

## BREEDING OF QUINCE SEEDLINGS FROM DIFFERENT GRAFTS IN SOIL AND CLIMATE CONDITIONS OF KARAKALPAKSTAN

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### Abstract

In the article, in the creation of industrial quince plantations in the soil-climatic conditions of Karakalpakstan on the basis of half-sized BA-29, Quince C and Quince A grafts, Quince C (66.9 thousand pieces), Quince A (66.3 thousand pieces) from one hectare of land and BA-29 (65.2 thousand units) grafts compared to control wild quince grafts (36.6 thousand units) (respectively) 30.3; 29.7 and 28.6 thousand seedlings were found.

### Introduction

Quinces are propagated for breeding purposes by seed or vegetative rootstock grafting, root cuttings, layering, root suckers and seeds. Cultivated quinces are often grafted onto hawthorn. Quince is also used as a rootstock for pears and other crops, but its importance in this role is little known. According to literary sources, quinces can be grafted with xenomeles, medlars and pears. For the pear, quince root clones are of utmost practical importance. The clones of Behi A, Behi C, Behi BA-29 known in world practice are weakly winter-hardy and therefore widespread only in the southern regions of Russia, moreover, they are compatible only with a limited number of pear varieties [4].

The development of intensive fruit cultivation in Uzbekistan is aimed at the industrial use of plants with limited habitats of above-ground parts. By using such plants, the number of plants per unit area of the garden can be significantly increased. By operating such gardens, the financial costs of plant care and harvesting can be significantly reduced. The most important rhizome for the establishment of intensive pear orchards in the Republic is the type A quince [4]; [5]; [6].

One of I.T. Normuratov [7] study showed that the growth intensity of aerial parts of plants with various types of vegetatively propagated quince rhizomes is most active in May, especially in Alushtinskaya quince. In such species as BA-29 and Khersonskaya. the growth length of the main shoot is 18-23 cm. In August, a



slowdown in the growth of buds of all types of quince rhizomes is observed - 3 cm. The strongest of all tested quince rhizomes were Kherson and BA-29 until the end of the growing season - 114-122 cm. It was found that the highest productivity of standard seedlings was ensured when using rootstocks such as R3, R4, Alushtinskaya and Khersonskaya.

In this regard, it was considered urgent to conduct scientific research within the framework of selecting suitable quince transplants for the northern regions of Uzbekistan.

### Research methods

Field experiments “Programa i metodika sortoizucheniya plodvikh, yagodnih i orexoplodnikh kultur” (Orel 1999), “Methodology of calculations and phenological observations when conducting experiments with fruit and berry plants” (Buriyev Kh.Ch., et al., 2014) , the statistical analysis of the research results was carried out in Excel 2010 and Statistica 7.0 for Windows, with a confidence interval of 0.95% “Metodika polevogo opita” (Dospekhov B.A., 1985), calculated by the method [1]; [2]; [3].

The subject of the research was the grafting of Uzbekistan regionalized varieties “Samarkandskaya krupnoplodnaya” and wild quince (control), quince “A” (Anjerskaya), BA-29, quince C, quince A, Alushtinskaya, R3, Kherson, S-A- and R1 -types and seedlings served.

### Research results

On the basis of the field trials carried out in 2021-2022 to select the optimal type of rootstock for the preparation of quince seedlings in the soil and climatic conditions of Karakalpakstan, when the quince variety “Samarkandskaya krupnoplodnaya” was grafted onto the wild quince (control) was carried out in March planted in the 2nd nursery, the height of the chat was 25.5 cm and at the end of the growing season it was found that it had grown to 65.6 cm in October. In the 2nd nursery, the tallest seedlings were formed on the cuttings of Quince C (147.2 cm), Quince A (132.3 cm) and BA-29 (126.9 cm), compared to wild quince seedlings (81 each .6cm); They were found to be 66.7 and 61.3 cm tall (Fig. 1).



