребенка вместе с водой из ванны, а скорее открываться для реальных событий в мире. цифровое общество – изменения должны происходить при сохранении жизненно важных образовательных ценностей. Во всем мире количество новых устройств продолжает расти. На самом деле студенты не только постоянно носят с собой устройства, но и, по сути, никогда не поворачиваются их сняли . Они постоянно подключены к облаку, хорошо это или плохо. Примечательно, что в то время как ноутбуки широко используются, смартфоны, iPod и iPad, как правило, игнорируются преподавателями , несмотря на их потенциал в качестве инструментов обучения. Учителя могут извлечь выгоду из этой технологии не только как средства обучения новым навыкам, но и как средства, с помощью которых учащиеся могут ориентироваться как в обогащающей, так и в опасной среде. Это не только вопрос о том, когда и как использовать различные технологии; важно решить, когда они должны быть отключены. Осознание преимуществ и рисков сегодня является частью гражданства.

Для того чтобы это стало реальностью, учителям нужны форумы, где они могут обмениваться идеями и развивать их, а также обмениваться практическим опытом. В этом случае в Интернете есть как международные, так и национальные форумы. В Норвегии такой профессиональный педагогический портал можно найти по адресу www.delogbruk.ning.com ('поделиться и использовать " см. Google translator). Здесь учителя публикуют идеи, материалы, ссылки, YouTube и тому подобное. Портал также является местом для дискуссий и дебатов похоже на то, что встречается в реальных школах. Системы управления обучением (LMS) - это местные решения для отдельных школ или групп школ (местные школьные власти)

Образование во многих отношениях является и должно быть контекстуальным. У всех стран есть свои собственные цели и соответствующие учебные программы, и, действительно, цифровое общество не бросает вызов этой базовой концепции. Сейчас это может оказаться более важным, чем когда-либо. В то же время Европейский союз имеет определены восемь ключевых компетенций, среди которых приоритет отдается общению как на родном языке, так и на иностранных языках. Другие включают цифровую компетентность, умение учиться, социальные и гражданские компетенции, инициативу и предпринимательство, а также культурную осведомленность и самовыражение.

Из вышесказанного очевидно, что технологии открывают новые возможности для развития культурного сознания и предпринимательства, используя возможности, предоставляемые Интернетом, или "облачными"

сервисами. Социальные и гражданские компетенции не являются полными в отрыве от Интернета, с помощью которого можно узнать о преимуществах и рисках, а также о правовых последствиях его использования или неправильного использования.

Неадекватное образование и профессиональная подготовка, связанные с цифровыми компетенциями, могут привести к серьезным проблемам для отдельных лиц, а также органов власти и общества. Часть этой проблемы иллюстрируется текущими дебатами на сайте Wikileaks. Ясно только, что при правильном обучении и глубоком понимании выгоды будут значительными. Цифровые услуги будут значительно расти, создавая рабочие места и возможности в будущем. Традиционные услуги также могут зависеть от цифровых разработок.

Основные элементы проблем образования

Профессионализм должен рассматриваться с глобальной точки зрения мобильности идей и отдельных лиц, а сети - как глобальная норма сотрудничества между профессионалами, объединяющая образование и общество знаний. Такие профессионалы смешивают и создают новые способы бесшовной жизни учиться и жить. Среды обучения с новыми технологиями имеют различные понятия, такие как виртуальные среды обучения, персональные среды обучения и системы управления обучением – все они поддерживают или обеспечивают большую поддержку и индивидуализацию для учащихся. Технологии должны использоваться для удовлетворения образовательных потребностей. Слишком часто основное внимание уделяется технологиям, а не содержанию и образовательным потребностям. Использование преимуществ цифровой связи должно способствовать смещению акцента с устройств на контент, что является доступ к знаниям и ресурсам "реального мира". Поэтому в настоящее время необходимы исследования в области педагогики, содержания и формы цифровой грамотности и потенциала сетевого взаимодействия. Кроме того, необходимо разработать и/или укрепить стратегии укрепления связей между промышленностью и образованием. Наконец, совместные сообщества должны считаться незаменимыми для эффективного использования мобильных технологий на службе образования.

Вывод

Будущее-это сейчас. Технология, которая является новой для некоторых людей, хорошо известна и даже в прошлом для других. Это утверждение, безусловно, справедливо для старшего поколения учителей по сравнению с более продвинутыми учениками, живущими в смешанном реальном и виртуальном мире. Связанность и мгновенный доступ к информации и учреждениям (включая школы) являются строительными блоками для нашего будущего.

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ИНТЕРАКТИВНЫЕ ТЕХНОЛОГИИ В УЧЕБНОЙ ДЕЯТЕЛЬНОСТИ УЧАЩИХСЯ НА УРОКАХ ИНФОРМАЦИОННОЙ ТЕХНОЛОГИИ

***Аннотация:** Статья посвящена использованию интерактивного подхода при обучении информационным технологиям в системе высшего образования. В настоящее время для эффективного обучения необходимо применение интерактивных методов. Интерактивное обучение повышает мотивацию обучения, развивает интеллектуальную деятельность учащегося, облегчает восприятие материала.*

***Ключевые слова:** Интерактивные системы, виртуальная реальность, сенсорные интерфейсы, интерактивные мультимедиа.*

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INTERACTIVE TECHNOLOGIES IN THE EDUCATIONAL ACTIVITIES OF STUDENTS IN INFORMATION TECHNOLOGY LESSONS

***Abstract:** The article is devoted to the use of an interactive approach in teaching information technology in the system of higher education. At present, interactive methods are necessary for effective learning. Interactive learning increases motivation for learning, develops the intellectual activity of the student, and facilitates the perception of the material.*

***Keywords:** Interactive systems, virtual reality, sensory interfaces, interactive multimedia*

Инновационные методы обучения выходят за рамки простого внедрения передовых методов обучения или постоянного следования новейшим образовательным тенденциям — они воплощают в себе особые подходы к процессу преподавания и обучения.

