

PLUM CULTIVAR EVALUATION ON MYROBALAN ROOTSTOCK IN LITHUANIA

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*Twenty plum cultivars on Myrobalan (*Prunus cerasifera* Ehrh.) seedling rootstock were tested in 2012–2017 at the Institute of Horticulture of the Lithuanian Research Centre for Agriculture and Forestry. Plum trees were spaced at 4.5 × 2.5 m and trained as spindles. Orchard floor management included frequent mowing of grass in the alleyways with herbicide strips along tree rows. ‘Duke of Edinburgh’, ‘Kijevas Vėlā’, ‘Dąbrowicka Prune’, ‘Čačanska Najbolje’, and ‘Štaro Vengrinė’ cultivars were the most vigorous plum trees at the end of 6th year. Their trunk diameter achieved 92–96 mm. ‘Valor’, ‘Queen Victoria’, ‘Herman’, ‘Čačanska Najbolje’, ‘Favorita del Sultano’, ‘Ave’, and ‘Jubileum’ cultivars had the lowest trunk diameter — 72–78 mm. The highest cumulative yield of four fruiting years was recorded for ‘Kometa’ and ‘Violeta’ cultivars, respectively, 43.0 and 46.5 kg/tree. ‘Favorita del Sultano’, ‘Rausvė’, and ‘Kijevas Vėlā’ produced the largest fruits — 52–60 g. The smallest fruit occurred on ‘Dąbrowicka Prune’ and ‘Herman’ cultivars, respectively, 22 and 25 g. ‘Dąbrowicka Prune’ had the highest soluble solids content (SSC) — 19.5%. The least SSC was recorded in ‘Kometa’, ‘Violeta’ and ‘Herman’ fruits — 10.6–11.8%. ‘Renklod Rannij Doneckij’, ‘Čačanska Najbolje’, and ‘Valor’ cultivars had the highest fruit flesh firmness.*

Key words: *flesh firmness, fruit weight, soluble solids, trunk diameter, yield.*

INTRODUCTION

Plum breeding and associated research are carried out regularly, in the attempt to create new cultivars that meet changing requirements. Cultivars are created using different genetic resources, to produce plums with the desired biological and ecological characteristics. In many countries both indigenous and introduced cultivars are cultivated. The biggest obstacle to extrapolation of the results obtained in other countries than Lithuania is differences in climate. Despite global warming, cold weather is expected during winter. Therefore, cultivar winter hardiness is still important in northern countries (Janes and Kahu, 2008).

Despite the existing dangers, the introduction of varieties is often successful. England, France and Germany are the main donor countries for plum and cherry in Sweden. All of these donor countries have a warmer climate than Sweden, but certain genetic resources from southern latitudes may adapt well to a less favourable climate (Hjalmarsson *et al.*, 2008). Some plum genotypes with origin in southern Ger-

many have shown good results in Latvia (Grāvīte and Kaufmane, 2017).

Even within the same country, the growing technology and agroecological conditions may have big influence on productivity and quality of all studied cultivars (Rakićević *et al.*, 2008).

Research on cultivars are usually performed on the most important rootstocks. Seedlings of *Prunus cerasifera* Ehrh. are traditionally and commonly used as rootstock for plums in Lithuania, as in neighbouring countries (Kaufmane *et al.*, 2007; Świerczyński and Stachowiak, 2009). Despite vigorous tree growth and insufficient yield efficiency, *P. cerasifera* (Myrobalan) seedlings are appreciated for good compatibility with scion cultivars, winter hardiness and adaptability to a wide range of soils.

The aim of the present study was to estimate the productivity and fruit quality of new and some traditionally cultivated plum cultivars on *P. cerasifera* seedling rootstocks.

