

## HIGH YIELDING, ADAPTIVE VARIETIES OF QUINCE

Mashrapov Akhliddin Tursunalievich

Director of the Fergana scientific Research Station of the Scientific Research Institute of Horticulture, Viticulture and Winemaking Named after Akademik Mahmud Mirzaev

### Annotation

This article presents the results of studies conducted on quince and breeding for high-yielding, disease-resistant varieties. The best result was noted in the “Olmabekhi-applequince” variety with a yield of 200 c/ha and an additional yield of 23.8 c/ha compared to the standard variety.

**Keywords.** Quince, productivity, adaptability, bacterial cancer, variety, rootstock, quality, fruit aroma, sugar content, local, introduction, fertility, pebbly.

### Аннотация

Ушбу мақолада беҳи бўйича олиб борилган тадқиқот натижалари ва юқори ҳосилли, касаликларга бардошли навлари бўйича маълумотлар берилган. Энг яхши натижа “Олмабеҳи” навида қайд этилиб, ҳосилдорлик 200 центнерни, стандарт навга нисбатан қўшимча ҳосил эса 23,8 центнерни ташкил қилган.

Калит сўзлар. Беҳи, ҳосилдорлик, адаптивлик, бактериал рак, нав, пайвандтаг, сифат, мева таъми, қанд миқдори, маҳаллий, интродукция қилинган, унумдорлик, тош-шағалли

### Introduction

Rapid development of the field of fruit production cannot be imagined without varieties with intensive type, compact branching, stable yield every year, resistant to diseases and high adaptability. Quince, which is one of the high-yielding fruit species, has an incomparable role in solving this urgent problem. Although quince is considered a profitable fruit species from the biological and economical point of view, its area is limited in Uzbekistan.

The modern development of fruit growing requires breeding scientists to create competitive quince varieties in terms of product quality, productivity and disease resistance and to introduce them from other regions (Eremin, 2017).

Features such as the smallness of the branches, quick onset of harvest, annual yield, abundance of various useful substances in the fruit, high quality of processed products, and long-term storage make it one of the most valuable types of fruit. This, in turn, makes scientific research on quince varieties to a new level and the expansion of the field of quinces an urgent issue.

Research methodology.

According to the results of the agrochemical analysis of the soil composition in the researched area, the total humus content in the soil layer, 0-30 cm, is 0.98%, nitrogen

is 0.09%, phosphorus is 0.155%, and potassium is 1.25%. From nutrients, mobile phosphorus is provided in the amount of 18 mg/kg, and exchangeable potassium in the amount of 175 mg/kg.

The research conducted in order to evaluate the local and introduced varieties of quince and distinguish superior varieties from others in terms of economic characteristics was conducted based on the accepted methodology (Sedov, 1999). Research was conducted on 31 varieties of buckwheat available at the station as an object of research. This article provides information on 10 varieties with higher performance than them.

### Research Results

Local and introduced varieties cultivated in particular garden of all regions of Fergana region are affected by fungal and bacterial diseases to varying degrees. Therefore, it is important to identify varieties resistant to diseases, especially bacterial cancer, among the quince varieties available at the Fergana Experimental Station.

Bacterial cancer is assessed on a 4-point scale.

1 point, the number of dried leaves, small twigs and dried flowers and flower buds on tree branches does not exceed 1-10 percent of their total amount.

2-point, small necrotic spots on the body and skeletal branches, 11-30% of the flowering stems and branches have dried up.

3-point, 31-50 percent of the tree trunk members are affected, spots are clearly visible on the bark, skeleton branches, some branches have completely dried up, but the tree vegetation continues.

4-point, more than 50 percent of branches, leaves, flowers, fruits are damaged, large spots on the body and branches, glue leakage are observed, the tree begins to dry.

The results of the observations conducted in 2019-2020 showed that 5 out of 10 quince varieties were affected by less than 10 percent and were rated 1 point. At the level of 1 point, it is included among the varieties that are conditionally resistant to damage (Table 1).

Table 1. Study of resistance to bacterial canker disease in quince cultivars.

№	variety	disease level (leaf, branch, flower)		endurance
		2019	2020	
1	2	3	4	5
1	Isobilnaya (control)	1	1	RD
2	Nargush	2	2	MD
3	State farm	2	2	MD
4	Krupnoplodnaya	2	2	MD
5	Konservnaya	1	1	RD
6	Apple quince	1	1	RD
7	Otlichnitsa	1	1	RD
8	Chuchuk krupnaya	2	2	MD
9	Shirin Sweet	1	1	RD
10	Urojaynaya	2	2	MD

Note. RD- resistant to disease; MD - moderately durable; I - inclined.

In the Izobilnaya variety taken as a standard, the branch with bacterial cancer was evaluated with 1 point because the poisoning of the branches was less than 10%, and this variety was found to be relatively resistant to the disease. The disease level of the variety Almabehi, created at the Fergana Scientific Experiment Station, was evaluated with 1 point, and its tolerance to the disease was confirmed.

In 5 varieties of quince, the damage of branches and small branches with bacterial cancer exceeded 11%, and it was evaluated with 2 points, and it was determined that they have an average tolerance to the disease. Varieties moderately resistant to bacterial cancer include Nargush, Sovkhoznaya, Krupnoplodnaya, Chuchuk krupnoplodnaya, Urojaynaya varieties can be included.