Эти современные методы обучения отдают приоритет учащимся, уделяя особое внимание участию и взаимодействию в классе. Инновационные стратегии поощряют активное участие и сотрудничество между учениками и учителем. Хотя это требует от учащихся повышенных усилий, этот подход адаптирован для лучшего удовлетворения их индивидуальных потребностей, способствуя ускоренному росту.

В отличие от традиционных методов обучения, которые в первую очередь измеряют успехи учащихся по объему переданных им знаний, инновационные методы обучения углубляются в тонкое понимание и запоминание материала. Речь идет не только о том, чему учат, но и о том, насколько эффективно студенты усваивают и применяют знания, полученные на лекциях.

Почему инновационное обучение имеет значение

Образовательный ландшафт претерпел трансформацию: от традиционных классов к виртуальным и гибридным средам обучения. Тем не менее, распространенность пристального взгляда на экраны ноутбуков создает риск того, что учащиеся легко отвлекаются или отвлекаются, возможно, даже поддаются очарованию сладких снов, не выходя из своих кроватей, и при этом симулируют сосредоточенность.

Несправедливо связывать эту проблему исключительно с недостаточной прилежностью студентов; Учителя разделяют ответственность за то, чтобы избегать утомительных и монотонных уроков, которые могут привести к незаинтересованности учащихся.

В условиях этой новой нормы многие образовательные учреждения, преподаватели и инструкторы изучают инновационные стратегии преподавания, чтобы повысить интерес и вовлеченность учащихся. Использование цифровых программ доказало свою эффективность в привлечении внимания учащихся, предоставлении им улучшенного доступа к занятиям и расширении возможностей воздействия на их мысли.

Ключевые характеристики инновационных стратегий преподавания:

Студент, ориентированный фокус

Инновационные стратегии преподавания ставят во главу угла потребности и вовлеченность учащихся, способствуя активному участию в процессе обучения.

Активное обучение

Поощряет практическую и совместную деятельность, отходя от пассивного обучения, чтобы способствовать более глубокому пониманию и запоминанию.

Гибкость и адаптируемость

Адаптируется к разнообразным стилям обучения и потребностям студентов, предлагая гибкость в доставке контента и новые методы обучения.

Интеграция технологий

Творчески использует технологии для повышения эффективности обучения, включая цифровые инструменты и ресурсы для эффективного и интерактивного обучения.

Совместное обучение

Особое внимание уделяется групповой работе, сотрудничеству и взаимному обучению для улучшения социальных и коммуникативных навыков среди учащихся.

Акцент на решении проблем

Основное внимание уделяется развитию навыков критического мышления и навыков решения проблем, побуждая учащихся применять знания в реальных сценариях.

Непрерывная оценка

Выходит за рамки традиционных экзаменов и оценок, внедряя методы непрерывной оценки и обеспечивая постоянную обратную связь для улучшения.

Индивидуальные пути обучения

Признает и учитывает разнообразные предпочтения и темпы обучения отдельных учащихся, способствуя индивидуальному обучению.

Реальная актуальность

Связывает концепции классной комнаты с реальными приложениями, демонстрируя практическую значимость того, что изучают учащиеся.

Подход, ориентированный на обратную связь

Отдает приоритет конструктивной обратной связи, чтобы направлять прогресс учащихся, способствуя непрерывному циклу совершенствования и размышлений.

Развитие мягких навыков

Интегрирует развитие мягких навыков, таких как общение, сотрудничество и управление временем, необходимых для успеха в различных контекстах.

Инновационные стратегии преподавания для повышения вовлеченности студентов

1. Интерактивные уроки

Интерактивные уроки предполагают инновационные методы обучения, которые активно вовлекают учащихся в процесс обучения. Вместо пассивного получения информации учащиеся участвуют в мероприятиях, дискуссиях и упражнениях, которые требуют их участия и участия. Этот подход направлен на создание более динамичной и увлекательной среды в классе. Интерактивные уроки могут принимать различные формы, включая групповые обсуждения, практические занятия, моделирование, тематические исследования и совместные проекты. Учителя могут использовать технологические инструменты, интерактивные доски или другие ресурсы для облегчения участия и обратной связи, поощряя учащихся играть активную роль в собственном обучении.

2. Использование технологии виртуальной реальности

Технология виртуальной реальности (VR) создает моделируемую среду, с которой пользователи могут взаимодействовать, обеспечивая

уникальный и захватывающий опыт обучения. В образовании виртуальная реальность может использоваться для переноса учащихся в виртуальные миры, моделирующие исторические события, научные явления или сложные концепции. Это может быть особенно полезно в тех областях, где практический опыт сложно обеспечить в традиционных классных условиях.

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ОТ ЭЛЕКТРОННОГО ПРАВИТЕЛЬСТВА К ЦИФРОВОМУ: КАК ЦИФРОВИЗАЦИЯ МЕНЯЕТ ГОСУДАРСТВЕННЫЕ УСЛУГИ

***Аннотация:** Статья раскрывает актуальность перехода от электронного правительства к цифровому в контексте укрепления взаимодействия между населением, бизнес-сектором и государством, что повышает доступность, прозрачность и эффективность государственных услуг. В работе проводится анализ современного состояния развития государственных услуг в Республике Узбекистан под влиянием цифровизации, а также изучен ряд технологических вызовов цифрового правительства.*

***Ключевые слова:** цифровая экономика, электронное правительство, цифровое правительство, государственные услуги, цифровизация, цифровая грамотность, цифровая трансформация, кибербезопасность.*

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FROM E-GOVERNMENT TO DIGITAL GOVERNMENT: HOW DIGITALIZATION CHANGES PUBLIC SERVICES

Abstract: *The article reveals the relevance of the transition from e-government to digital in the context of strengthening interaction between the population, the business sector and the state, which increases the accessibility, transparency and efficiency of public services. The work analyzes the current state of development of public services in the Republic of Uzbekistan under the influence of digitalization, and also studies a number of technological challenges of digital government.*

Keywords: *digital economy, e-government, digital government, public services, digitalization, digital literacy, digital transformation, cybersecurity.*

Цифровизация меняет экономические стереотипы и социальные устои в течение последних нескольких десятилетий и включает в себя использование интернет-платформ, больших данных, ИИ с целью повышения эффективности бизнес-процессов, улучшения взаимодействия между предприятиями, государством и гражданами, а также создания новых товаров и услуг. Для успешного становления и укрепления цифрового общества, исходя из современных мировых тенденций в экономической, политической и социальной сферах, государством ежегодно разрабатываются и финансируются масштабные проекты, одним из которых является программа по развитию системы “Электронное правительство” (от англ. E-government).

