



## PROMISING VARIETIES OF GOLDEN CURRANT CULTIVATED IN THE CONDITION OF UZBEKISTAN

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Article history:	Abstract:
<p><b>Received:</b> 20<sup>th</sup> October 2021 <b>Accepted:</b> 17<sup>th</sup> November 2021 <b>Published:</b> 20<sup>th</sup> December 2021</p>	<p>The article provides information on the origin of currants, the state of currant production in the world, developing status of currant in Uzbekistan, its studied varieties and hybrids, the newly created promising varieties of golden currant and its cultivation technology in the country. Phenological observations were also performed on 16 varieties and 10 hybrids of golden currant to study their economic and biological traits. The best varieties of golden currant were selected among the studied varieties in terms of yield and fruit quality indicators, as well as in terms of chemical content. The selected varieties have been introduced into production.</p>

**Keywords:** Varieties, Hybrids, Berry, Golden Currant, Phenology, Vegetation, Quality Indicators, Chemical Content, Yield, Degustation

### INTRODUCTION

Currants belong to the genus *Ribes* of the family Saxifragaceae. The progress to divide the *Ribes* species into selections began in the 1920s.

According to FAO statistics for 2018, currants were cultivated in 655,000 tons worldwide, with an average yield of 5.5 t / ha. The currant growing arable land is 120.8 thousand hectares worldwide. The Russian Federation ranks first in the cultivation of currants - 395 thousand tons, Poland - 166 thousand tons, the Ukraine - 24 thousand tons, and other countries - a total of 70 thousand tons of currant<sup>1</sup>. In 2018, the production of currants in Uzbekistan made 1,025 tons [1,2,5].

Black, red, white, golden and pennsylvanian varieties of currants are widespread in Uzbekistan. Black, red, and white currant varieties are less tolerant to heat and therefore grow well and bear berries mainly in the foothills and mountains where it is cool, as well as under the trees and in the shades in the home-gardens. In the open fields, the leaves of these currant species burn at a temperature of + 30 °C leading to the shrub gradually to die [5,6,7].

Golden currant berry contains sugar from 6.28 to 13%, acids from 0.94 g to 2.04%, vitamin C from 43.2 to 187 mg%, 8.5 mg% of provitamin A and 1.5% of pectin (in terms of dry mass). Currant berries are consumed fresh, in the form of compote, jam, juice and jelly (condensed fruit juice) [9,10].

As a result of selection-breeding work carried out at the Research Institute of horticulture, viticulture and winemaking named after academician Mahmud Mirzaev, high-yielding, heat-resistant varieties of golden currant with large berries have been tested in the State Variety Testing in our republic, in Central Asia and the Caucasus and are widely cultivated [2,8].

It is expedient to create new high-yielding varieties in order to improve the variety, increase its production volume, and fully meet the demand of the population and the processing industry for golden currant berries.

At the central experimental plot of the Research Institute of horticulture, viticulture and winemaking named after academician Mahmud Mirzaev, scientists are conducting studies and research work to study varieties of golden currant and create new varieties.

### MATERIALS AND METHODS

The research was conducted on the basis of the "Method and program for the study of varieties of fruit, berry and nut plants" (Oryol 1999) developed by the All-Russian Research Institute of Fruit Crops Selection. In observing the phenological phases, budding, beginning of blooming, full blooming and ending of blooming, onset of ripening of the

<sup>1</sup><http://www.eurasiancommission.org>; <https://www.wikiwand.com/ru/Смородина>



berries, full ripening and ending of ripening, discoloration of the leaves, shedding of the leaves and cessation of vegetation were noted. Biochemical analysis of golden currant berries was carried out in accordance with the recommendations of the manual "Methods of biochemical research of plants", published under the general editorship of A.I. Ermakov [3].

The date of bud opening was recorded in most plants as the day when leaf tips began to emerge from the buds. Observations were made every other day.

The experiments were conducted in 2018-2020, and the tables were analyzed based on the results of an average of three years.

16 varieties and 10 hybrids of golden currant belonging to different ecological groups were selected as the object of research.