MATERIALS AND METHODS

The experiment was conducted in the experimental orchard of the Institute of Horticulture, at the Lithuanian Research Centre for Agriculture and Forestry in 2012–2017. One-year-old plum trees of ‘Ave’ (Estonia); ‘Čačanska Najbolje’, ‘Čačanska Rana’ (Serbia); ‘Duke of Edinburgh’, ‘Queen Victoria’ (United Kingdom); ‘Favorita del Sultano’ (Italy); ‘Herman’, ‘Jubileum’, ‘Violeta’ (Sweden); ‘Kijevas Vėla’, ‘Oda’, ‘Renklod Rannij Doneckij’ (Ukraine); ‘Kubanskaya Kometa’, ‘Zarechnaya Ranniaya’ (Russia); ‘Oullins Reneklode’ (France); ‘Rausvė’, ‘Štaro vengrinė’ (Lithuania); ‘Stanley’ (USA), ‘Valor’ (Canada) and ‘Dąbrowicka Prune’ (Poland) cultivars on *Prunus cerasifera* Ehrh. seedling rootstock were planted in the orchard in spring 2012. Fruit trees were spaced at 4.5 × 2.5 m and trained as spindles. The experiment was arranged in four replications with randomly arranged cultivars. Each experimental plot included three fruit trees. Orchard floor management combined frequent mowing of grass in the alleys with herbicide strips along tree rows. The soil in the orchard was Epicalcari–Endohypogleic cambisol. Topsoil characteristics were: 250 mg·kg⁻¹ P₂O₅, 190 mg·kg⁻¹ K₂O, 2.8% humus, and pH_{1MKCl} 7.2. Nitrogen fertilizers were used every spring depending on the tree age, at the rate 50–180 g of ammonium nitrate per tree.

Meteorological conditions during the experiment were favourable, except in the spring of 2017. Average air temperature in March exceeded the perennial average by 3.2 Celsius degrees (Table 1) and vegetation began earlier than usual. In the middle of April there was a cold weather settled with negative temperatures that lasted a few hours daily. Minimum daily temperature reached –4.6 Celsius degrees. Negative temperatures in 2017 were recorded in April for nine days. Negative temperatures were also recorded in May. The flower buds of most cultivars were damaged and the fruit trees did not yield or the harvest was small.

Trunk diameter measurements were made in autumn at 25 cm above the soil surface. Yield was recorded for the whole experimental plot and recalculated to t/ha. Average fruit weight (g) was determined on a representative sample of 100 plums per each experimental plot. Soluble solids content (%) was determined with a digital refractometer (ATAGO 101, Atago Co., Ltd., Tokyo, Japan). Fruit flesh

Table 1

AIR TEMPERATURE AND RAINFALL IN THE PERIOD OF MARCH–MAY, 2017 — RECORDS OF IMETOS® (PESSL INSTRUMENTS GMBH, WEIZ, AUSTRIA) METEOROLOGICAL STATION IN BABTAI

Month	Air temperature, °C				Total amount of precipitation, mm	
	min	max	average	perennial average	sum	perennial average
March	–2.4	13.8	3.9	0.7	47.2	32.5
April	–4.6	24.0	6.0	6.1	76.0	38.4
May	–3.3	29.6	13.3	12.3	10.4	53.8

firmness was measured with a digital fruit firmness tester 53205 (T.R. Turoni, Forli, Italy) using an 11-mm diameter probe and expressed in kg/cm². Sensory fruit quality was examined at harvest by a panel of nine trained judges. Fruit attractiveness, stone separation from the flesh, taste and overall rating was expressed in a 1–5 score scale where 1 indicates the lowest quality and 5 — the highest. Sensory fruit quality evaluation was done in 2015–2016.

Experimental data were subjected to one-way analysis of variance. Data were analysed by ‘ANOVA’ of a statistical software, the least significant difference (LSD) was calculated at $p = 0.05$.

RESULTS

Fruit trees of ‘Čačanska Najbolje’, ‘Duke of Edinburgh’, ‘Kijevas Vėla’, ‘Štaro Vengrinė’ and ‘Dąbrowicka Prune’ cultivars were the most vigorous based on trunk diameter (Table 2). ‘Favorita del Sultano’, ‘Herman’, ‘Jubileum’, ‘Queen Victoria’ and ‘Valor’ were the weakest with lowest trunk diameter.

At the end of 6th year, no serious losses of fruit trees were observed. 17% of ‘Herman’, ‘Jubileum’ and ‘Oda’ fruit trees were lost; 8% of ‘Ave’, ‘Queen Victoria’ and ‘Dąbrowicka Prune’ were lost.

The fruit trees of most cultivars began to yield in the third year of growth. The first yield of most cultivars was poor.