Начиная с конца XX века, теме электронного правительства (далее ЭП), уделено не мало внимания. Впервые термин “электронное правительство” был предложен в 1997 г. Национальным научным фондом США в рамках исследования ИТ в целях совершенствования работы федеральной административной системы. Ниже представлен ряд подходов различных исследователей в области ИКТ, экономики, социологии и государственного управления, а также открытые данные международных организаций с целью обобщения, анализа и формирования авторского концепта ЭП.

Департамент по экономическим и социальным вопросам ООН рассматривает ЭП как “...использование интернета и технологий для взаимодействия с гражданами, предприятиями и другими государственными органами”⁷⁰. К настоящему времени Организацией Объединенных Наций проведено большое количество исследований в области цифровой экономики, в частности ЭП, результаты которых ежегодно публикуются в виде докладов, отчетов и международных рейтингов.

Всемирный банк еще в 2001 г. определяет ЭП как “системы информации и ИКТ, находящиеся в собственности или под управлением правительства, которые меняют отношения с гражданами, частным

⁷⁰ Департамент ООН по экономическим и социальным вопросам. “Обзор ООН по электронному правительству 2014” [16]

сектором и/или другими государственными учреждениями, чтобы способствовать расширению прав и возможностей граждан, улучшению предоставления услуг, укреплению подотчетности, повышению прозрачности и эффективности правительства”⁷¹. По данным отчета Всемирного банка, помимо более эффективного и прозрачного оказания государственных услуг, внедрение ЭП способствует возможности проведения электронных опросов и голосований, а также созданию межправительственных сетей для координации глобальных проблем.

В Законе Республики Узбекистан “Об электронном правительстве” № ЗРУ-395, понятию ЭП дано следующее определение “...система организационно-правовых мер и технических средств, направленная на обеспечение деятельности государственных органов по оказанию государственных услуг физическим и юридическим лицам путем применения информационно-коммуникационных технологий, а также межведомственного электронного взаимодействия”⁷².

М. Костельс, испанский социолог, один из основателей концепции сетевого общества, считает, что ЭП является частью информационного общества, где цифровизация улучшает взаимодействие с государственными структурами [7].

А. Голубева считает, что ЭП является чем-то большим, чем внедрение и использование ИКТ в деятельности органов государственного управления, это новая концепция, суть которой заключается в переходе к новым формам взаимодействия, гибким организациям и принципам работы внутри правительственных организаций [8].

Исходя из рассмотренных выше концепций, можно сделать вывод, что суть ЭП заключается в использовании ИКТ с целью качественной трансформации взаимодействий между государством, населением и бизнес-сектором. Платформу ЭП можно представить в виде цифрового взаимодействия моделей C2G, G2C, G2B, G2E, B2G, G2N.

Предпосылками создания ЭП являлись: появление интернета, стремительное развитие ИКТ, рост спроса на государственные услуги в связи с увеличением населения земного шара наравне с ростом недовольства на скорость оказания услуг и неизбежности бумажной волокиты. В целом, можно выделить несколько групп предпосылок возникновения концепции ЭП (см. таблица 1). Стоит отметить, что процесс создания инфраструктуры, необходимой для внедрения ЭП, на мировой арене начался в разные периоды времени исходя из социально-экономической разрозненности стран. Лидером по внедрению ЭП является США. Еще в 2000 году был запущен первый портал “FirstGov”, предоставляющий правительственную информацию и содержащий на сегодняшний день свыше 27 млн. веб-страниц с тысячами электронных форм.

⁷¹ World Bank, LAC PREM – “Issues Note: E-Government and The World Bank”. November 5, 2001 [15]

⁷² Закон Республики Узбекистан “Об электронном правительстве”, от 09.12.2015 г. № ЗРУ-395 [3]

Таблица 1 – Предпосылки возникновения концепции электронного правительства⁷³

| Группы | Предпосылки |
|-------------------------|--|
| Инфраструктурные | <ul style="list-style-type: none"> – развитие ИКТ; – появление интернета; – распространение цифровых платформ и возможность их массового использования; |
| Экономические | <ul style="list-style-type: none"> – антикоррупционная политика; – стремление к повышению прозрачности и эффективности государственных услуг; – необходимость снижения административных расходов; – ограниченность человеческих ресурсов; – создание благоприятных условий для развития бизнес-сектора; |
| Социальные | <ul style="list-style-type: none"> – рост спроса на государственные услуги в связи с увеличением постоянного населения; – рост социального недовольства работой правительственных структур; |
| Политические | <ul style="list-style-type: none"> – международная интеграция; – создание условий для привлечения внешних инвестиций; – борьба с коррупцией на государственном уровне и стремление получить доверие граждан к государственным структурам; |

Институциональная база для развития ЭП в Узбекистане была заложена еще в 2002 г. в результате Указа Президента Республики Узбекистан “О дальнейшем развитии компьютеризации и внедрении информационно-коммуникационных технологий”⁷⁴. Однако, существенные изменения начались сравнительно недавно. Так, например, в 2015 году был

⁷³ Разработано автором

⁷⁴ Указ Президента Республики Узбекистан “О дальнейшем развитии компьютеризации и внедрении информационно-коммуникационных технологий” от 30.05.2002 г. № УП-3080 [6]