## RESULTS AND DISCUSSION

As a result of observations, according to phenological observations for 3 years, the onset of bud opening in golden currant varieties was from March 2 to March 7, 2018, while the onset of bud opening in 2019 and 2020 began 5-8 days earlier than in 2018.

According to the results of 3-year observations, the beginning of bud opening in golden currant varieties was from February 24 (Valentina) to March 2 (Uzbekistanskaya krupnoplodnaya). The difference between the varieties was 7 days. Among the varieties, buds in Russian varieties began to open early.

In hybrids, the onset of bud opening was observed from February 26 (№5-11) to March 5 (№15-12), while the duration between them was 8 days.

The beginning of blooming in the varieties did not reveal a significant difference between the varieties for 3 years. The onset of blooming in varieties over an average of 3 years lasted from March 14 (Valentina) to March 20 (Iroda, Alyona) in golden currant varieties.

The difference among the varieties was 7 days. The duration of flowering by varieties was 6 days (Oltinoy) to 11 days (Iroda), while the difference in duration between varieties was 6 days.

The onset of blooming in golden currant hybrids lasted from March 19 (№5-11) to March 25 (3759/6). The beginning of blooming in hybrids averaged 7 to 12 days in 3 years, while the difference between hybrids was 6 days.

The berries began to ripen in golden currant varieties from May 16 (Oltinoy) to June 9, 2018 (Alyona), and from May 15 to May 30, 2019 (Iroda). In 2020, the onset of berry ripening lasted from May 2 (Oltinoy, Valentina) to June 8 (Alyona). The duration of berry ripening in the varieties lasted from 5 days (Valentina, Lyovushka) to 16 days (Elixir). In Valentina, Lyovushka and Podarok Ariadne varieties imported from Russia, the onset of berry ripening averaged 5-7 days over 3 years. In other varieties, the duration of berry ripening was 10-16 days, and the difference among varieties was 12 days.

Among the varieties Oltinoy, Lyovushka, Podarok Ariadne, Valentina were divided into early ripening, Uzbekistanskaya krupnoplodnaya, Uzbekskaya sladkaya, Siuma, Rukhshona, Yadgor, Elixir varieties were included to medium ripening and Mukhabbat, Iroda, Alyona varieties included to late ripening groups.

The onset of berry ripening in golden currant hybrids occurred from May 16 (№5-11) to May 28 (3759/6), 2018, while in 2019 from May 23 (№5-11, №13-7) to June 4 (3685/3), in 2020, it lasted from May 21 (№5-11) to June 9 (3759/6, 3685/3). For 3 years, the beginning of berry ripening lasted an average from 21 May (№5-11) to 4 May (3685/3, 3759/6). The duration of berry ripening was 11 to 17 days in hybrids, while the difference among hybrids was 7 days.

Among the hybrids, №5-11, №13-7 were considered as precocious by the term of berry ripening, №13-6, №13-17, №13-16, 313-2, №13-27, №15-12 were medium ripening and 3759/6, 3685/3 hybrids were included to late ripening groups (table-1).

When studying the yield of golden currant varieties, they were fully harvested due to the lack of short-term frosts in the spring of 2018 and 2019, while in 2020, on April 8-9 when the currant varieties bloomed, the temperature dropped sharply (-1°C) and heavy snow damaged the bloomed flowers of golden currant, resulting in the main part of the currant flowers being destroyed and shrubs formed slightly yield with the remaining buds opening into flowers after frost.

In 2018, the yield of 16 golden currant varieties under experiment ranged from 1.08 kg (Lyovushka) to 3.08 kg (Uzbekskaya sladkaya) per bush. Among the varieties, the yield in 7 varieties was from 2,282 kg (Elixir) to 2,887 kg (Uzbekistanskaya krupnoplodnaya) per bush or from 76.0 c/hato 96.16 c/ha. Yield of 5 varieties ranged from 1,080 kg to 1,897 kg or from 35.98 centners per hectare to 63.19 centners.

