THE IMPACT OF VARYING THE RATE OF BIOSTIMULANT APPLICATION ON THE STEM HEIGHT OF OILSEED SUNFLOWER PLANTS THAT HAVE BEEN REPLANTED

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Abstract. Microfertilizers, biostimulants, microfertilizers and growth substances contained in the immunostimulant have been found to have a positive effect on the growth of the local Dilbar variety, on the weight of 1000 seeds and on the yield. The use of MERS microfertilizer made it possible to increase the productivity of one plant by 362.9-430.4 grams, the use of Fitovak immunostimulant by 288.1-388.0 grams, and the use of Biodux biostimulant by 107.7-287.7 grams.

Keywords: biostimulant, sunflower, standard, immunostimulant, microfertilizer, norm, yield, growth, development.

Introduction. Biologically active substances (BAS), including plant phytohormones - regulators (stimulators) of plant growth and development (RPGD) are becoming increasingly important in modern conditions. Their application in agriculture, plant science and forestry has the potential to produce results that cannot be achieved by other means. The use of RPGD makes it possible to better realize the genetic potential of crops, to increase the resistance of plants to stress factors of biotic and abiotic nature, and as a result, to increase the yield and improve the quality. Plant growth stimulants are special nutrients that accelerate plant metabolism and stimulate the accumulation of green mass in representatives of the flora. Plant growth regulators are now widely available.

The level of study of the problem. One of the advanced technologies of sunflower cultivation is the use of mineral fertilizers, which is one of the main factors of increasing productivity. It is important to nutrition the sunflower in time according

to its demand, therefore, it is possible to obtain a high-quality and high yield if the amount and duration of the mineral fertilizer applied to it are determined [2].

Plant growth regulators cannot replace mineral fertilizers, but complement them in the plant nutrition system, increase the coefficient of use of soil and fertilizers. "UZGUMI" biofertilizer is applied mainly before planting seeds and is sprayed when sunflowers form 3-5 leaves. In this case, the yield increases by 0.22-0.31 t/ha and the oil content by 0.3-0.5%. [7]

Employees of the Institute of Agroresurc of Ukraine (Ponomarenko SP, 2003] note that for the agricultural producer growth regulators are no less valuable than mineral fertilizers and plant protection products. A new direction of improving sunflower production technology is the development of a system of effective use of modern plant growth regulators that control individual stages of plant growth and development to activate their immunity and, as a result, increase the yield and quality of sunflower seeds. (Sonin K.E., 2010; Petrichenko V.N., 2010). Therefore, the development of technology for the use of biostimulants that regulate growth and increase immunity is of the utmost importance. [4,5,6].

Research results. Several doses of microfertilizers and biostimulants were applied to the Dilbar variety of sunflower, and the effects on field germination of seeds, the transition of sunflower phases, the height of the plant, the number of leaves, the size of baskets, the number and weight of seeds were studied. According to experiments, the height of the stem of the local Dilbar variety of sunflower is about 2 meters because it is planted in irrigated land. In the experiment, the height of the Dilbar variety grew to an average height of 161.7 sm in the control variant, it was found that the use of biostimulants had a positive effect on the plants, and the height of the plant grew from an average of 179.0 sm to 213.8 sm in these variants. (Figure 1)