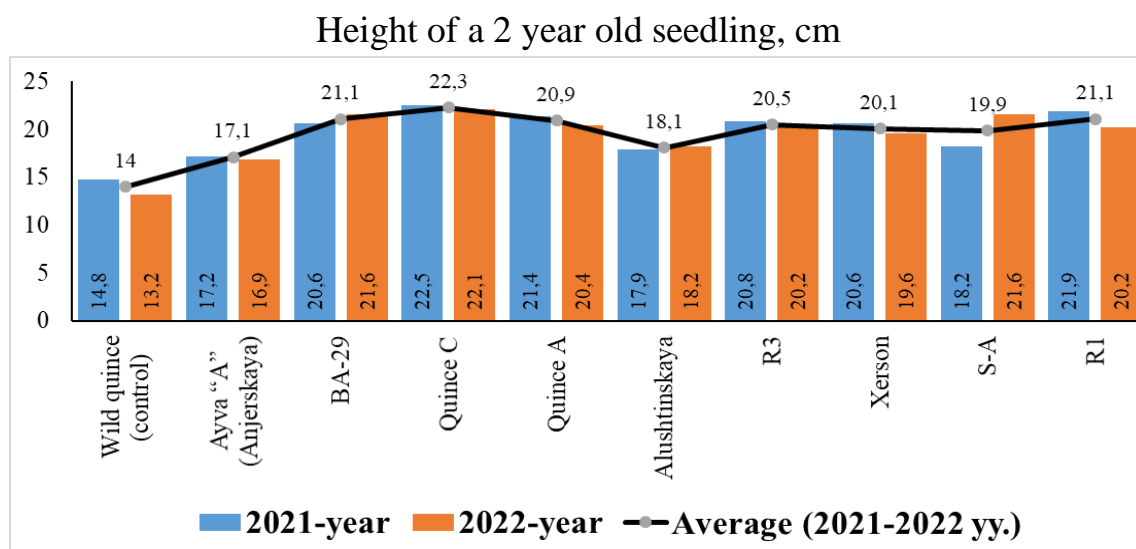
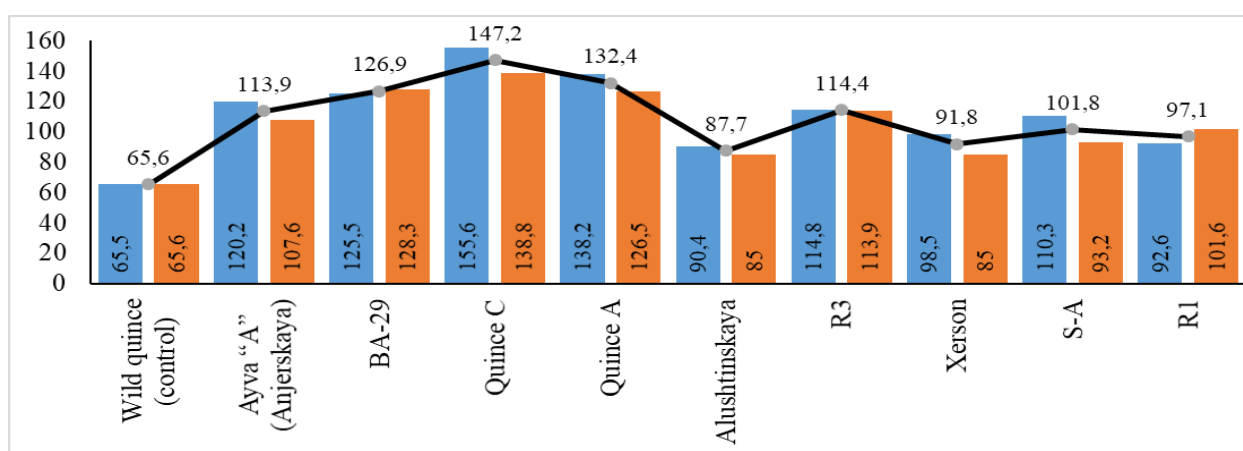


Figure 1. The effect of different transplants on the height and diameter of seedlings of the “Samarkandskaya krupnoplodnaya” variety (2021-2022)

Also R3 (114.3 cm), Aiva “A” (Anjerskaya) (113.9 cm), S-A (101.7 cm), R1 (97.1 cm), Kherson (91.8 cm) and Alushtinskaya (87.7 cm) compared to wild quince seedlings (control) in graft types (each): 48.7; 48.3; 36.1; 31.5; Seedlings 26.2 and 22.1 cm tall were found to be formed.

The average diameter of seedlings of the quince variety “Samarkandskaya krupnoplodnaya” in various transplants for 2021-2022 was 14.0 mm in seedlings connected to control wild quince and, in comparison, in the seedlings with the largest diameter, in particular: < 20 mm large: Quince C (22.3 mm), BA-29 (21.1 mm), R1 (21.1 mm), Quince A (20.9 mm), R3 (20.5 mm) and Kherson (20.1 mm) and > 20 mm smaller: S-A (It was found that there are holes with a diameter of 19.9 mm in

welds), Alushtinskaya (18.1 mm) and Aiva “A” (Anjerskaya) (17.1 mm).