принят закон Республики Узбекистан “Об электронном правительстве”, предусматривающий создание необходимых условий для оказания информационных и интерактивных государственных услуг⁷⁵. Согласно ПП РУз от 28 апреля 2020 года № ПП-469, одним из элементов ЭП Республики является Единый Портал Интерактивных Государственных Услуг, запущенный в тестовом режиме еще в 2013 году (далее ЕПИГУ)⁷⁶. ЕПИГУ (my.gov.uz) – это онлайн платформа, число пользователей которой в 2024 г. превысило 8,5 млн человек, предоставляет гражданам и бизнесу удобный доступ к государственным услугам. На сегодняшний день запущена 671 услуга в сфере образования, юстиции, ЖКХ, транспорта, налогообложения, здравоохранения и многих других. К концу года этот показатель планируется увеличить до 700, интегрировав в ЕПИГУ дополнительно еще 29 электронных услуг. По сравнению со вторым полугодием 2022 г. данный показатель увеличился на 323 единицы, и на 80 единиц по сравнению с 2023 г. (смотреть таблицу 2). В добавок ко всему, ЕПИГУ предоставляет государственные электронные услуги не только физическим лицам, но и юридическим. В настоящее время доступна 151 услуга для юридических лиц в сфере экономики, бизнеса, э-коммерции, таможни и многих других. Большинство электронных услуг оказывается автоматически и бесплатно, что заметно снижает административные барьеры и улучшает качество оказания госуслуг.

Таблица 2 – Количество услуг, оказываемых на ЕПИГУ РУз (2017 – 2024 гг.)⁷⁷

| Период | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|------|------|------|------|------|------|------|-----------------------------------|
| Суммарное количество интерактивных государственных услуг | 49 | 127 | 173 | 221 | 300 | 348 | 591 | 671 (по состоянию на сентябрь) |

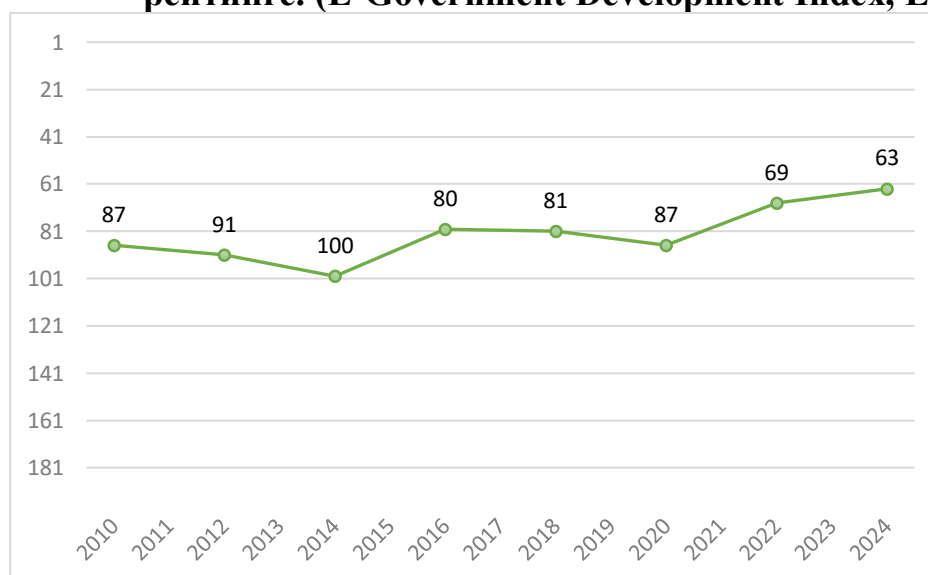
⁷⁵ Закон Республики Узбекистан “Об электронном правительстве” от 09.12.2015 г. № ЗРУ-395, гл. 1, ст. 18. [2]

⁷⁶ Закон Республики Узбекистан “О мерах по широкому внедрению цифровой экономики и электронного правительства” №ПП—4699 от 28.04.2020 г., прил. 4. [1]

⁷⁷ Составлено автором

Как видно из данных, проиллюстрированных в таблице выше, за последние годы была проделана колоссальная работа по совершенствованию системы ЭП. Помимо прочего, Узбекистан в 2024 г. занимает 63 позицию в глобальном рейтинге Индекса по развитию электронного правительства EGDI, впервые входя в категорию стран с “очень высоким” уровнем развития ЭП (см. рисунок 1). Это является огромным рывком, поскольку еще в 2014 г. страна занимала 100 позицию из 193 возможных. К слову, одной из целей, закрепленных в Стратегии “Цифровой Узбекистан - 2030”, является вход в топ-30 стран мира по рейтингу Организации Объединенных Наций EGDI.

Рисунок 1 – Динамика развития электронного правительства Республики Узбекистан за 2010-2024 гг., расположение в мировом рейтинге. (E-Government Development Index, EGDI)⁷⁸