In the 9 hybrids of studied golden currant, the yield per bush was from 1,025 kg to 2,171 kg, while in 3 hybrids it ranged from 2,015 kg to 2,171 kg, in the remaining hybrids the yield was from 1,025 kg to 1,859 kg. Yield was from 34.15 centners to 61.23 centners per hectare in 3 hybrids.

The average mass of berries in golden currant varieties and hybrids ranged from 0.65 g (Uzbekskaya sladkaya) to 1.6 g (Uzbekistanskaya krupnoplodnaya), the largest berry mass was 4 g. (Uzbekistanskaya krupnoplodnaya, Iroda, №13-16, №15-12), in other varieties the average berry weighed from 0.94 g to 1.3 g.

According to the information received, the documents of golden currant varieties Dustlik, Elixir and Gulnoz (№15-5) were submitted to the State Variety Testing Center.

The productivity of golden currant varieties in 2019 was much lower than in 2018. One of the main reasons for this is that in 2018, the most currant shrubs were pruned, i.e. the old low-yielding branches of shrubs were cut. And chronic rains in April prevented the pollination of flowers in the golden currant bushes. As a result, the yield in golden currant varieties was from 0.292 g to 1,574 kg per bush. In three varieties the yield made 1,058; 1,167; 1,574 kg while in the remaining varieties it was less than 1 kg.

In terms of hectare, the yield per hectare was from 97.3 centners to 52.41 centners, the average yield was from 16.9 centners to 32.2 centners.

**Table-1**  
**Phenological phases of the varieties and hybrids of golden currant (in 2018-2020)**

№	Varieties and hybrids	Beginning of bud opening				Beginning of blooming					Beginning of berry ripening				
		2018	2019	2020	Average of three years	2018	2019	2020	Average of three years	duration	2018	2019	2020	Average of three years	duration
1.	Plotnomyasaya (st)	03/III	26/II	27/II	28/II	24/III	16/III	20/III	20/II I	9	22/V	28/V	03/VI	28/V	12
2.	Uzbekistanskaya krupnoplodnaya (st)	06/III	27/II	28/II	02/II I	25/III	17/III	20/III	20/II I	9	23/V	28/V	03/VI	28/V	12
3.	Uzbekskaya sladkaya	06/III	25/II	25/II	28/II	22/III	15/III	18/III	18/II I	8	22/V	27/V	05/VI	28/V	14
4.	Siuma (st)	05/III	27/II	25/II	28/II	23/III	16/III	16/III	18/II I	8	20/V	25/V	30/V	25/V	11
5.	Rukhshona (st)	06/III	28/II	23/II	28/II	22/III	15/III	18/III	18/II I	8	18/V	25/V	04/VI	26/V	15
6.	Oltinoy (st)	05/III	23/II	23/II	26/II	21/III	12/III	16/III	16/II I	6	16/V	20/V	25/V	20/V	10
7.	Iroda (st)	06/III	25/II	28/II	01/II I	23/III	14/III	24/III	20/II I	11	22/V	30/V	07/VI	30/V	17
8.	Muhabbat		24/II	27/II	25/II		14/III	16/III	15/II I	2		28/V	06/VI	01/VI	10
9.	Yadgor	06/III	24/II	28/II	28/II	23/III	14/III	21/III	19/II I	10	20/V	25/V	03/VI	26/V	15
10.	Dustlik	04/III	26/II	27/II	28/II	21/III	15/III	22/III	19/II I	7	20/V	28/V	02/VI	27/V	14
11.	Elixir	05/III	24/II	25/II	27/II	21/III	14/III	18/III	17/II I	8	20/V	28/V	04/VI	27/V	16
12.	Valentina	01/III	21/II	23/II	24/II	20/III	12/III	12/III	14/II I	9	21/V	15/V	25/V	20/V	5
13.	Podarok Ariadne	02/III	20/II	22/II	24/II	20/III	12/III	18/III	16/II I	9	20/V	16/V	26/V	20/V	7