Table 2

PLUM TREE TRUNK DIAMETER AND NUMBER OF SURVIVING FRUIT TREES, BABTAI, 2012–2017

Cultivar	Trunk diameter, mm	Survived fruit trees, %
Ave	77	92
Čačanska Najbolje	94	100
Čačanska Rana	86	100
Dąbrowicka Prune	93	92
Duke of Edinburgh	92	100
Favorita del Sultano	76	100
Herman	76	83
Jubileum	78	83
Kijevas Vėla	92	100
Kubanskaya Kometa	87	100
Oda	80	83
Oullins Reneklode	87	100
Queen Victoria	75	92
Rausvė	80	100
Renklod Rannij Doneckij	86	100
Stanley	82	100
Štaro Vengrinė	96	100
Valor	72	100
Violeta	85	100
Zarechnaya Ranniaya	87	100
LSD ₀₅	7.4	–

‘Ave’, ‘Rausvė’ and ‘Dąbrowicka Prune’ did not yield at all. ‘Kubanskaya Kometa’ was the most productive cultivar, with 8.54 kg fruit per tree. ‘Čačanska Najbolje’, ‘Violeta’ and ‘Valor’ had appreciable yield in the third year — 2.15–3.14 kg/tree (Table 3).

All cultivars had fruit crops in the fourth year of growth, though some of with low yield. ‘Oullins Reneklode’ and ‘Rausvė’ gave only 0.31–0.45 kg fruit per tree. ‘Kubanskaya Kometa’, ‘Violeta’ and ‘Čačanska Najbolje’ were the most productive cultivars — 16.67–21.2 kg/tree. Cultivars ‘Duke of Edinburgh’, ‘Herman’, ‘Jubileum’, ‘Kijevas Vēlā’, ‘Oda’, ‘Queen Victoria’, ‘Stanley’, ‘Štaro Vengrinė’ and ‘Valor’, were also productive.

In 2016, the most productive cultivars were ‘Violeta’, ‘Kubanskaya Kometa’, ‘Duke of Edinburgh’, ‘Queen Victoria’, ‘Jubileum’, ‘Štaro vengrinė’ and ‘Zarechnaya Ranniaya’ — 13.91–19.41 kg/tree.

In 2017, due to unfavourable spring weather, one third of the tested cultivars did not produce fruit; the others had low crop yields. ‘Dąbrowicka Prune’, ‘Favorita del Sultano’, ‘Jubileum’, ‘Stanley’, and ‘Violeta’ cultivars were somewhat more productive with 5.16–7.09 kg/tree.

Cultivars ‘Violeta and ‘Kubanskaya Kometa’ gave the highest cumulative yield during the four-year period, respectively, 46.5 and 43 kg/tree. ‘Rausvė’, ‘Čačanska Rana’,

‘Renklod Rannij Doneckij’, and ‘Oullins Reneklode’ had the smallest yields. Cultivar ‘Rausvė’ was extremely unproductive, with only about 1 kg fruit per tree over four years.

Fruits of ‘Favorita del Sultano’, ‘Rausvė’ and ‘Kijevas Vēlā’ cultivars were the largest — 52–60 g (Table 4). Fruits of ‘Čačanska Najbolje’, ‘Čačanska Rana’, ‘Jubileum’, ‘Oullins Reneklode’ and ‘Valor’ were also big — 44–49 g. ‘Dąbrowicka Prune’ and ‘Herman’ produced the smallest fruits — 22–25 g.

Fruit flesh of ‘Renklod Rannij Doneckij’, ‘Čačanska Najbolje’ and ‘Valor’ cultivars was the firmest — 3.21–3.78 kg/cm². Fruits of ‘Kubanskaya Kometa’, ‘Favorita del Sultano’, ‘Ave’, ‘Zarechnaya Ranniaya’ and ‘Rausvė’ were the softest — 1.44–1.83 kg/cm².

Fruits of ‘Dąbrowicka Prune’ had the highest soluble solids content (SSC) — 19.5%. ‘Stanley’, ‘Jubileum’, ‘Štaro Vengrinė’ and ‘Valor’ fruits had significantly lower but rather high SSC found — 14.8–16.7%. ‘Kubanskaya Kometa’ and ‘Violeta’ fruits had a low SSC — 10.6–10.9%.