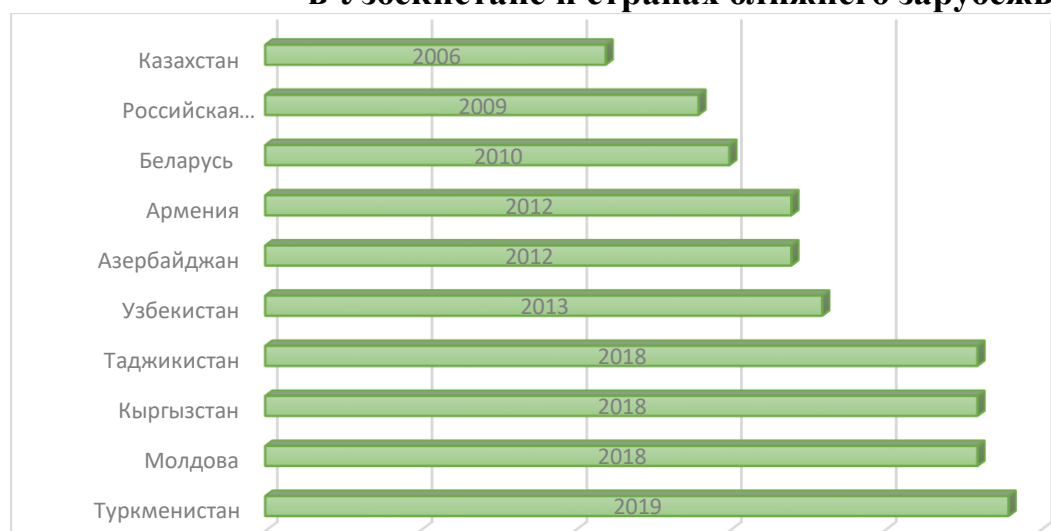


Трехкомпонентную основу комплексного исследования ЭП EGDI составляют индекс онлайн услуг (OSI), индекс телекоммуникационной инфраструктуры (ТИ) и индекс человеческого капитала (НСИ), что иллюстрирует связь между применением передовых технологий в процессе внедрения ЭП и оказываемым при этом влиянием на все общество.

Как было упомянуто ранее, история показывает, что процесс перехода к ЭП берет свое начало в различные временные периоды в зависимости от конкретно рассматриваемых категорий стран. Полный сравнительный анализ фактического запуска (за исключением начала разработки правовой базы) ЭП в разрезе стран СНГ можно увидеть на рисунке 2.

⁷⁸ Составлено автором на основе данных ООН <https://publicadministration.un.org/egovkb/Data-Center> [17]

Рисунок 2 – Сравнительный анализ фактического внедрения ЭП в Узбекистане и странах ближнего зарубежья⁷⁹



Например, если в нашей стране создание ЭП приходится на середину 2010-х, то в Республике Казахстан еще в 2004 г. был принят Указ Президента «О государственной программе формирования «электронного правительства» в Республике Казахстан на 2005-2007 годы»⁸⁰, в соответствии с которым в 2006 году был запущен первый портал электронного правительства Республики Казахстан eGov.kz⁸¹. В Российской Федерации Единый портал государственных услуг (gosuslugi.ru) был запущен несколько позднее – в 2009г. в тестовом режиме, а в 2010 были внедрены первые 20 онлайн услуг⁸². Также несмотря на то, что процесс разработки инициатив по электронному управлению в Армении берет свое начало еще 2000-х гг. как и в Казахстане, активное развитие приходится, однако, на период с начала 2012 г., при поддержке государственных программ международными организациями ООН, ЕС и Всемирного Банка. И напротив, одной из последних стран, внедряющих платформы ЭП, является Туркменистан, приступивший к запуску системы, как видно на диаграмме, только в 2019 г.

Внедрение ЭП открыло для государства, населения и бизнеса множество перспектив, начиная с улучшения скорости оказания государственных услуг, заканчивая снижением уровня теневой экономики (см. таблицу 3).

⁷⁹ Составлено автором

⁸⁰ Указ Президента Республики Казахстан от 10 ноября 2004 года №1471 «О государственной программе формирования «электронного правительства» в Республике Казахстан на 2005-2007 годы» [5]

⁸¹ <https://www.gov.kz/memleket/entities/kgu/activities/1363?lang=ru> [14]

⁸² По открытым данным портала <https://www.gosuslugi.ru/> [13]

Таблица 3 – Преимущества от внедрения ЭП для населения, бизнеса и государства⁸³

| Субъекты ЭП | Перечень преимуществ от внедрения ЭП |
|--|---|
| <p align="center">Государственные органы и учреждения</p> | <ul style="list-style-type: none"> – повышение прозрачности, снижение бюрократии и уровня теневой экономики; – снижение административных издержек; – повышение эффективности управления; – упрощенный доступ к данным, улучшение мониторинга; – привлечение инвестиций; – повышение доверия граждан; |
| <p align="center">Граждане</p> | <ul style="list-style-type: none"> – экономия времени и затрат; – доступность получения электронных услуг из любой точки земного шара; – безопасность платежей и доведение риска столкновения с мошенничеством до минимума; – повышение гражданской активности; – повышение скорости разрешения проблемных ситуаций; – упрощение доступа к информации; – повышение доверия; – возможность электронного мониторинга личных данных; – равноправие в использовании электронных государственных услуг; |
| <p align="center">Бизнес-сектор</p> | <ul style="list-style-type: none"> – ускорение инвестиционных процессов; – снижение коррупции; – ускорение взаимодействия с государственными органами; – снижение административных издержек; |

⁸³ Составлено автором

Однако, в настоящее время научно-технический прогресс вышел на такой темп развития, что недавние новшества в государственном управлении, такие как ЭП требуют постоянной модернизации. Последние годы все большее внимание уделяется различиям между понятиями ЭП, “цифровое правительство” и “мобильное правительство”.

Применение мобильного правительства (от англ. m-government) ориентировано на мобильные платформы, что повышает доступность государственных услуг для широкой аудитории. Идея мобильного правительства (далее МП) связана с увеличением пользователей мобильных устройств по всему миру. Согласно данным GSM Association в 2023 году 57% мирового населения, а это порядка 4,6 млрд людей имели доступ к мобильному интернету⁸⁴. Что касается Республики Узбекистан, то темпы роста объема услуг связи и информатизации в стране составили 125,4 % в 2023 г. и 121,4 % за первое полугодие 2024 г.⁸⁵. А через мобильное приложение ЭП MyGov оказывается порядка 330 госуслуг для более чем 3 млн пользователей.

Еще одной не менее актуальной темой является цифровое правительство (далее ЦП) – это следующий этап развития ЭП, отличающийся проактивностью и комплексностью системы за счет внедрения ИИ, IoT, а также глубокой интеграции всех имеющихся структур ЭП с целью создания единой экосистемы. Интерес к проблематике ЭП и ЦП нашел свое отражение в работах зарубежных ученых, таких как Дж.Х. Александер, М. Ю. Павлютенкова, И. А. Василенко, Т.Б. Райли, и многих других. Однако на сегодняшний день все еще не сложилось единого мнения относительно отличительных черт ЦП. В основном, выделяется либо отождествление электронного и цифрового правительств, либо представление ЦП как логического продолжения ЭП.

