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CULTIVATION OF LOCAL AND INTRODUCED APRICOT VARIETIES

Alisher Esanovich Karshev
PhD in Agricultural Sciences, Senior Lecturer,
Department of Fruit Growing and Viticulture,
Tashkent State Agrarian University.
E-mail: a60666933@gmail.com
Sohib Yakhshibekovich Islamov
Doctor of Agricultural Sciences, Professor.
E-mail: s.islamov@gmail.com
Nigarkhan Sayadatdinovna Allayarbekova
Master's Student, Department of Fruit Growing and Viticulture,
Tashkent State Agrarian University.
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Abstract: This article presents the valuable economic characteristics and biological properties of local and introduced apricot varieties. It also discusses research observations conducted to assess the adaptability of apricot trees to soil and climatic conditions, their productivity, and the selection of promising varieties. Particular attention is paid to the adaptability of different varieties to environmental conditions and their other beneficial characteristics.

Keywords: Adaptability, promising varieties, soil, climate, valuable economic traits, quality, bud, flower, fruit, yield, orchard, local varieties, tree, introduced varieties, selection, productivity.

Introduction

Fruit growing is considered one of the oldest branches of agriculture. The earliest information about fruit trees dates back to the 5th century BC. Fruit growing and its products began to acquire commercial significance from the 10th century AD, when trade in fresh and processed fruits was established with neighboring countries. By the 19th century, fruit growing had secured a significant position among other branches of agriculture [1].

In studying apricot varieties cultivated in different ecological and geographical regions, researchers have investigated the genotypes, ecological and geographical origins, and distribution of varieties from Central Asia, Iran, the Caucasus, Europe, and North Africa. It has been established that apricot varieties have spread to numerous countries surrounding the Mediterranean Sea [2, 3].

In the CIS countries, several wild-growing species of apricot are distributed, including common, Siberian, Manchurian, and David's apricots. These include David's apricot (A. davidiana Carr.), Kostina's apricot (A. kostiniae Lomakin), the glabrous-fruited apricot (A. leiocarpa Kost.), Sogdian apricot (A. sogdiana Kudr.), and Anamal apricot (A. anymala Koehne) [4].

Apricot is one of the major fruit crops in Uzbekistan and is particularly widespread in the Fergana and Zarafshan valleys. Genetic similarities have been identified among Fergana, European, and Iranian apricot varieties. Caucasian varieties also account for a significant proportion of apricots cultivated worldwide [5].

According to numerous scientific sources, apricot is one of the ancient fruit crops domesticated by humans. Although Armenia was initially considered its place of origin, subsequent studies identified China as another possible center of origin. At the same time, many literary

sources confirm that Central Asia is also considered one of the historical centers of apricot origin, as wild apricot trees can still be found in considerable numbers throughout this region. Apricot has been known in Uzbekistan since the 6th–7th centuries BC [6, 7].

Following planting, apricot seedlings often exhibit vigorous longitudinal growth and relatively weak branching during the second to fourth years. Therefore, beginning in the second year, in addition to spring thinning, stronger pruning of annual shoots intended for the formation of scaffold branches is recommended. In varieties with vigorous shoot growth exceeding 60 cm and strong branching, approximately half of the growing shoots should be shortened. In varieties with weaker branching, shoots should be shortened by approximately two-thirds of their length [8].

Studies of the responses of apricot varieties to environmental conditions have revealed considerable differences in flowering dates. The results demonstrated a positive correlation between chilling requirements and flowering dates, indicating that low temperatures are necessary for the completion of dormancy. A negative correlation was also observed between the chilling requirements and the heat requirements necessary for flowering. It was established that starch concentrations in apricot tree organs decrease under the influence of low temperatures, whereas glucose and fructose concentrations increase [9, 10].

According to V. I. Avdeev, historical data on the cultivation, introduction, and development of apricot growing in the Orenburg Region of Russia indicate that seed-propagated varieties initially represented the main local forms of apricot. From the 1950s and 1960s onward, apricot cultivation became more widespread in central Russia, the Volga region, Samara, and Orenburg. In Siberia, apricot cultivation had already begun approximately a century earlier [11].

