



## BIOLOGICAL CHARACTERISTICS OF LOCAL AND INTRODUCED VARIETIES

**Mahmudov A.<sup>1</sup>, Mashrapov A.<sup>2</sup>**

*<sup>1,2</sup>Fergana Scientific Experimental Station of the Scientific-Research Institute of Horticulture, Viticulture and Winemaking named after Academician Makhmud Mirzaev, Fergana Region, Uzbekistan*

### ABSTRACT

The article presents the results of a study to determine the best varieties of apple trees with early, medium, and late ripening, yielding a high yield with high-quality products not inferior to the standard in the conditions of low-fertile, pebble soils of the Fergana region. Recommended apple varieties among early-ripening - Chulpon, Hosildor, White filling, Sux malikasi, mid-ripe-Argus, Guzal olma, Fumi, Jesser Mark, late-ripening Fuji, Boyken, Starkrimson.

**KEYWORDS:** apple, variety, fairy, middle, evening, rod, body, twig, local varieties

### INTRODUCTION

The prevalence of apples is determined by its valuable properties, their importance in human health, production and the economy. The only drawback of apples is the large number of varieties that require less replacement. Propagation of orchards on an industrial scale requires the development of the most efficient and economically viable varieties. In order to meet the needs of the domestic market, processing industry and exports in the construction of apple orchards and the reconstruction of the old ones, it is important to select the best of the morning, middle and evening varieties of apples.

In this regard, in the horticulture of developed countries, it will be possible to meet the demand for apples throughout the year by introducing in our country the practice of cultivating 15% of early, 25% of medium and 60% of late varieties of apple orchards.

### MATERIALS AND METHODS

The research was carried out on the basis of the adopted methodology in order to evaluate local and introduced varieties of apples and to distinguish superior varieties from others by economic characteristics (Lobanova et al., 1973). The object of study was the use of 11 early, 12 medium and 15 late varieties of apples available at the station, and this article provides information on 18 varieties with high performance.

### RESULTS AND DISCUSSION

The predominance of the yield per bush was found in the beautiful varieties Djizakskoe rannee, Hosildor and Sokh guzali, and the high yields per unit area of the cross-section of the body (0.26-0.27 and 0.30 kg/cm<sup>2</sup>) were corresponding to these varieties became relevant.

Observations on the growth process in the middle varieties showed that the growth of annual branches was stronger in the middle varieties studied Jesser Mark (40.7 cm), Uzbek red, Summer red (37.0 cm). The predominance of trunk circumference and body cross-section was recorded in the varieties Guzal olma (67.0 cm-352 cm<sup>2</sup>), Argus (62.1 cm-302 cm<sup>2</sup>). The results of the analysis revealed that in medium apple varieties there was a partial inverse relationship between the increase in tree cross-section and the yield load per square centimeter of body cross-section. In particular, the highest yields per cross-section were Naliv Zolotoy (0.23 kg/cm<sup>2</sup>), Uzbek Red (0.21 kg/cm<sup>2</sup>), Jesser Mark and Summer Red.

According to the analysis of late apple varieties, R. on the average growth of branches during the annual growing season. Simirenko (45.6 cm), Fuji (41.7 cm), Boyken (40.3 cm), Golden Delishes (39.6 cm), Elegant (39.1 cm), body circumference length and body cross section R. accordingly on the surface. Simirenko (73 cm-420 cm<sup>2</sup>), Fudji (66 cm-343 cm<sup>2</sup>), Nafis (72 cm - 413 cm<sup>2</sup>).

In late varieties of apples, the law of the correct relationship between the amount of yield per square centimeter of body cross-sectional area and the yield of a single tree was not determined.

Apples are the most productive fruit species and are also leaders in the number of varieties. The proliferation of poor quality apple varieties also requires the selection of the most productive of them.

### CONCLUSION

Preliminary research results show that clear conclusions about the relationship between growth rate and yield in apple varieties can be obtained on the basis of many years of observations.



In our research, high-yielding and fruit-quality varieties of early, medium and late apples in low-yielding, rocky soils were identified as superior to the standard varieties. Cholpon, Hosildor and Bely nalive from tomorrow's apple varieties, Argus, Gozal apple, Fumi, Jesser Mark from the middle ones, Fuji and Boyken, Starkrim number varieties from the evenings

can be recommended for planting in newly established and reconstructed gardens.