В своем исследовании М. Ю. Павлютенкова, кандидат политических наук, доцент РАНХиГС, считает, что ЦП в корне отличается от ЭП, являясь его продолжением с рядом специфических аспектов, которые должны стать ключевыми в стратегии государства, осуществляющего цифровую трансформацию [10], так же ссылаясь на то, что начало перехода от ЭП к ЦП было отмечено еще в 2012 году в ежегодном отчете ООН: “в Обзоре ООН за этот год был зафиксирован концептуальный сдвиг: электронное правительство от структурно дезинтегрированного, реализующего ведомственный подход к оказанию государственных услуг, децентрализованного, сосредоточенного на управлении сервисами,

⁸⁴ GSMA – The state of mobile internet connectivity 2023/ [Электронный ресурс] https://www.gsma.com/r/wp-content/uploads/2023/10/The-State-of-Mobile-Internet-Connectivity-Report-2023.pdf?utm_source=website&utm_medium=button&utm_campaign=somic23 (дата обращения 23.09. 2024)

[11]

⁸⁵ Данные Портала открытых данных РУз <https://data.egov.uz> [12]

имеющего узкую специализацию отдельных узлов, трансформируется в правительство, организованное по сетевому принципу, в котором приоритетную роль начинают играть взаимодействие и взаимосвязи между гражданами и государством, а в оказании государственных услуг в электронной форме должны реализовываться принципы унифицированности, многоканальности и проактивности”.

По мнению И. А. Василенко, доктора политических наук, профессора МГУ, главной задачей ЦП выступает ориентация стимулирования инновационной деятельности во всех сферах производства и общественной жизни [9]. Ученый также подчеркивает отличия ЦП от ЭП, одним из которых является переход от автоматизации предоставления электронных государственных услуг к формированию новой культуры в сфере управления национальной инновационной системой и человеческим капиталом.

Действительно, ЦП является не чем иным, как концептуальным развитием ЭП. Разница заключается в том, что если в концепции ЭП основной акцент делается на применении ИКТ, автоматизации и совершенствовании государственного управления, то ЦП предполагает шаг в будущее: использование ИИ, интеграцию данных и применение передовых технологий для оказания более качественных персонализированных услуг.

В качестве примера одного из отличий ЦП от ЭП (см. таблицу 4) можно привести действующие порталы электронных государственных услуг, большая часть данных которых подвергается мониторингу со стороны специалистов соответствующих государственных подразделений. Однако, интеграция ИИ позволяет вести проактивную персонализированную политику предоставления госуслуг, что означает прогнозирование потребностей граждан исходя из их интересов, сферы деятельности и половозрастной категории, что в целом выведет государственный мониторинг на новый уровень и улучшит взаимодействие государства с населением.

Таблица 4 – Отличительные характеристики ЭП и ЦП⁸⁶

| Электронное правительство | Цифровое правительство |
|---|---|
| Стандартизация предоставления электронных государственных услуг | Персонализация предоставления электронных государственных услуг, индивидуальный подход к каждому пользователю |
| Оказание электронных государственных услуг осуществляется по запросам пользователей | Проактивность – реестр услуг прогнозируется и формируется автоматически, индивидуально для |

⁸⁶ Составлено автором

| | |
|--|---|
| | каждого пользователя исходя из личных потребностей, вне зависимости от наличия запросов |
| Частичная интеграция государственных подразделений | Глубокая интеграция государственных подразделений |

Стоит отметить, что первые шаги на пути к переходу к ЦП в Узбекистане уже сделаны. Еще в 2021 г. было принято постановление Президента РУз “О мерах по созданию условий для ускоренного внедрения технологий искусственного интеллекта”, в соответствии с которым был реализован проект по применению технологий ИИ в сфере электронного правительства, а именно внедрение Face-ID⁸⁷.

Еще одним отличительным элементом ЦП выступает создание умных городов, направленное на интеграцию Интернет вещей (IoT), больших данных и ИИ для улучшения качества жизни населения. Примером можно привести использование цифровых решений для управления транспортом, энергопотреблением, коммунальными услугами, безопасности и экологией. В Узбекистане в 2019 году было принято постановление Кабинета Министров РУз “Об утверждении концепции внедрения технологий “Умный город” в Республике Узбекистан”, в результате которой был принят ряд мер по внедрению:

- автоматизированной системы управления дорожным движением и мониторингом в рамках комплекса “Умный транспорт”;
- системы интеллектуального распознавания лица и электронных журналов на всех уровнях образования в рамках комплекса “Умное образование”;
- системы сбора данных и оперативного диспетчерского управления, интеллектуальные системы учета потребления энергоресурсов, а также внедрение аналитических расчетных и платежных сервисов в рамках комплекса “Умная энергетическая система”;
- системы процесса снятия показаний счетчиков с последующей передачей их в соответствующие инстанции, системы специальных сервисов и личных кабинетов для контроля за качеством коммунальных услуг в рамках комплекса “Умное жилищно-коммунальное хозяйство”, а также многих других комплексных мер по развитию умного строительства, умного дома, умного хокимията и махалли.

В заключение хочется еще раз подчеркнуть ключевую роль цифровой трансформации в современных реалиях. Цифровая трансформация

⁸⁷ Постановление Президента Республики Узбекистан “О мерах по созданию условий для ускоренного внедрения технологий искусственного интеллекта” от 17.02.2021 г. № ПП-4996 [4]

государственного управления — это не просто автоматизация существующих процессов, как это было при электронном правительстве, а полная перестройка государственных систем с использованием передовых технологий. Цифровое правительство делает акцент на проактивном предоставлении услуг, глубокой интеграции данных и персонализированном взаимодействии с гражданами и бизнесом. Цифровое правительство не только улучшает доступ к государственным услугам, но и значительно сокращает административные издержки, упрощает процедуры для граждан и бизнеса, а также повышает прозрачность государственных процессов, что способствует снижению коррупции. Использование таких технологий, как искусственный интеллект (ИИ), блокчейн, интернет вещей (IoT), и больших данных, открывает новые возможности для повышения эффективности управления и взаимодействия с гражданами в реальном времени.