When the emergence of standard seedlings of the quince variety “Samarkandskaya krupnoplodnaya” was studied in various transplants, in 2021, out of 71,400 seedlings per unit area, 38,000 seedlings of the grafted control wild quince appeared - compared to 38,000 seedlings that more than 29.2-27, 9 thousand pieces of Quince C (67.2 thousand pieces), Quince A (66.5 thousand pieces) and BA-29 (65.9 thousand pieces) were produced. In addition, in Alushtinskaya (62.3 thousand pieces) and R1 (62.2 thousand pieces), 24.3–24.2 thousand more seedlings were planted than in the control, in R3 (61.7 thousand pieces) a lot of seedlings were formed (61.7 thousand pieces). 61.3 thousand), Kherson (61.0 thousand) and Aiva “A” (Anjerskaya) (59.3 thousand) It turned out (Fig. 2).

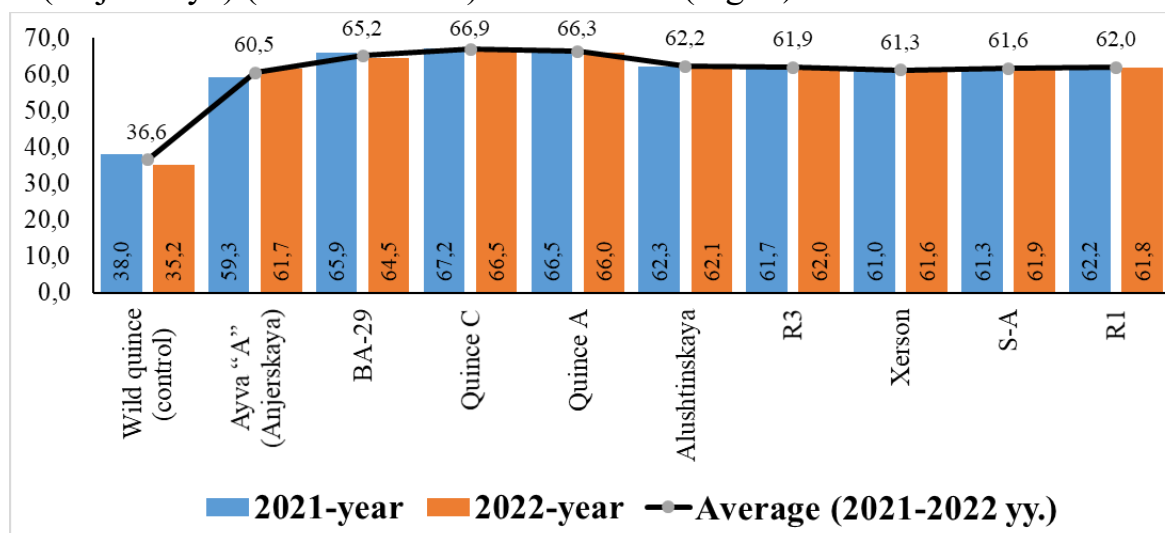


Figure 2. Production of standard seedlings of the quince variety “Samarkandskaya krupnoplodnaya” in various refinements (2021-2022)

Also, in 2022, out of 71,400 seedlings per unit area, 35,200 seedlings were grown in the control wild quince transplant, compared to 31.3-29,300 more seedlings C (66,500 pieces), Quince A (66,000 pieces) and BA-29 (64,500 pieces) were grown in welding noted. In addition, in the BA-29 (64.5 thousand pieces) and Alushtinskaya (62.1 thousand pieces) cuttings, 26.9-26.8 thousand more seedlings were found compared to the control wild quince cuttings, and 26.8-26, 4 most seedlings per thousand pieces are R3 (62.0 thousand pieces). ), S-A (61.9 thousand pieces), R1 (61.8 thousand pieces), Quince “A” (Anjerskaya) (61.7 thousand pieces) and Kherson (61,600 pieces) were formed by welding.

When determining the average indicators of the standard seedling yield of the quince variety “Samarkandskaya krupnoplodnaya” in various grafts for the period 2021-2022, quince C (66.9 thousand pieces), quince A (66.3 thousand pieces) per hectare and BA -29 (65.2 thousand units) transplants compared to the control wild quince transplants (36.6 thousand units) (each) 30.3; It was found that 29.7 and 28.6 thousand seedlings were produced, respectively. Also Alushtinskaya (62.2 thousand units), R1 (62.0 thousand units), R3 (61.9 thousand units), S-A (61.6 thousand units), Kherson (61.3 thousand units) and Aiva “A” (Anjerskaya) (60.5 thousand units) were grown as seedlings on transplants compared to control wild quince transplants (each) 25.6; 25.4; 25.3; 25.0; It was found that 24.7 and 23.9 thousand seedlings were formed.