14.	Lyovushka	02/ III	22/ II	23/ II	25/II	20/ III	13/ III	18/ III	17/II I	8	22/ V	16/ V	26/ V	21/V	5
15.	Alyona	06/ III	27/ II	23/ II	28/II	23/ III	16/ III	20/ III	20/II I	8	09/ VI	29/ V	08/ VI	05/VI	12
16.	Zolotistaya	05/ III	24/ II	25/ II	27/II	22/ III	15/ III	18/ III	18/II I	8	22/ V	28/ V	31/ V	27/V	10
17.	№13-17	05/ III	22/ II	28/ II	28/II	23/ III	14/ III	24/ III	20/II I	11	20/ V	29/ V	05/ VI	28/V	17
18.	№5-11	04/ III	22/ II	25/ II	26/II	24/ III	13/ III	21/ III	19/II I	12	16/ V	23/ V	25/ V	21/V	10
19.	3759/6	06/ III	27/ II	05/ III	03/II I	26/ III	21/ III	28/ III	25/II I	8	28/ V	03/ VI	09/ VI	04/VI	13
20.	3685/3	07/ III	25/ II	07/ III	04/II I	25/ III	20/ III	26/ III	23/II I	7	30/ V	04/ VI	09/ VI	04/VI	11
21.	№13-16	06/ III	25/ II	27/ II	28/II	23/ III	15/ III	15/ III	20/II I	10	20/ V	26/ V	03/ VI	26/V	15
22.	№15-5	06/ III	27/ II	23/ II	28/II	25/ III	16/ III	24/ III	22/II I	10	29/ V	26/ V	05/ VI	30/V	11
23.	№13-7	02/ III	27/ II	28/ II	28/II	24/ III	16/ III	20/ III	20/II I	9	17/ V	23/ V	01/ VI	24/V	16
24.	№13-2	05/ III	24/ II	28/ II	28/II	25/ III	16/ III	24/ III	22/II I	10	20/ V	27/ V	04/ VI	27/V	16
25.	№13-27	06/ III	27/ II	28/ II	02/II I	23/ III	16/ III	21/ III	20/II I	8	22/ V	24/ V	05/ VI	27/V	15
26.	№15-12	05/ III	24/ II	05/ III	02/II I	24/ III	15/ III	23/ III	21/II I	10	22/ V	24/ V	07/ VI	28/V	17

The average mass of berries in varieties ranged from 2.7 g to 3.5 g, the largest of the berries was up to 5 g. The berries were much larger than last year due to rejuvenation in the currant shrubs.

In the studied hybrids, the yield was from 445 g (№15-12) to 1090 g (№13-2) per bush. Yield per hectare ranged from 8.51 centners to 36.30 centners. The average mass of berries made 2.3 g. and 3.4 g. (Table 2).

**Table-2**  
**Yield of the varieties and hybrids of golden currant (in 2018-2020)**

№	Varieties and hybrids	Yield							
		Per shrub, kg				c/ha			
		2018	2019	2020	average	2018	2019	2020	average
1.	Plotnomiyasaya (st)	2,8814	0,9702	0,019	1,290	95,95	32,21	0,63	42,93
2.	Uzbekistanskaya krupnoplodnaya (st)	2,8878	0,979	0,0392	1,302	96,16	32,6	1,31	43,36
3.	Siuma (st)	1,897	0,7742	0,0456	0,906	63,19	25,78	1,52	30,16
4.	Rukhshona (st)	2,5142	0,7942	0,0422	1,117	83,72	26,45	1,41	37,19
5.	Oltinoy (st)	2,73	1,1672	0,2324	1,377	90,1	38,87	7,74	45,57
6.	Iroda (st)	2,2832	0,7468	0,2167	1,082	76,03	24,87	7,22	36,04
7.	Uzbekskaya sladkaya	3,088	1,574	0,2266	1,630	100,99	52,41	7,55	53,65
8.	Yadgor	2,4566	0,6085	0,0486	1,038	84,84	20,26	1,62	35,57
9.	Alyona	1,481	0,7408	0,1954	0,806	49,31	24,66	6,51	26,83
10.	Zolotistaya	0,8786	0,7079	0,0368	0,541	22,6	23,57	1,23	15,80
11.	Dustlik	2,3682	0,852	0,0413	1,087	78,86	28,37	1,38	36,20
12.	Elixir	2,2822	1,0586	0,0664	1,136	76	35,25	2,21	37,82
13.	Valentina	1,0174	0,557	0,0226	0,532	33,88	18,55	0,75	17,73
14.	Podarok Ariadne	1,1512	0,5094	0,0264	0,562	38,33	16,96	0,88	18,72