Узбекистан, в рамках своей стратегии «Цифровой Узбекистан — 2030», уже достиг значительных успехов в развитии электронного правительства и идет по пути создания полноценного цифрового правительства. Это выражается в улучшении позиций страны в международных рейтингах и увеличении количества цифровых услуг для граждан и бизнеса. Однако, для успешного перехода к цифровому правительству, необходимо продолжать развитие инфраструктуры, особенно в отдаленных регионах, повышать уровень цифровой грамотности населения и внедрять инновационные решения, такие как умные города.

Перспективы цифрового правительства в Узбекистане зависят от способности государства адаптироваться к изменениям, инвестировать в новые технологии и поддерживать активное сотрудничество с частным сектором и международными организациями. Важной задачей остается обеспечение кибербезопасности и защиты данных, а также разработка правовых и нормативных основ, которые будут регулировать использование новых технологий.

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СОВРЕМЕННЫЙ ПОДХОД К ВОПРОСАМ ГЕНДЕРНОГО РАВЕНСТВА

***Аннотация:** В статье освещаются механизмы обеспечения прав личности и обосновывается актуальность вопроса гендерного равенства. Представлены основные международные механизмы решения проблем и обеспечении прав личности, а также проанализированы проблемы гендерного равенства в обеспечении прав личности в Узбекистане.*

Как предложению выдвинуты задачи модернизации высшего образования, посредством которого будет достигнуто продвижение и утверждение идей гендерного равноправия среди студентов, а также широкое распространение гендерного подхода в учебных заведениях Узбекистана, и как конечный итог во всём обществе страны.

***Ключевые слова:** права человека, международные и национальные механизмы обеспечения прав личности, гендерное равенство, гендерная дискриминация, утверждение гендерных отношений, гендерный подход в образовании.*

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A MODERN APPROACH TO ISSUES OF GENDER EQUALITY

***Abstract:** The article highlights the mechanisms for ensuring individual rights and substantiates the relevance of the issue of gender equality. The main international mechanisms for solving problems and ensuring individual rights are presented, and the problems of gender equality in ensuring individual rights in Uzbekistan are analyzed.*

The proposal puts forward the tasks of modernizing higher education, through which the promotion and approval of the ideas of gender equality among students will be achieved, as well as the widespread dissemination of a gender approach in educational institutions of Uzbekistan, and as a final result throughout the entire society of the country.

Key words: human rights, international and national mechanisms for ensuring individual rights, gender equality, gender discrimination, affirmation of gender relations, gender approach in education.

ВВЕДЕНИЕ. Принцип гендерного равенства, который является одним из основных принципов прав человека и считается обязательным в применении мировым сообществом, играет важную роль в обеспечении устойчивого развития мира и согласия в обществе, а также полной реализации человеческого потенциала. Не смотря на признание принципа равенства женщин и мужчин всеми современными странами, создания ими в соответствии с рекомендациями ООН всех правовых основ для обеспечения равенства, а так-же запрета всех видов дискриминации по признаку пола в своих странах, в силу различных социальных факторов этот принцип трудно реализуется в обществе. Среди причин, препятствующих усвоению этого принципа обществом, являются стереотипы и предрассудки отдельных народов в зависимости от менталитета, которые приводят к гендерному неравенству. Специалисты в данной области, размышляя над проблемой идентичности права, обычно ориентируются на представление о человеке, являющемся членом определенного общества. В юридической литературе термин «человек» трактуется двояко: как субъект общественных отношений в широком смысле и как член общества, обладающий обычными социальными качествами.

Статус человека в конкретной стране определяется совокупностью факторов в определённой стране, таких как форма правления и государственное устройство, режим государства и уровень сформированности гражданского общества, эффективной деятельностью общественных и государственных институтов.

ОСНОВНАЯ ЧАСТЬ. Право – это целая система общих обязательных принципов и правовых норм, которые представляют собой уровень свободы и ответственности участников общественных отношений, которым должны следовать все члены общества, а понятие «права личности» в этой системе используется в смысле понятия прав человека и гражданских прав. Права человека равны, естественны и неотчуждаемы для всех людей от рождения, определяются и защищаются внутригосударственными и международными законодательствами как общая основа обеспечения нормальной жизни человека. Гражданские права включают обеспечение физической и психической неприкосновенности, жизни и безопасности личности, а также обеспечение равных социальных возможностей и равной защиты со стороны закона независимо от ее личных особенностей.

Международные правила реализации гендерного равенства современными демократическими странами состоят из международных стандартов, которые государства должны применять на своей территории. Нормы международного законодательства выражены в международных

документах как Конвенции, Декларации и Пакты. Как источник международного права они состоят из двух типов норм, норм о международных правах и свободах человека, и норм об ограничениях прав.

На международном уровне, как норма международных прав и свобод человека, вопрос равенства женщин и мужчин был поднят впервые в Уставе ООН от 1945 года. По сей день все государства-члены Организации Объединенных Наций обязуется создавать все возможности для обеспечения справедливого гендерного равенства в своих странах. Эти правила служат основой для всех стран и дальнейшему развитию принципов равенства и не дискриминации в мире.

В 1946 году в целях обеспечения гендерного равенства между женщинами и мужчинами была создана Комиссия ООН по положению женщин. Комиссия обеспечивает во всех странах гарантии гендерное равенство на международном и национальном уровнях путем разработки различных рекомендаций, направленных на обеспечение равенства между женщинами и мужчинами.

Согласно статье 2 «Всеобщей декларации прав человека», принятой в 1948 году, каждый должен иметь все права и свободы. В Декларации говорится, что «положения ее преамбулы являются стандартами, к обеспечению которых должны стремиться все нации и государства». Также, согласно принципу Декларации о недопустимости гендерной дискриминации, женщины и мужчины должны иметь равные права и свободы.