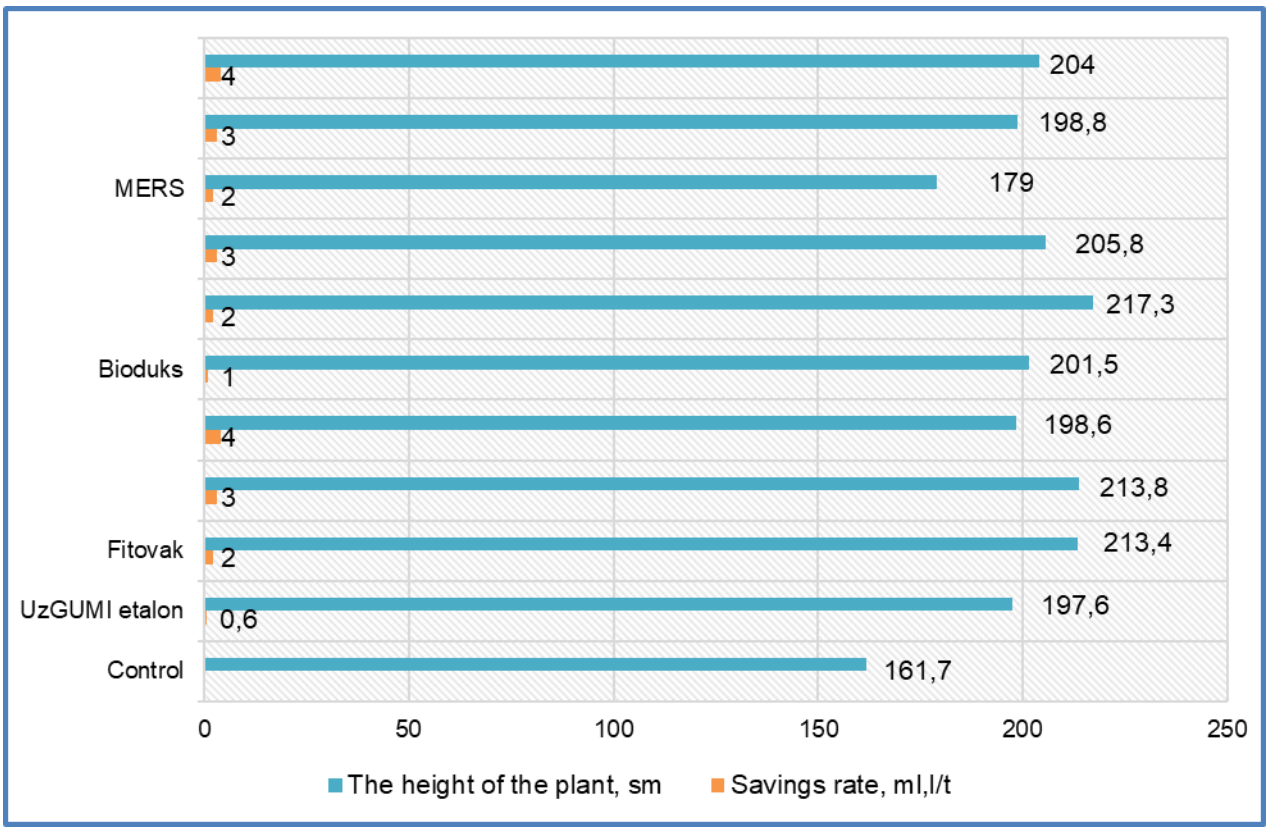

Figure 1. Effect of biostimulants on stem height of sunflower, grain

When UzGUMI biostimulant was applied to sunflower seeds at 0.6 l/ton, the average height of the plant was 197.6 sm, and the biostimulant had a positive effect on the growth of the plant stem, making it 35.9 sm taller than the control option. In the variant where Fitovak immunostimulant was applied to the seed in the amount of 300 ml/ton, the height of the plant was found to be 213.8 sm, and it was 52.1 sm higher than the control and 16.2 sm higher than the standard UzGUMI. In the variant where Fitovak immunostimulant was used in the amount of 200 ml/ton per seed, it was observed that the height of the plant grew at the same height (213.4 sm) as in the variant where the quantity of 300 ml/ton was used in the seed, but increasing the rate of the immunostimulant to 400 ml/ton per seed showed a decrease in the effect on the growth of the plant stem, and the stem height increased by 15.2 sm compared to the second option and 14.8 sm compared to the first option. The use of Fitovak immunostimulant made it possible to increase the height of stems by 51.7 sm

compared to the first option, 52.1 compared to the second option, and 36.9 sm compared to the third option compared to the control option. 39.8 sm higher than the control and 3.7 sm higher than the UzGUMI standard in the case of applying Biodux biostimulant at 1.0 ml/ton of seeds, 55.6 sm higher than the control and 19.7 sm higher than the UzGUMI standard in the case of applying 2.0 ml/ton of seeds /ton of seed was found to be 44.1 sm higher than the control and 8.2 sm higher than the UzGUMI benchmark. It was found that the height of the plant was 204.0 sm in the variant where MERS microfertilizer was applied at 4.0 ml/ton, and the stems grew shorter (198.9 and 179.0 sm) when the application rate of microfertilizer was reduced.

Discussion. If increasing the rate of MERS microfertilizer led to the growth of plant stem, it was found that in Bioduks and Fitovak biostimulants, on the contrary, increasing the rate of biostimulants had a negative effect on the growth of plant height.

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