ANALYSIS OF THE CONTINUITY OF THE GROWTH PERIOD OF PROSPECTIVE APPLE ROOTS

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Abstract. In this article, in Andijan region, research was conducted on the study of the duration of growth phases in introduced clone grafts of apple, which are propagated vegetatively, and grafts with different annual growth strength and transition speed of vegetation phases were identified.

Key words: graft, genotype, temperature, clone graft, vegetation period.

Among the external environmental factors, light, temperature, air, the condition of absorption of nutrients from the soil, and the method of watering are the most important in plant life. All plant organisms have the ability to express their genetic traits differently during ontogeny through the interaction of genotype and environmental conditions. These factors can strongly influence the productivity of cultivated plants, change their morphological and biological characteristics and some genetic characteristics.

In this scientific research, the role of the main external environmental factors is studied in relation to the agrotechnics of growing seedlings and apple cuttings. In the historical development of plant forms, the consistent period of changes in environmental conditions and soil formation processes causes them to adapt to the annual change of external conditions.

In the temperate and neighboring regions, two periods are clearly expressed in the annual framework of the life of fruit plants - the period of vegetation and relative rest. The first, i.e., the vegetation period, with its favorable temperature, is suitable for plants, during which the above-ground and underground parts of plants grow rapidly and produce crops. This period starts from spring and lasts until autumn. The second period is characterized by a decrease in temperature, and it

begins in the late autumn months, continues throughout the winter season, and ends in spring. Based on the above, in 2016-2019, studies were conducted at the research and training station of Tashkent State Agrarian University, and in 2019-2021 at the Andijan research station, to study the duration of growth phases in the introduced clone grafts of apple that reproduce vegetatively. In the research, grafts with different annual growth rate and transition speed of vegetation phases were identified.

Studies by H. Buryev and others [2014], I.M. It was implemented based on the recommendation of scientists such as Vasilchenko [1982] and I.P.Gulko [1982]. The data of phenological observation during the transition of vegetation phases in grafts showed that there are certain differences in the annual development of plants. In particular, in grafts MII, MVI, MVII and MIX, budding began almost at the same time as the control option (Sievers apple) planted from the seeds of the writing phase, with a difference of one to two days. The budding phase started 5 days later in the MV graft and 16 days later in the MX graft. The final phase of plant vegetation - leaf shedding was completed in the main part of the graft collection on November 29-30, only in the MM101 graft on December 5, that is, four to five days later than in other grafts (Table 1). It was observed that the completion of the vegetation period is 230-235 days in most plants in the experiment. However, this period was shorter by 15 days in the MX graft. In this case, there is a correlation between the total length of the vegetation period and the beginning of the vegetation phase, that is, it was found that the vegetation phases started a little later in this graft. In this plant, it was observed that the processes of preparation for the dormant period start first and the duration of the dormant period is 154 days (Table 2). The shortest, i.e., 135-day rest period was observed in the MIX graft.

In this case, the difference between grafts according to this indicator was 20 days. In MII and MV types of welds, this period was somewhat shorter, i.e. 138-140 days. In most grafts, the initial phase of vegetation begins at the same

time as Sievers apple, only in MV and MX grafts it is delayed by 5-16 days compared to the control.

Table 1

The effect of growth vigor on the total length of branches in vegetatively propagated graft-type plants, 2019-2021.

Total length of branches, m							
№	Options	Difference from arbitrary start (X-A)				Total by options	№
		I	II	III	IV		
1	Sievers apple - control	50,9	49,7	47,9	49,9	198,4	49,6
2	M II	55	56	59	58	228,0	57,0
3	M III	28,5	30,1	29,1	29,5	117,2	29,3
4	M IV	32,9	33,6	34	33,1	133,6	33,4
5	M V	50,1	50,7	49,9	49,7	200,4	50,1
6	M VI	55,7	56,2	54,8	54,5	221,2	55,3
7	M VII	51,5	51,1	52,1	52,1	206,8	51,7
8	M VIII	12,2	11,5	11,9	12	47,6	11,9
9	M IX	11,5	11,9	12	11,8	47,2	11,8
10	M X	53,9	54,1	53,5	54,5	216,0	54,0
11	M XIII	126,4	127,1	125,1	125,8	504,4	126,1
12	M XVI	59,9	60,5	61,3	61,1	242,8	60,7
13	M XXV	88,9	87,8	86,9	89,2	352,8	88,2
14	MM 101	154,1	153,9	153,5	153,3	614,8	153,7
15	MM 104	50,1	51,1	49,9	48,5	199,6	49,9
16	MM 105	58,7	57,7	59	57,8	233,2	58,3
17	MM 106	47,5	47,4	47,4	48,1	190,4	47,6
18	MM 109	76,1	76,9	75,8	76	304,8	76,2
19	MM 110	67,5	66,9	67,2	67,6	269,2	67,3
Жами		1131,4	1134,2	1130,3	1132,5	4528,4	59,6

Table 2

The difference from the arbitrary starting point is A=54.7						
№	Options	Difference from arbitrary start (X-A)				Total by options
		I	II	III	IV	
1	Sievers apple - control	3,3	2,3	0,3	3,3	9,2
2	M II	23,3	20,3	22,3	23,3	89,2
3	M III	-12,7	-13,7	-11,7	-12,7	-50,8
4	M IV	-1,7	-0,7	0,3	-0,7	-2,8
5	M V	17,3	14,3	16,3	17,3	65,2
6	M VI	-16,7	-13,7	-12,7	-15,7	-58,8
7	M VII	-15,7	-16,7	-18,7	-15,7	-66,8
8	M VIII	-28,7	-25,7	-23,7	-24,7	-102,8
9	M IX	-26,7	-28,7	-30,7	-28,7	-114,8
10	M X	-5,7	-2,7	-4,7	-1,7	-14,8
11	M XIII	-3,7	-5,7	-6,7	-2,7	-18,8
12	M XVI	-16,7	-12,7	-15,7	-13,7	-58,8
13	M XXV	1,3	-1,7	-2,7	0,3	-2,8
14	MM 101	17,3	18,3	21,3	20,3	77,2
15	MM 104	6,3	7,3	6,3	5,3	25,2
16	MM 105	21,3	25,3	24,3	22,3	93,2
17	MM 106	1,3	2,3	1,3	4,3	9,2
18	MM 109	20,3	21,3	19,3	20,3	81,2
19	MM 110	9,3	12,3	8,3	11,3	41,2
Жами		-7,3	1,7	-7,3	11,7	-1,2

The duration of the vegetation period in the main part of the investigated grafts is 230-235 days. This biological indicator is shorter for 15 days in MX graft, and 20 days in MII and MIX, respectively. This situation is related to the relatively late start of vegetation in these types of plants.

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