15.	Lyovushka	1,0804	0,2922	0,0301	0,468	35,98	9,73	1,00	15,57
16.	Muhabbat			0,0952	0,095			3,17	3,17
17.	№13-17	1,5312	0,5042	0,0364	0,691	50,98	16,79	1,21	22,99
18.	№5-11	1,7012	0,4236	0,0846	0,736	56,65	14,1	2,82	24,52
19.	№15-12	1,0253	0,2557	0,0532	0,445	34,15	8,51	1,77	14,81
20.	№13-27	2,1714	0,659	0,0484	0,960	72,3	21,94	1,61	31,95
21.	№13-16	1,7049	0,8584	0,0553	0,873	56,77	28,42	1,84	29,01
22.	№15-5	2,0154	0,7022	0,0984	0,939	67,11	23,38	3,28	31,26
23.	№13-7	2,1566	0,2964	0,094	0,849	71,81	9,87	3,13	28,27
24.	№13-2	1,8598	1,09	0,0664	1,005	61,23	36,3	2,21	33,25

Among the hybrids studied, the №13-2 hybrid was distinguished by a higher yield than other hybrids (1.09 kg, per bush or 36.30 c / ha). The average mass of the berry was 2.5 g, the taste was rated 5 points. The documents of this hybrid will be soon prepared and submitted to the State Variety Testing Center.

In 2020, during the early flowering of golden currant varieties (April 8-9 at -1°C degree), the air temperature dropped sharply in April, followed by heavy rains and heavy snow, currant shrubs left under the snow cover. As a result, it was found that the frost damage of flowers in golden currant varieties ranged from 50% (Oltinoy) to 91% (Rukhshona). After this, the yield in these varieties was from 22 g (Valentina) to 232 g (Oltinoy) per bush. In Iroda and Uzbekskaya sladkaya varieties it was 216-226 g per bush, or 7.22-7.55 centners per hectare.

According to the three-year data obtained, among the 16 golden currant varieties and 9 hybrids studied, the average yield per bush in 9 varieties in 3 years was more than 1 kg, while in the remaining 7 varieties it was less or from 35.57 centners to 53.65 centners per hectare in 7 varieties (Table 3).

Among the hybrids, the yield in 3 hybrids averaged 939; 960; 1005 g per bush or 32.26; 3.95; 33.25 centners per hectare.

Promising varieties of golden currant Dustlik, Elixir and №15-5 (Gulnoza) have been allowed to be planted in all regions since 2020 and included in the state register.

In order to determine the biologically active substances in the studied golden currant varieties and hybrids, the presence of dry matter, sugar, acid, vitamin C and pectin in their berries was determined.