Следующим этапом создания международно-правовых стандартов гендерного равенства стало принятие в 1966 году Международных пактов «О гражданских и политических правах» и «О финансовых, социальных и культурных правах», эти два международно-правовых документа предусматривают запрет дискриминации по половому признаку. Согласно Международному пакту «О финансовых, социальных и культурных правах», государства-участники должны гарантировать равенство между женщинами и мужчинами, а Международный пакт «О гражданских и политических правах» направлен на обеспечение того, чтобы женщины и мужчины имели равные права при осуществлении всех гражданских и политических прав. Оба принятые международные пакты гарантируют равные политические и гражданские, социальные, экономические и культурные права для женщин и мужчин.

Принятие государствами-участниками Конвенции ООН 1979 года временных и специальных мер, направленных на ускорение установления «фактического» равенства между женщинами и мужчинами, не являются дискриминацией другой стороны, а служит цели уравнивания прав и возможности обоих полов. Подобные «краткосрочные специальные меры должны быть отменены после достижения целей - обеспечения равных возможностей и равного статуса для представителей обоих полов».

В результате принятых специальных мер были устранены стереотипы и обычаи, негативно влияющие на разрешение этих вопросов. В результате эффективности мер в ряде демократических стран женщины добились значительных успехов наравне с мужчинами.

В современных демократических, светских государствах большое внимание уделяется расширению прав и возможностей женщин, активизации уровня их участия в общественной жизни как на международном, так и на внутригосударственном уровне. Будучи демократической и светской страной, Республика Узбекистан укрепляет гарантии равных прав женщин и мужчин во всех сферах жизни общества.

Узбекистан, как и весь мир, рассматривает правовое неравенство как важную проблему современного общества, а национальное законодательство по защите прав и свобод женщин и мужчин приводится в соответствие с международными стандартами. Для обеспечения гарантий равенства, принцип гендерного равенства полов закреплён в Конституции Узбекистана принятой под новой редакцией в 2023 году.

Узбекистан как правовое государство провозгласил гендерное равенство на всей территории Республики, основанное на общечеловеческих демократических ценностях, а также были объявлены гарантии принципа юридического равенства.

Статья 19 Конституции гласит: «В Республике Узбекистан признаются и гарантируются права и свободы человека согласно общепризнанным нормам международного права и в соответствии с настоящей Конституцией. Права и свободы человека принадлежат каждому от рождения. В Республике Узбекистан все граждане имеют одинаковые права и свободы, равны перед законом независимо от пола, расы, национальности, языка, религии, убеждений, социального происхождения, общественного положения. Льготы устанавливаются только в соответствии с законом и должны соответствовать принципам социальной справедливости»,

Статья 58 Конституции гласит: «Женщины и мужчины имеют равные права. Государство обеспечивает равенство прав и возможностей женщин и мужчин в управлении делами общества и государства, а также в других сферах общественной и государственной жизни». Закрепления эти принципы и его гарантии в Конституции Республики Узбекистан обязуется следовать им в своей деятельности.

Конституция Республики Узбекистан не содержит дискриминационных положений в отношении женщин и мужчин, государство возлагает на себя обязанность «поддерживать семью, материнство, отцовство и детство». В связи с этим часть 3 статьи 78 Конституции предусматривает, что «Материнство, отцовство и детство охраняются государством», чем государство берёт на себя и защиту прав как материнства, так и отцовство, как часть общественных отношений.

По инициативе Президента Узбекистана Ш. Мирзиёева на 78-й сессии Генеральной Ассамблеи ООН в 13-14 мая текущего года, в городе Самарканде состоялся Азиатский женский форум на тему «Региональный подход к вопросам экономических, социальных и политических прав женщин и расширения возможностей». Это мероприятие ещё раз доказывает приверженность Президента Республики укреплению роли женщин-лидеров в регионе и содействию их всестороннему участию в различных сферах жизни страны.

В форуме приняли участие женщины-парламентарии из Восточной, Юго-Восточной, Южной и Центральной Азии, а также лидеров правительств, представителей государственных органов, гражданского общества, деловых кругов, экспертов, политологов, активистов и ученых. На форуме были обсуждены вопросы роли женщин в образовании, научной и инновационной деятельности, цифровых технологий, сокращение бедности посредством расширения экономических прав и возможностей женщин, путём привлечения их к предпринимательству и инновациям, обеспечение их лидерства в современной глобальной экономике страны и мира.

Приводя итоги следует сказать, что Конституция и законодательство Республики Узбекистан соответствуют общепризнанным принципам и законам международного права о гендерном равенстве. Укрепление принципов международного права в Конституции и законах нашей страны, а также реализация их в общественных отношениях во всех сферах жизни общества, служит повышению статуса и влияния законодательства Узбекистана в общественной жизни народа и в международном сообществе.

В тоже время, по нашему мнению, для полноценного решения данной проблемы в Узбекистане нужна модернизация образования и общества, с целью продвижения идей гендерного равноправия в обществе и более широкому распространению в высших учебных заведениях гендерного подхода.

Реализация гендерного подхода в высших учебных заведениях позволит сформировать представление что пол не является основанием для дискриминации, что он дает возможность обеим сторонам пользоваться всеми правами человека, даст возможность человеку независимо от его половой принадлежности свободно выбирать свой путь и форму самореализации на индивидуальном уровне.

Цель гендерного подхода в образовании - деконструкция традиционных культурных ограничений и стереотипов в развитии потенциала личности в зависимости от пола, которая приведёт к осмыслению гендерной проблематики, а также созданию условий для максимальной самореализации и раскрытию способностей студентов в разрешении данной проблематики, их информационной поддержке и оснащению учебными пособиями.

ЗАКЛЮЧЕНИЕ. Модернизация высшего образования, даст возможность продвижению и утверждению идей гендерного равноправия, более широкому распространению гендерного подхода в высших учебных заведениях Узбекистана, как конечный итог во всем обществе страны.

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