Research Methods

Field experiments were conducted to investigate the growth, development, and productivity of apricot varieties. The research was carried out in accordance with the methods recommended in the Programme and Methodology for Variety Evaluation of Fruit, Berry, and Nut Crops (1999) and the Methodology for Recording and Conducting Phenological Observations in Experiments with Fruit and Berry Plants (Buriyev Kh.Ch. et al., 2014).

Research Results

Among the local and introduced apricot varieties studied at the age of 6–8 years, the largest trunk diameter without pruning of annual shoots (control) was recorded in the Kursadyk variety (45.3 cm). When annual shoots were pruned to lengths of 15 and 30 cm, the largest trunk diameters were observed in the Vympel variety (48.6 and 50.6 cm, respectively), while pruning to 45 cm resulted in the largest diameter in the Shirpayvand variety (47.2 cm).

It was also established that, compared with the Mulla Sadyk variety, in which annual shoots were not pruned (control), the corresponding trunk diameter values in the studied varieties were smaller by 4.9, 10.0, and 10.5 cm, respectively.

When annual shoots of apricot trees were not pruned (control), the smallest individual leaf area was recorded in the Isfarak variety (28.0 cm^2), whereas the largest was observed in the Shalah variety (67.0 cm^2).

Compared with the unpruned control, pruning annual shoots to lengths of 15, 30, and 45 cm resulted in the smallest leaf areas in the Isfarak variety (31.3, 32.3, and 29.7 cm^2, respectively), while the largest leaf areas were recorded in the Shalah variety (69.0, 70.0, and 68.0 cm^2, respectively).

Table 1

Assimilation leaf area of local and introduced apricot varieties under different annual shoot pruning treatments (2024–2026). (Planting years: 2017–2020.)

Variety	Individual leaf area, cm²				Leaf area per tree, m²				Leaf area per hectare, thousand m²				Leaf area per 1 kg of fruit, m²			
	Control	15 cm	30 cm	45 cm	Control	15 cm	30 cm	45 cm	Control	15 cm	30 cm	45 cm	Control	15 cm	30 cm	45 cm
Subkhony	38.0	42.7	44.3	40.3	51.3	30.5	37.7	38.2	17.1	10.2	12.5	12.7	4.8	3.2	2.2	3.1
Monica Blanca	56.0	58.0	59.3	57.0	74.8	35.6	44.1	49.2	24.9	11.9	14.7	16.4	14.1	4.4	2.2	3.8
Shalah	67.0	69.0	70.0	68.0	91.0	39.6	54.3	43.2	30.3	13.2	18.1	14.4	12.2	4.0	3.7	2.4
Isfarak	28.0	31.3	32.3	29.7	44.5	21.1	28.1	33.1	14.8	70.3	9.4	11.0	3.2	2.0	1.4	2.3
Subkhony Zarya	30.3	34.0	35.0	32.3	34.0	17.5	23.5	26.9	11.3	58.4	7.8	8.9	3.4	3.2	2.2	1.5
Subkhony Gigant	35.3	38.7	40.7	37.0	53.9	23.7	33.8	39.6	17.9	7.9	11.3	13.2	4.2	2.3	1.7	2.9
Najimi	40.7	44.3	45.7	42.7	48.4	23.8	30.9	36.2	16.2	7.9	10.3	12.1	5.6	5.0	2.4	1.9
Isfarak Badamsky	46.7	50.3	51.3	48.0	77.1	35.5	47.3	55.3	25.7	11.8	15.7	18.4	6.9	3.5	2.7	4.4
Kaloni Kandak	41.0	44.0	45.7	43.0	52.2	24.7	33.3	38.4	17.4	8.3	11.1	12.8	4.3	2.7	1.8	2.8
Yubileiny Navoi	38.0	40.3	42.0	39.3	46.6	22.0	29.7	35.0	15.5	7.3	9.9	11.6	7.3	2.4	1.5	2.5
$LSD_{0.5}$	1.6	2.0	1.7	1.9	2.2	1.2	1.4	1.6	0.7	1.3	0.5	0.5	0.3	0.1	0.1	0.1
Sx, %	3.8	4.3	3.7	4.4	3.8	4.4	3.7	4.0	3.8	4.5	3.7	4.0	4.2	4.3	3.8	4.2