‘Favorita del Sultano’, ‘Kijevas Vēlā’, ‘Oda’, ‘Valor’, ‘Zarechnaya Ranniaya’, ‘Čačanska Najbolje’, ‘Čačanska Rana’ and ‘Jubileum’ had the most attractive fruits. The most non-appealing was fruits of ‘Herman’ cultivar. ‘Čačanska Rana’, ‘Jubileum’, ‘Dąbrowicka Prune’, ‘Herman’, ‘Rausvė’, ‘Štaro vengrinė’ and ‘Čačanska Najbolje’ were

Table 3

PLUM TREE YIELD (kg/tree), BABTAI, 2014–2017

Cultivar	2014	2015	2016	2017	Cumulative
Ave	0.00	2.30	7.80	1.54	11.64
Čačanska Najbolje	2.15	21.20	6.20	1.59	31.14
Čačanska Rana	0.25	2.30	2.95	0.00	5.50
Dąbrowicka Prune	0.00	6.87	13.11	7.09	27.07
Duke of Edinburgh	0.55	9.69	17.34	1.70	29.27
Favorita del Sultano	0.20	4.64	3.78	6.92	15.54
Herman	0.14	7.34	10.36	0.00	17.84
Jubileum	0.26	9.09	15.38	5.61	30.33
Kijevas Vēlā	0.25	8.27	8.60	1.92	19.04
Kubanskaya Kometa	8.54	16.67	17.79	0.00	43.00
Oda	0.37	10.33	12.70	1.32	24.72
Oullins Reneklode	0.01	0.31	6.03	0.00	6.35
Queen Victoria	0.28	12.97	15.57	0.00	28.82
Rausvė	0.00	0.45	0.48	0.00	0.93
Renklod Rannij Doneckij	0.02	4.10	1.71	0.00	5.82
Stanley	0.88	9.69	10.71	5.16	26.44
Štaro Vengrinė	0.36	10.34	14.04	0.51	25.24
Valor	3.14	11.93	3.93	0.56	19.55
Violeta	2.54	19.43	19.41	5.16	46.54
Zarechnaya Ranniaya	0.02	2.77	13.91	1.84	18.53
Average	1.00	8.53	10.10	2.05	21.66
LSD ₀₅	1.44	4.96	5.69	2.15	8.35

Table 4

PLUM FRUIT QUALITY, BABTAI, 2014–2017

Cultivar	Average fruit weight, g	Flesh firmness, kg/cm ²	Soluble solids content, %
Ave	42.6	1.69	12.5
Čačanska Najbolje	48.2	3.29	13.5
Čačanska Rana	46.5	2.60	12.6
Dąbrowicka Prune	21.8	2.70	19.5
Duke of Edinburgh	35.6	2.32	13.7
Favorita del Sultano	52.2	1.67	13.0
Herman	25.1	2.09	11.8
Jubileum	48.8	2.87	15.0
Kijevas Vēlā	60.1	2.77	14.4
Kubanskaya Kometa	40.1	1.44	10.6
Oda	37.5	2.33	13.9
Oullins Reneklode	46.2	2.17	12.8
Queen Victoria	34.2	2.96	13.7
Rausvė	53.7	1.83	13.9
Renklod Rannij Doneckij	39.1	3.21	12.1
Stanley	29.1	2.89	14.8
Štaro Vengrinė	31.3	2.51	15.4
Valor	44.2	3.78	16.7
Violeta	31.8	2.19	10.9
Zarechnaya Ranniaya	41.9	1.73	12.8
Average	40.5	2.45	13.7
LSD ₀₅	4.1	0.39	0.94

distinguished by the best pit separation from the flesh. In fruits of ‘Kijevas Vēlā’, ‘Zarechnaya Ranniaya’, ‘Violeta’, ‘Kubanskaya Kometa’, ‘Favorita del Sultano’, ‘Oda’, and ‘Oullins Reneklode’, the pit was the most adherent to the flesh. Plums of ‘Jubileum’, ‘Oda’, ‘Rausvé’, ‘Stanley’, ‘Čačanska Rana’, ‘Dąbrowicka Prune’, and ‘Čačanska Najbolje’ were the most delicious. Violeta’, ‘Renklod Rannij Doneckij’, ‘Duke of Edinburgh’, ‘Kubanskaya Kometa’, and ‘Zarechnaya Ranniaya’ fruits had the worst taste. The highest overall fruit sensory rating score (including fruit attractiveness, pits separation from the flesh and taste) was awarded to cultivars ‘Čačanska Najbolje’, ‘Čačanska Rana’, ‘Jubileum’, ‘Favorita del Sultano’, ‘Oda’, ‘Rausvé’, ‘Stanley’, and ‘Štaro Vengriné’ — 4.5–4.7 (Table 5).

DISCUSSION

Trunk cross-sectional area is the most common measurement for determining tree size and, indirectly, the capacity of a tree to produce fruit (Wright *et al.*, 2006). Therefore, trunk diameter provides indirect information about fruit tree canopy size and planting distances. Fruit tree canopies of all tested cultivars, when trained as spindles, fit within the allocated space.