When analyzing the production of I, II and non-standard seedlings in the quince variety “Samarkandskaya krupnoplodnaya” of various transplants, the largest number of I-type seedlings was found in comparison with the control wild quince (12.3 thousand pieces) quince C (50.4 thousand units), Quince A (49.6 thousand units) and BA-29 (46.0 thousand units) welders (each) 38.1; 37.3 and 33.7 thousand units were more, while for other types of welds S-A (25.6 thousand units), Alushtinskaya (24.1 thousand units), Kherson (23.8 thousand units) it was found that R1 ( 22.1 thousand units), R3 (22.0 thousand units). pieces), Aiva “A” (Anjerskaya) (18.5 thousand pieces) compared to the control wild quince transplants, more I-type seedlings were obtained (3 – picture).

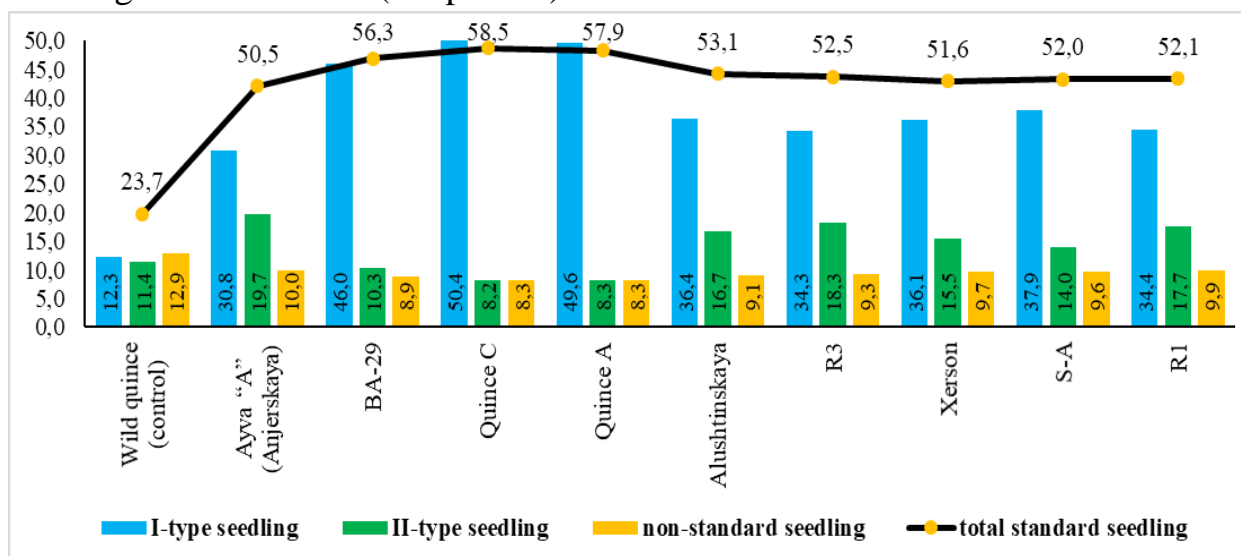


Figure 3. The effect of various graftings on the yield of I, II and non-standard seedlings of the “Samarkandskaya krupnoplodnaya” variety (2021-2022)

According to the quality of the seedlings, the yield of type II seedlings was analyzed, in the control wild quince transplant - 11.4 thousand pieces, compared to 8.3; 6.9 and 6.3 thousand pieces of type II seedlings are produced. Quince "A" (Anjerskaya) (19.7 thousand pieces), R3 (18.3 thousand pieces) and R1 (17.7 thousand pieces) were observed in type welds. Also 5.3; The production of 4.1 and 2.6 thousand fewer type II seedlings was determined in the Alushtinskaya (16.7 thousand), Kherson (15.5 thousand) and S-A (14.0 thousand) transplant types.

Beech transplant types BA-29 (10.3 thousand pieces), Quince A (8.3 thousand pieces) and Quince C (8.2 thousand pieces) compared to wild quince transplant (11.4 thousand pieces each) – 1, 1; Between 3.1 and 3.2 thousand type II seedlings were found to have emerged.

When analyzing non-standard seedlings in the quality distribution of seedlings, the transplant of wild quince (control) is 12.9 thousand pieces, in comparison with quince "A" (Anjerskaya) (10.0 thousand pieces), R1 (9.9 thousand pieces), Kherson (9.7 thousand units), S-A (9.6 thousand units), R3 (9.3 thousand units), Alushtinskaya (9.1 thousand units), BA-29 (8.9 thousand units), Quince C (8.3 thousand units), Quince A (8.3 thousand units) in welding types (each): 2.9; 3.0; 3.2; 3.3; 3.6; 3.8; 4.0; It became known that 4.6-4.6 thousand non-standard seedlings were produced.

### Conclusion

In the soil and climatic conditions of Karakalpakstan, the use of tall quince seedlings BA-29, Quince C and Quince A is recommended.

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