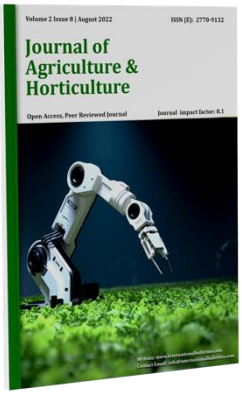

THE EFFECT OF GRAFTING TIME ON GRAFTED PLANTS SURVIVING AND HIGH-QUALITY SEEDLINGS OF CLEFT GRAFTING IN APRICOT

Khomidjonov Abdumomin Abduvakhid ogli
PhD student of Tashkent State Agrarian University
a.xomidjonov@mail.ru
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Abstract. In this article presented the results of the experiments conducted to determine the optimal period of increasing the level of survive of apricot seedlings in the cultivation of apricot seedlings by the cleft grafting method. In the experiment, the method of grafting the buds of the fruitful local varieties of grafted apricots to the modern weakly growing grafts at different times was tested. In this case, the Mirobolan rootstock was grafted with the Yubileinyi Navoi, Subkhani, Isfarak, Aq kandak, Shalakh and introduced Rubista varieties of apricots. Observations show that the best time for grafting onto Mirobolan cuttings, which reproduces vegetatively, is the first and second ten days of March (01-20/III). The number of dead shoots before the autumn inspection when grafting was done during this period was the least (16.6-23.8%). The highest surviving was also high in Shalakh and Isfarak varieties, respectively, and reached 78.8-863.4%.

Keywords: apricot, variety, stock, scion, cuttings, surviving, period, seedling.

Introduction. In our republic, in terms of the cultivated area and gross yield, stone fruits are second only to seeded fruits in our country. In recent years, orchards have been transferring to intensive orchards based on weakly growing grafts. For this purpose, weakly growing apricot seedlings are brought mainly from foreign countries.

It is known that apricot is a strong growing fruit tree. The height of its trees often reaches 10-12 m. This complicates agrotechnical activities such as tree care, treatment against diseases and pests, fruit picking, and autumn pruning. Due to the fact that the fruits on the upper branches are left unpicked, the productivity also decreases significantly.

Therefore, in recent years, researches on the establishment of intensive apricot orchards have been conducted in many countries of the world, and appropriate results have been achieved in this regard [5]. In order to ensure the weak growth of apricot seedlings, grafting of this plant to the new type of Mirobolan rootstock has become popular. However, to date, in Uzbekistan, there have not been enough scientific studies to recommend the production of Mirobolan rootstocks for apricots based on a deep study. In particular, there is a lack of scientifically based sources regarding their grafting periods, agrotechnics of growing grafting materials, etc.

Material and methods. Based on the scientific hypothesis presented above, we conducted studies on the effect of grafting times on cleft grafting of apricot Yubileyniy Navoi, Subkhani, Isfarak Aq kandak, Shalakh and introduced Rubista varieties onto weakly growing Mirobolan rootstocks. For this purpose, the last 10 days of February, the full March and the first 10 days of April, scion cuttings were placed insert scion. Experiments on grafting scion cuttings 5 cm above the root neck of the scion, their retention and development, as well as monitoring the emergence of ready-made seedlings were carried out according to the

Kh.Ch.Boriyev et. al. "Mevali va rezavor mevali o'simliklar bilan tajribalar o'tkazishda hisoblar va fenologik kuzatuvlar metodikasi" (2014) [1] and other manuals related to other fields.

Result and discussion. Period of summer cleft grafting of apricots recommended in February-March according to the generally accepted technology card in our republic. However, these periods may not give effective results for pen grafting on weak growing rootstocks brought to our country from abroad in recent years. Therefore, the determination of such periods should be carried out taking into account the physiological state of the stock plant and the scion variety before grafting, their nutrition and water system, soil-climatic conditions, etc. Among these factors, the period of grafting is one of the most important, and scientists such as S. Y. Islamov [4], Ryabushkin [5] have obtained a number of scientifically based results in this regard and developed recommendations on grafting periods for a number of apricot varieties and rootstocks. Therefore, in the opinion of these scientists, the physiological state of the cambium cells of the stock plant and the scion variety can be an important factor that ensures good grafting. Because there may be a significant difference between the physiological activity of weakly growing stock species that reproduces vegetatively and the activity of scion cultivars depending on the growth strength.

In order to study the above-mentioned ideas about the effect of the grafting period on the quality of grafted scion cuttings in the apricot plant as well, we have conducted research on the implementation of cleft grafting on a number of weakly growing stocks of apricot in different periods. In this case, the movement of sap begins to be active in the grafted scions and the growth of the plant increases with the pressure of the roots, the fact that the grafted scion cuttings do not wake up from the dormant period is observed in February-March in fruit bearing plants and in years with long winters this feature may last until April.

The initial determination of scion cuttings vitality (after grafting) of grafted apricots at different times showed that, cleft grafting in the early or a little later period, when the physiological activity of the plants has not increased and the bark does not separate well, leads to an increase in the total number of dead scion cuttings. Our observations have shown that the best time for cleft grafting a number of varieties of apricots to Mirobolan rootstocks, which are propagated vegetatively, is the first and second ten days of March (01-20/VIII). When grafting was carried out in this period, the number of dead scions before the summer inspection was the least. It can be seen from the data of the table that the least death of scion cuttings was recorded in the options grafted in the period 01-10/III during the summer observation (Table 1).