The phytosanitary condition of the fruit trees was normal in most cases. All fruit trees of 14 cultivars survived over the

six-year study period. ‘Herman’, ‘Jubileum’, ‘Oda’, ‘Ave’, ‘Queen Victoria’, and ‘Dąbrowicka Prune’ lost one or two fruit trees. The main causes of losses were trunk damage and silver leaf disease.

‘Kubanskaya Kometa’ was the most precocious cultivar. It produced about 7.5 t/ha yield in the third year. In the next two years the yield almost doubled. ‘Kubanskaya Kometa’ gave the second highest cumulative yield over a four-year period. Hybrid plum ‘Kubanskaya Kometa’ (*Prunus rossica*. Erem.) is well known in the Baltic states and some other neighbouring counties (Jānes *et al.*, 2007; Dēķena *et al.*, 2017). It was well appreciated for its early ripening fruits. It should be recognized that the quality of ‘Kubanskaya Kometa’ fruits is not good. They are soft, have rather poor taste and the pit hardly separates from the flesh. The minimal SSC in plum fruits suitable for fresh consumption recommended by Vangdal (1985) is 12.5%, SSC for ‘Kubanskaya Kometa’ was only 10.6%.

The most productive cultivar ‘Violeta’ gave 41.3 t/ha cumulative yield within four years and average fruit weight was about 32 g. The main disadvantage of the cultivar is poor fruit quality, especially taste. This may be associated with a low SSC — 10.9%. Apparently, the fruits of this cultivar are not suitable for fresh consumption. Their use for processing may also be limited because of strong stone adherence to the flesh. ‘Violeta’ showed good tree traits, fruit quality and yield under Serbian pedoclimatic conditions (Milošević *et al.*, 2013; Milošević and Milošević, 2018). In Serbia the average fruit weight was about a 25% higher than in our study. The weight of the fruit could be increased by fruitlet thinning, as fruit set is abundant. We did not thin fruitlets in our experiment. Fruitlet thinning may have a positive effect not only on fruit weight but also on SSC (Erogul and Sen, 2015). Often, a negative correlation is found between yield and SSC in fruits (Vangdal *et al.*, 2007b).

‘Čačanska Najbolje’ was ranked third in terms of productivity. Fruits of this cultivar are attractive, sufficiently large and firm, and received the highest score for overall sensory rating including attractiveness, pit separation from the flesh and taste. It should be noted that taste is good only for fully ripe fruits. Not fully ripe fruit has a tart aftertaste. In a field experiment in native Serbia ‘Čačanska Najbolje’ was also precocious, produced fruit of similar size and gave similar yield (Glisic *et al.*, 2012). ‘Čačanska Najbolje’ has been introduced into orchards as an important commercial variety in Poland (Plich, 2006).

Cultivar ‘Jubileum’ is known in neighbouring countries of Lithuania (Meland, 2010; Lacis *et al.*, 2012; Głowacka and Rozpara, 2017). Our results confirm information about the valuable traits of this cultivar. ‘Jubileum’ was in the fourth place among most productive cultivars. It produced large fruits (weight about 50 g) containing 15.0% soluble solids. Its fruits are attractive and tasty, and the pit separates easily from the flesh. Norwegian consumers also appreciate this cultivar (Vangdal *et al.*, 2007a). There are warnings from

Table 5

ATTRIBUTES OF SENSORY FRUIT QUALITY (1–5 score scale; where 1 – lowest quality, 5 – highest quality), Babtai, 2015–2016

Cultivar	Attractiveness	Pit separation from the flesh	Taste	Overall rating
Ave	4.4	4.0	4.0	4.1
Čačanska Najbolje	4.7	4.9	4.7	4.7
Čačanska Rana	4.8	4.4	4.6	4.7
Dąbrowicka Prune	4.2	4.6	4.6	4.4
Duke of Edinburgh	4.0	4.2	3.9	4.0
Favorita del Sultano	4.6	3.7	4.4	4.5
Herman	3.8	4.7	4.2	4.2
Jubileum	4.8	4.6	4.5	4.6
Kijevas Vēlā	4.6	3.0	4.4	4.3
Kubanskaya Kometa	4.2	3.7	3.9	4.1
Oda	4.6	3.8	4.5	4.5
Oullins Reneklode	4.1	3.9	4.3	4.2
Queen Victoria	4.0	4.3	4.2	4.2
Rausvé	4.4	4.7	4.5	4.5
Renklod Rannij Doneckij	4.1	4.2	3.7	4.0
Stanley	4.3	4.0	4.5	4.5
Štaro Vengriné	4.3	4.7	4.4	4.5
Valor	4.6	4.1	4.4	4.4
Violeta	4.4	3.6	3.4	3.9
Zarechnaya Ranniaya	4.5	3.5	3.9	4.3
Average	4.4	4.1	4.2	4.1
LSD ₀₅	0.33	0.44	0.41	0.32

tests in the northern Estonia about insufficient winter hardiness of 'Jubileum' (Janes and Kahu, 2008).

