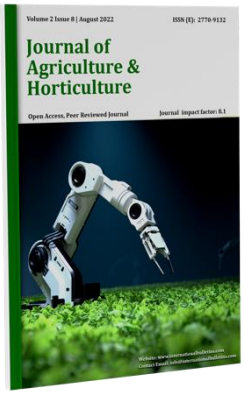

EFFECT OF THE DATE OF BUD GRAFTING OF ALMOND ROOTSTOCKS ON THE QUALITY OF AVIZOR L BUDDS IN GREENHOUSE CONDITIONS

Shadiyev Murod Ismatullayevich
Doctoral student
Scientific Research Institute of Horticulture, Viticulture and Winemaking named academician M.Mirzayev
Zuftarov Erkin Aybekovich
Doctor of Philosophy in Agricultural Sciences (PhD),
Scientific Research Institute of Horticulture, Viticulture and Winemaking named academician M.Mirzayev.
erkin.zuftarov@gmail.com
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Abstract

This article studies the ability of the Avijor L variety to graft onto almond rootstocks in greenhouse conditions. The compatibility of the Avijor L variety with the Oq shaftoli, GF 677, Garnem, and SG-1 rootstocks of almonds was analyzed.

Keywords: *almond, rootstock, variety, bud, graft, greenhouse, period, growth, development.*

Introduction

Almond cultivation is one of the most economically profitable areas of agriculture, and in recent years, great attention has been paid to expanding the area under this crop in our country. Almond trees are considered one of the most important branches of intensive horticulture due to their drought resistance, productivity, and high market demand. This sector opens up broad opportunities not only for ensuring local consumption, but also for increasing export potential, creating new jobs, and sustainable economic development in the regions. Therefore, the correct application of almond cultivation technologies, the introduction of modern agrotechnical measures, and the selection of high-quality varieties are the main factors for success in this direction.

Propagating almond rootstocks is important for creating orchards that are high-yielding, disease-resistant, and adapted to local conditions. High-quality grafts ensure that seedlings take root quickly, grow strongly, and produce stable yields in the future. Also, choosing the right rootstock can help create varieties that are resistant to water shortages or frost. Therefore, grafting is one of the most important steps in achieving high efficiency and economic benefits in almond farming.

The development of grafting dates for almond rootstocks and varieties, their compatibility with almond varieties, and technologies for growing quality seedlings today require advanced scientific research in the field. Therefore, our research investigated the effect of budding timing on shoot set of almond rootstocks in greenhouse conditions.

Materials and methods

During the experiment, the behavior of buds grafted onto almond rootstocks was studied using the method of Kh.Ch. Buriev et al., “Calculations and phenological observations in experiments with fruit and berry plants” (2014). In this study, the Avijor L variety was grafted onto the almond rootstocks Oq shaftoli, GF 677, Garnem, and SG-1 in greenhouse conditions for a year, and the quality of bud set was determined.

Results and discussion

In order to properly organize the duration of this process in rootstock and variety, we conducted research by organizing bud grafting in a greenhouse at all seasons of the year at a temperature of 22-24 °C and a relative humidity of 50-60%.

The budding of the Avijor L almond variety, depending on the grafting period in greenhouse conditions, was studied in the 4 rootstocks studied in our research above.

When studying the compatibility of the Avijor L almond variety with the 4 rootstocks mentioned above, it was observed that the compatibility with the variety was higher in the SG-1 and Garnem rootstocks than in the other rootstocks.

On the SG-1 rootstock, the shortest period of bud set was observed in 10 days, i.e., in the grafted shoots between March 10-20, while the longest period of bud set was between July 10-20, i.e., 27 days.

Among the grafts, the longest period of bud set was observed in the control variant, that is, in the Oq shaftoli rootstock. In this case, the shortest period of budding of grafted shoots in April was 16 days, while the longest period of budding was 28 days, falling between July 10 and 20 (Table 1).

Table 1

Shoot growth of almond variety Avijor L depending on the time of bud grafting in greenhouse conditions (2025)

Grafting period	Buds growth, day	Total dead buds, %	Total grown buds, %
Oq shaftoli rootstock (control)			
10-20/January	25	33,8	66,2
10-20/February	22	32,2	67,8
10-20/March	18	20,2	79,8
10-20/April	16	18,7	81,3
10-20/May	21	20,7	79,3
10-20/June	24	24,2	75,8
10-20/July	28	24,8	75,2
10-20/August	19	20,6	79,4
10-20/September	17	28,5	71,5
10-20/October	23	30,6	69,4
10-20/November	25		
GF 677			
10-20/January	21	32,2	67,8
10-20/February	17	30,5	69,5
10-20/March	12	18,6	81,4
10-20/April	13	16,2	83,8
10-20/May	15	19,4	80,6
10-20/June	24	23,5	76,5
10-20/July	26	28,6	71,4
10-20/August	18	22,5	77,5
10-20/September	15	24,8	75,2
10-20/October	20	25,5	74,5
10-20/November	25		

Garnem			
10-20/January	20	30,5	69,5
10-20/February	15	27,2	72,8
10-20/March	11	17,0	83,0
10-20/April	14	12,8	87,2
10-20/May	17	14,6	85,4
10-20/June	25	20,7	79,3
10-20/July	27	25,3	74,7
10-20/August	15	18,4	81,6
10-20/September	18	23,4	76,6
10-20/October	21	26,5	73,5
10-20/November	26		
SG-1			
10-20/January	19	28,8	71,2
10-20/February	18	26,7	73,3
10-20/March	10	13,5	86,5
10-20/April	12	10,8	89,2
10-20/May	15	14,7	85,3
10-20/June	24	18,6	81,4
10-20/July	27	23,5	76,5
10-20/August	15	22,4	77,6
10-20/September	16	25,6	74,4
10-20/October	22	26,2	73,8
10-20/November	25		

When the mortality of grafted seedlings in greenhouse conditions and the percentage of shoots retained in the Avijor L variety were studied, the results were higher among the rootstocks of this variety, Garnem and SG-1. Bud set on all grafts was higher in March and April than in other months (Figure 1).


Figure 1. Growth of bud grafted almond varieties in greenhouse conditions

The highest total bud set on SG-1 grafts was observed in seedlings grafted on April 10-20, amounting to 89.2%. The lowest rate was observed in seedlings grafted on January 10-20, amounting to 71.2%.

Among the grafts, the highest rate of total shoot set in the Oq shaftoli rootstock (control) was observed in seedlings grafted on April 10-20, amounting to 81.3%. The lowest rate was observed in seedlings grafted on January 10-20, amounting to 66.2%.

According to the results of the study, the variety-rootstock ratio of the studied almond variety Avijor L was higher in SG-1 and Garnem rootstocks.

Conclusion

When studying the bud set of almonds of the Avijor L variety depending on the grafting period in greenhouse conditions, the SG-1 rootstock had a higher percentage of bud set in March and April (86.5-89.2%) than other rootstocks. The Oq shaftoli rootstock (control) showed the lowest rate, with a higher percentage of bud set (81.3%) in April compared to other months.

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