#### REFERENCES

1. *Program and methodology for the study of fruit, berry and nut crops.* Ed. G.A. Lobanova. Michurinsk: VNIIS, 1973. 495 p.



**Table**  
**Growth, development process and yield in different varieties of apples**  
**(in 2019-2020 years)**

№	Variety	Annual rod growth, cm			Body circumference length, cm			Body cross-sectional area, cm <sup>2</sup>			Yield per bush, kg			Yield corresponding to the cross-sectional surface, kg/cm <sup>2</sup>		
		2019	2020	mid.	2019	2020	mid.	2019	2020	mid.	2019	2020	mid.	2019	2020	mid.
<b>Earliest-Ripening varieties</b>																
1	<b>Chulpon (control)</b>	<b>36,8</b>	<b>40,9</b>	<b>38,9</b>	<b>55,7</b>	<b>58,4</b>	<b>57,1</b>	<b>244</b>	<b>268</b>	<b>256</b>	<b>47,9</b>	<b>62,2</b>	<b>55,1</b>	<b>0,12</b>	<b>0,23</b>	<b>0,18</b>
2	Beforestr	32,1	46,3	39,2	60,5	62,5	61,5	287	307	297	28,4	74,7	51,6	0,10	0,24	0,17
3	Qimizak	34,4	40,5	37,5	59,8	61,6	60,7	281	298	289	34,3	66,1	50,2	0,12	0,22	0,17
4	Beliy naliv	34,5	32,6	33,6	49,7	50,6	50,2	194	201	197	34,7	59,9	47,3	0,18	0,30	0,24
5	Hosildor	43,5	38,9	41,2	53	56	54,5	221	246	233	49,1	78,2	57,6	0,22	0,32	0,27
6	Sukh malikasi	39,4	37,9	38,7	56,5	58,9	57,7	251	272	261	58,9	81,4	70,2	0,24	0,41	0,30
<b>Mid-ripening varieties</b>																
1	<b>Argus (control)</b>	<b>33,7</b>	<b>29,9</b>	<b>31,8</b>	<b>61,7</b>	<b>62,4</b>	<b>62,1</b>	<b>299</b>	<b>306</b>	<b>302</b>	<b>38,2</b>	<b>71,2</b>	<b>54,7</b>	<b>0,13</b>	<b>0,23</b>	<b>0,18</b>
2	Naliv zolotoy	32,7	28,4	30,6	50,2	52,5	51,4	198	216	207	34,6	61,4	48,0	0,17	0,28	0,23
3	Uzbekiston qizili	38	38,6	38,3	49,7	51,8	50,8	194	211	202	28,4	58,7	43,6	0,14	0,28	0,21
4	Gesser Mark	43,7	37,6	40,7	32,3	35	33,7	82	96	89	34,3	42,5	38,4	0,11	0,44	0,28
5	Summer Red	31,8	42,1	37,0	34,3	36	35,2	92	102	97	32,1	51,0	41,6	0,11	0,50	0,31
6	Guzal olma	33,1	26,8	30,0	66,8	67,2	67,0	350	354	352	38,0	60,5	49,3	0,11	0,17	0,14
<b>Late-ripening varieties</b>																
1	<b>Renet Simirenko (control.)</b>	<b>44,3</b>	<b>46,9</b>	<b>45,6</b>	<b>72</b>	<b>74,2</b>	<b>73,1</b>	<b>407</b>	<b>432</b>	<b>420</b>	<b>26,0</b>	<b>79,5</b>	<b>52,8</b>	<b>0,06</b>	<b>0,18</b>	<b>0,12</b>
2	Fuji	43,2	40,1	41,7	65,4	66,8	66,1	336	350	343	38,6	87,4	63,0	0,11	0,25	0,18
3	Boyken	47,8	32,7	40,3	57,6	59,4	58,5	260	277	269	42,3	80,9	61,6	0,16	0,29	0,23
4	Nafis	41,6	36,5	39,1	71,8	73,2	72,5	405	421	413	27,6	72,3	50,0	0,07	0,17	0,12
5	Starkrimson	34,3	27,4	30,9	62	63,9	63,0	302	321	311	23,2	68,9	46,1	0,08	0,21	0,15
6	Golden Delicious	40,3	38,9	39,6	57,2	59	58,1	257	273	265	30,0	79,1	54,6	0,11	0,29	0,20