The results of the analysis show that local and introduced varieties of quince are affected by bacterial cancer at different levels in the conditions of Fergana region, so it is necessary to continue research on grafts and varieties of quince that are less affected by bacterial cancer.

The results of the three-year analysis show that the productivity of the Almabehi variety was 200 centners on average in three years, and an additional yield of 23.8 centners was obtained compared to the Izobilnaya standard variety (Table 2). The productivity of the Sovkhoznaya variety was 177 centners, the additional yield was 0.8 centners, the productivity of the Konservnaya variety was 179.5 centners, the additional yield was 3.3 centners, the productivity of the Urojaynaya variety was 177.5 centners, the additional yield was 1.2 centners. However, a number of local and introduced varieties of quince have low productivity in Fergana region, and their productivity is lower than the standard variety in the conditions of stony and gravelly lands. In particular, compared to the Izobilnaya variety, the Otlichnitsa variety yielded 4 centners less, the Nargush variety 9.3 centners, the Shirin variety 12.7 centners, the Chuchuk krupnaya variety 24.1 centners, and the Krupnoplodnaya variety 27.7 centners less. Izobilnaya, Sovkhoznaya, Krupnoplodnaya, Olmabehi, Shirin varieties received high marks (4.0-4.5 points) in terms of quince fruit taste. Fruit content and total sugar content was high (13.0-14.1 percent) in Izobilnaya, Sovkhoznaya, Shirin, Krupnoplodnaya varieties.

Table 2. Yield and fruit quality in different varieties of beech.

№	Variety	Yield per hectare, ts/ha				fruit flavor, score			amount of sugar, percentage				overall fruit quality, score		
		2018	2019	2020	normal	2018	2019	2020	2018	2019	2020	Normal	2018	2019	2020
1	Isobilnaya	201,5	178,2	149,0	176,2	4	4,1	4,3	13,0	13,0	13,1	13,0	4	4	4,1
2	Nargush	185,0	170,9	145,0	167,0	4,2	4	3,8	13,4	13,5	13,7	13,5	3,8	3,9	4
3	State farm	210,0	166,0	155,0	177,0	4,4	4,2	4	14,1	14,5	14,0	14,2	4	4,1	4,2
4	Krupnoplodnaya	196,5	121,0	128,0	148,5	4,5	4	4,1	14,4	14,3	13,9	14,2	4	4	4
5	Konservnaya	186,5	173,0	179,0	179,5	3,4	3,5	3,6	11,4	11,5	11,6	11,5	3,5	3,3	3,7
6	Apple quince	215,0	196,0	189,0	200,0	3,8	4,5	4,1	12,4	12,8	12,5	12,6	4,5	4,5	4,2
7	Otlichnitsa	222,5	154,2	140,0	172,2	4	3,9	4	12,3	12,6	12,6	12,5	4,1	3,8	4
8	Chuchuk	198,0	109,5	149,0	152,2	4,1	4,2	4,3	12,8	13,1	13,2	13,0	4	4,1	4,2
9	Sweet	207,5	157,1	126,0	163,5	4,2	4,3	4,2	13,1	13,5	13,4	13,3	4	4	3,9
10	Urojaynaya	208,0	170,4	154,0	177,5	3,5	3,5	3,8	11,8	11,5	11,6	11,6	3,5	3,5	3,6

Izobilnaya, Olmabehi, Sovkhoznaya, Krupnoplodnaya, Otlichnitsa, Shirin varieties were rated high (3.9-4.3 points) according to the general quality indicators of the fruit. Therefore, the above-mentioned quince varieties meet export requirements in terms of fruit quality indicators, as well as high yields in low-fertility soil conditions.

The variety "Almabehi" created at the station is grafted on half-ripe "A" or wild quince rootstock, the period of operation starts from March 14-22, it comes into full bloom from April 6-10, and ripening is observed in the third ten days of September. Quince garden to bacterial blight disease, which severely damages weeds. A high-yielding variety, yield strength is rated at 4.1-4.3 points. The fruit is large, round apple-shaped, light yellow in color when ripe, and has a pleasant aroma.

The total amount of sugar in molasses is 17.5-18.3 percent. Fresh fruits and juices are consumed. Jam and juice are made in processing plants. Its fruit is sold in the domestic market and exported.

#### Conclusion

It was determined that among local and introduced quince varieties, "Almabehi" is superior to all other varieties in terms of productivity, general quality indicators, and resistance to diseases. The new "Almabehi" variety of quince, which has a mother garden and a nursery at the station, can be recommended for the establishment of new gardens and the repair of old ones.

#### REFERENCES

1. Еремин, Г.В. Основные направления селекции плодовых культур на Северном Кавказе / Г.В. Еремин, А.П. Луговской / Современные методологические аспекты организации селекционного процесса в садоводстве и виноградарстве – Краснодар, 2012. – С. 223-267.
2. Программа и методика сортоизучения плодовых, ягодных и орехоплодных культур/под ред. Е.Н. Седова. Орел, 1999. 606 с