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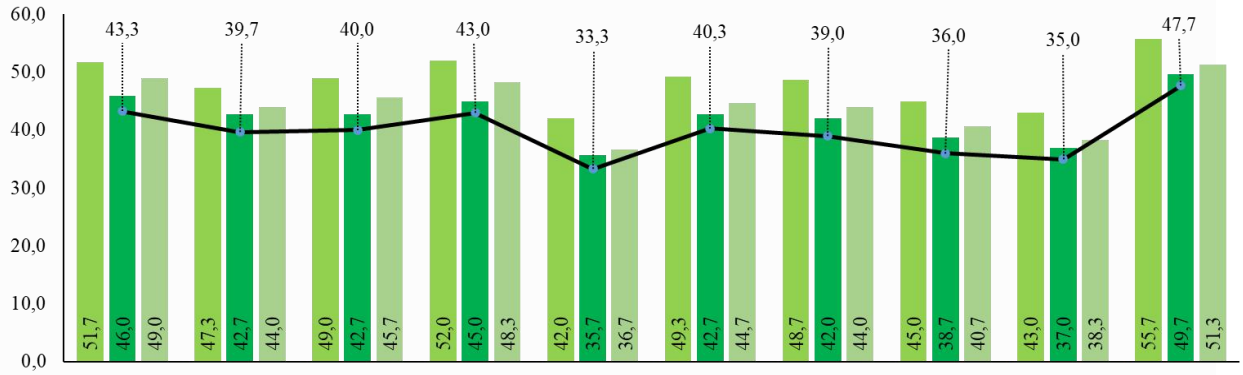
The smallest total leaf area per tree without pruning annual shoots (control) was recorded in the Subkhony Zarya variety (34.0 m²), whereas the largest was observed in the Shalah variety (91.0 m²).

Compared with the unpruned control, pruning annual shoots to lengths of 15, 30, and 45 cm resulted in the smallest total leaf area per tree in the Subkhony Zarya variety (17.5, 23.5, and 26.9 m², respectively). The largest total leaf area per tree was recorded in the Shalah variety (39.6, 54.3, and 43.2 m², respectively).

Among the 8–10-year-old local and introduced apricot varieties, the largest number of leaves per annual shoot without pruning (control) was recorded in the Yubileiny Navoi variety (47.7 leaves), while the smallest number was observed in the Subkhony Zarya variety (33.3 leaves).

Compared with the unpruned control, pruning annual shoots to lengths of 15, 30, and 45 cm resulted in the highest number of leaves per shoot in the Yubileiny Navoi variety (55.7, 49.7, and 51.3 leaves, respectively). Conversely, the lowest number of leaves per shoot at the corresponding pruning lengths was recorded in the Subkhony Zarya variety (42.0, 35.7, and 36.7 leaves, respectively) (Figure 1).

Figure 1. Number of leaves per annual shoot under different pruning treatments (2024–2026). (Planting years: 2017–2020.)



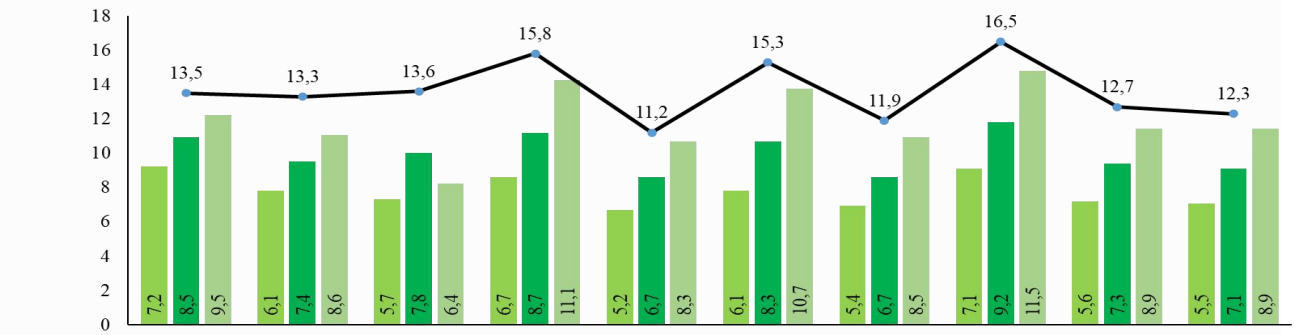
Apricot varieties: Subkhoni, Monica Blanca, Shalah, Subkhoni Zarya, Najimi, Kaloni Kandak, and Yubileiny Navoi.