Cumulative yield of traditionally grown in Lithuania cultivars 'Štaro Vengrinė', 'Stanley', 'Queen Victoria' and 'Duke of Edinburgh' was 25.24–29.27 kg/tree, which exceeded average yield in the experiment. Fruit quality of 'Duke of Edinburgh' and 'Queen Victoria' was very similar, except that the taste of the latter was better. Fruits of 'Štaro Vengrinė' and 'Stanley' had higher SSC and better organoleptic properties. 'Štaro Vengrinė' is characterised by easy pit separation from the flesh.

The newly tested cultivars 'Oda' and 'Dąbrowicka Prune' showed better than average productivity and fruit quality results. Fruit of 'Dąbrowicka Prune' was rather small and had the highest SSC. They are more suitable for processing than for fresh consumption. Similar results regarding 'Dąbrowicka Prune' fruit tree growth and fruit size are reported from the country of its origin (Świerczyński and Stachowiak, 2009). Fruits of 'Oda' cultivar are attractive, tasty and suitable for fresh consumption.

Productivity of the remaining tested cultivars did not reach average yield of the experiment. The most interesting of them might be 'Valor', which produces rather tasty, big attractive fruits. 'Valor' is recommended for cultivation in north-eastern Poland (Markuszewski and Kopytowski 2013).

Early ripening fruits usually are in great demand. Until now, the most popular cultivar in Lithuania was 'Kubanskaya Kometa'. We have already mentioned its shortcomings, but it does not seem that significantly better alternatives could be found in this study. 'Čačanska Rana' produces high quality fruits, but it is low in productivity. Similar information can also be found in other studies (Sosna, 2002). Cultivar 'Herman' is interesting due to very early ripening fruits, but they are rather small and unattractive, but with taste somewhat better than for 'Kubanskaya Kometa'.

This paper presented data obtained in a young orchard. During the analysed period there were no extremely cold winters and we could not evaluate fruit tree winter hardiness. For more detailed information the experiments will be continued.

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PLŪMJU ŠĶIRŅU UZ KAUKĀZA PLŪMES *PRUNUS CERASIFERA* EHRH. POTCELMIEM NOVĒRTĒJUMS LIETUVĀ

Lietuvas Lauksaimniecības un meža zinātnes centra Dārkopības institūtā 2012.– 2017. gadā tika pārbaudītas divdesmit plūmju šķirnes uz Kaukāza plūmes (*Prunus cerasifera* Ehrh.) sēkļaudžu potcelmiem. Plūmes tika stādītas 4,5 × 2,5 m attālumā, veidoti vārpstveida vainagi, dārza kopšana ietvēra regulāru starprindu zāliena izplaušanu un apdobju apstrādi ar herbicīdiem. Sestā augšanas gada beigās vislielākais koka augums bija šķirnēm 'Valor', 'Viktorija', 'Herman', 'Čačanska Najbolje', 'Favorita del Sultano', 'Ave' un 'Jubileum'. To stumbra diametrs sasniedza 92–96 mm. Augstākā kumulatīvā raža četros ražas gados konstatēta šķirnēm 'Kometa' un 'Violeta' — attiecīgi 43,0 un 46,5 kg no koka. Šķirnēm 'Favorita del Sultano', 'Rausvē' un 'Kijevas Vēlā' bija vislielākie augļi — 52–60 g. Mazākie augļi bija šķirnēm 'Dąbrowicka Prune' un 'Herman' — attiecīgi 22 un 25 g. Šķirnes 'Dąbrowicka Prune' augļos bija visaugstākais šķīstošās sausasnes saturs (ŠSS) — 19,5%. Viszemākais ŠSS — šķirnēm 'Kometa', 'Violeta' un 'Herman' augļos — 10,6–11,8%. 'Renklod Rannij Doneckij', 'Čačanska Najbolje' un 'Valor' konstatēta visaugstākā augļu mīkstumuma cietība.