Therefore, the number of buds that died at the time of grafting in this period was 9.2% in the Yubileyni Navoi variety, 10% in the Isfarak variety, 13.2% in the Subkhani variety, 28.8% in the Ak Kandak variety, and 4% in the Shalakh variety and in the Rubista variety, this indicator was around 14%.

Starting grafting of locally high-yielding varieties of apricot on weakly growing Mirobolan rootstocks earlier than this period or, on the contrary, delaying it, leads to a significant decrease in the capacity of scion cuttings survive.

For example, in the Yubileyniy Navoi variety of apricot, when cleft grafting was started earlier than this period (in the 1st period), the surviving rate of the grafted cuttings was 66%. And also observed that this indicator was 66.8% and 49.4% in the periods when cleft grafting was delayed (21-31/III and 1-10/IV). The period of cleft grafting had a significant effect on the quality and vitality of scion cuttings during the summer period. In this case, the low

number of ready-made seedlings that remained after the end of the summer growth period was recorded in the options where grafting was carried out in early periods or, on the contrary, grafted late.

Table 1. The effect of the period of cleft grafting of apricot varieties on Mirobolan rootstocks on the survival rate of scion cuttings, 2020-2023 yy.

Time of grafting	Total grafted scion cuttings, pcs	Scion cuttings that died summer inspection, pcs	Scion cuttings that died untill the autumn inspection, pcs	Total died grafted scion cuttings, pcs	Total number of surviving grafted scion, pcs	Total number of surviving grafted scions, %
Yubileyni Navoi						
20-31/II	50	8	9	17	33	66
1-10/III	50	4,6	7,3	11,9	38,1	76,2
11-20/III	50	6,3	5,6	11,9	38,1	76,2
21-31/III	50	8,6	8	16,6	33,4	66,8
1-10/IV	50	13,3	12	25,3	24,7	49,4
Isfarak						
20-31/II	50	7	9	16	34	74
1-10/III	50	5	6,3	11,3	38,7	77,4
11-20/III	50	6,3	4,3	10,6	39,4	78,8
21-31/III	50	9	5	14	36	72
1-10/IV	50	13,3	13	26,3	23,7	47,4
Subkhani						
20-31/II	50	8,3	10,6	18,9	31,1	62,2
1-10/III	50	6,6	7	13,6	36,4	72,8
11-20/III	50	7,6	4,6	12,2	37,8	75,6
21-31/III	50	9,6	7,3	16,9	33,1	66,2
1-10/IV	50	14,6	12,6	27,2	22,8	25,6
Ak kandak						
20-31/II	50	14,3	10,6	24,9	25,1	50,2
1-10/III	50	14,4	8,6	23	27	54
11-20/III	50	8,6	10,3	18,9	31,1	62,2
21-31/III	50	11,3	8,6	19,9	30,1	60,2
1-10/IV	50	17,6	13,3	30,9	19,1	38,1
Shalakh						
20-31/II	50	3,6	9,3	12,9	37,1	74,2
1-10/III	50	2	6,3	8,3	41,7	83,4
11-20/III	50	3	7	10	40	80
21-31/III	50	5	10	15	35	70
1-10/IV	50	8	14	22	28	56
Rubista						
20-31/II	50	10,6	12	22,6	27,4	54,8
1-10/III	50	7	5,3	12,3	37,7	75,4
11-20/III	50	7,3	7,6	14,9	35,1	70,2
21-31/III	50	11,3	9,3	20,6	29,4	58,8
1-10/IV	50	14,3	14	28,3	21,7	43,4

In terms of the number of ready-made seedlings preserved during the summer growth period, the fourth period, that is, grafting on 01-10/IV dates, showed superiority. It can be seen that the summer and autumn death of scion cuttings was especially clearly expressed in

the difference in their general survival rate. Therefore, when cleft grafting was carried out in the most favorable period (01-20/III), the total amount of buds was in the following indicators according to types of rootstocks: During our research, we observed that, 76.2% in "Yubileiny Navoi" variety, 78.8% in "Isfarak" variety, 75.6% in "Subkhani" variety, 62.2% in "Aq Kandak" variety, 83.4% in "Shalakh" variety and 75.4% of "Rubista" variety were recorded. According to the varieties, the highest survival rate was observed in the "Shalakha" variety, and the lowest indicator was recorded in the "Aq Kandak" variety.

Indicators somewhat close to this experimental variant were also recorded when grafting was carried out in the first ten days of February, and the rate of surviving of grafted buds on Mirobolan grafts varied between 76-84% (Figure 1, 2).

Figure 1. Grafted scion cuttings.

Figure 2. Surviving scion

Summary. Starting the cleft grafting period much earlier than this period has a negative effect on the durability of grafting grafts and their storage in unfavorable conditions in the summer-autumn period. It should be noted here that the number of dying scion cuttings was higher in the cases where grafting was carried out very early rather than late.

The results of our research on the time of cleft grafting showed that the period of cleft grafting had a significant effect on the good connection of the scion cuttings with the rootstock plant and the amount of high quality seedlings.

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