Without pruning annual shoots (control), the highest total number of leaves per tree was observed in the Isfarak Badamsky variety (16.5 thousand leaves), whereas the lowest number was recorded in the Subkhony Zarya variety (11.2 thousand leaves).

Compared with the unpruned control, the highest number of leaves per tree following pruning to 15 cm was recorded in the Subkhony variety (7.2 thousand leaves), while pruning to 30 and 45 cm resulted in the highest values in the Isfarak Badamsky variety (9.2 and 11.5 thousand leaves, respectively).

Conversely, the lowest number of leaves per tree following pruning to 15 cm was recorded in the Subkhony Zarya variety (5.2 thousand leaves). At a pruning length of 30 cm, the lowest values were observed in the Subkhony Zarya and Najimi varieties (6.7 thousand leaves), while at 45 cm, the lowest value was recorded in the Shalah variety (6.4 thousand leaves) (Figure 2).

Figure 2. Number of leaves per tree under different annual shoot pruning treatments (2024–2026). (Planting years: 2017–2020.)



Apricot varieties: Subkhoni, Monica Blanca, Shalah, Subkhoni Zarya, Najimi, Kaloni Kandak, and Yubileiny Navoi.

Pruning treatments:

- Annual shoots pruned to 15 cm. Annual shoots pruned to 30 cm.
- Annual shoots pruned to 45 cm. Unpruned annual shoots (control).

Number of leaves per tree, thousand units. (Planting years: 2017–2020.)

When annual shoots were not pruned (control), the smallest individual leaf area was recorded in the Isfarak variety (28.0 cm²), while the largest was observed in the Shalah variety (67.0 cm²).

Compared with the unpruned control, pruning annual shoots to lengths of 15, 30, and 45 cm resulted in the smallest individual leaf areas in the Isfarak variety (31.3, 32.3, and 29.7 cm², respectively), whereas the largest leaf areas were recorded in the Shalah variety (69.0, 70.0, and 68.0 cm², respectively) (Table 1).

The smallest total leaf area per tree without pruning annual shoots (control) was observed in the Subkhony Zarya variety (34.0 m²), while the largest was recorded in the Shalah variety (91.0 m²).

C ompared with the unpruned control, pruning annual shoots to lengths of 15, 30, and 45 cm resulted in the smallest total leaf areas per tree in the Subkhony Zarya variety (17.5, 23.5, and 26.9 m², respectively), while the largest values were recorded in the Shalah variety (39.6, 54.3, and 43.2 m², respectively).

Conclusions

The annual development of the studied apricot varieties, from the flowering phase to fruit ripening, was divided into three groups and analyzed comparatively across varieties.

Early-ripening varieties included Subkhony Zarya and Najimi. The medium-early ripening period was observed in Yubileiny Navoi, while the medium-ripening period was characteristic of Kursadyk.

In strongly branching apricot varieties, such as Subkhony and Yubileiny Navoi, generative buds developed mainly on spurs and short fruiting branches. In moderately and weakly branching varieties, including Najimi, Subkhony Gigant, and Kursadyk, full development of generative buds was observed when spurs and short fruiting branches were shortened less intensively, by approximately 30–45 cm.

The vegetation period of the studied apricot varieties, from bud swelling to the completion of leaf fall, averaged 240–260 days. It was also established that these varieties had a relatively long growing season.

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