**Table-3**  
**Berry mass of the varieties and hybrids of golden currant (in 2018-2020)**

№	Varieties and hybrids	Average mass of a berry, g				Mass of the largest berry, g			
		2018	2019	2020	Average of three years	2018	2019	2020	Average of three years
1	Plotnomyasaya (st)	1,6	1,3	1,1	1,3	2,0	2,9	2,8	2,6
2	Uzbekistanskaya krupnoplodnaya	1,6	1,4	1,3	1,4	4,0	3,4	3,6	3,7
3	Uzbekskaya sladkaya	0,67	0,7	0,9	0,8	2,0	2,0	2,0	2,0
4	Oltinoy	1	0,9	1	1,0	2,0	2,1	2,1	2,1
5	Siuma	1,3	1	1,1	1,1	3,0	2,9	3,0	3,0
6	Rukhshona	1,5	1	1,3	1,3	3,0	3,1	3,0	3,0
7	Iroda	1,46	1,6	1,5	1,5	4,0	3,5	3,6	3,7
8	Alyona	1,08	1	1,3	1,1	2,0	2,5	2,3	2,3
9	Yadgor	0,94	1	0,9	0,9	3,0	3,1	3,2	3,1
10	Dustlik	1,33	1,1	1,4	1,3	3,0	3,1	3,0	3,0
11	Elixir	1,14	1,2	1,2	1,2	3,0	3,3	3,2	3,2
12	Zolotistaya	1,2	1,1	1,1	1,1	2,2	2,5	2,3	2,3
13	Muhabbat			1,5	1,5			3,2	3,2
14	Valentina	1,3	1,3	1,2	1,3	4,0	3,3	3,2	3,5

15	Podarok Ariadne	1,6	1,4	1,6	1,5	3,0	2,7	2,8	2,8
16	Lyovushka	1	1,2	1	1,1	3,0	2,8	2,9	2,9
17	Nº15-5	1,35	1	1,3	1,2	2,5	2,6	2,5	2,5
18	Nº13-7	1,35	1,4	1,4	1,4	3,0	2,4	2,5	2,6
19	Nº13-2	0,88	1	1	1,0	3,0	2,5	2,6	2,7
20	Nº13-27	1,08	1,1	1	1,1	3,0	2,8	2,9	2,9
21	Nº13-16	1,2	1,2	1,2	1,2	4,0	2,7	3,3	3,3
22	Nº13-17	1,5	1,2	1,3	1,3	3,0	2,6	2,7	2,8
23	Nº15-12	1,5	1,2	1,7	1,5	4,0	3,4	3,5	3,6
24	Nº5-11	1,3	1,3	1,6	1,4	2,0	2,3	2,2	2,2
25	3759/6			1,4	1,4			2,0	2,0

In the analysis of the chemical composition of the berries of golden currant varieties Plotnomiyasaya control variety had a sugar content of 9.05%, acid content of 1.41%, dry matter content of 14.0%, and pectin content of 1.70%, while in Uzbekistanskaya krupnoplodnaya variety, sugar content was 8, 16%, acid 1.61%, dry matter 16.0%, and pectin 2.84%, and in Uzbekskaya sladkaya variety, sugar was 11.91%, acid 0.63%, dry matter 18.0%, and pectin 2, 84% (Table 4).

**Table-4 Chemical content of golden currant berries (2018-2019), %**

Varieties	sugar	acid	dry matter	pectin
Plotnomiyasaya (st)	9,05	1,41	14,0	1,70
Uzbekistanskaya krupnoplodnaya	8,16	1,61	16,0	0,89
Iroda	8,9	1,78	20,2	0,61
Alyona	9,98	2,07	17,2	1,19
Elixir	10,18	1,65	16,0	-
Rukhshona	10,77	1,63	16,0	2,14
Uzbekskaya sladkaya	11,91	0,63	18,0	2,84
Dustlik	12,17	1,13	24,0	2,3
Siuma	12,28	1,56	25,7	2,7
Yadgor	15,1	1,68	24,8	-
Oltinoy	15,89	1,18	20,0	-

Among the varieties, Yadgor (15.1%) and Oltinoy (15.89%) varieties were found to have the highest sugar content, while in Uzbekskaya sladkaya variety had acid content of 0.63%, in Alyona variety 2.07%, dry matter in Plotnomiyasaya variety was 14%, in Siuma variety up to 25.7%, pectin was in Iroda variety from 0.61% and in Uzbekskaya sladkaya variety to 2.84%.

In the study of varieties of golden currant, it was found that the amount of vitamin C in the berries varies depending on the variety.

According to the results obtained, the berry of Plotnomiyasaya control variety contained 60.61 mg% of vitamin C, in other varieties from 69.48 to 125.32 mg%, in Siuma variety - 102.12 mg%, in Dustlik variety - 87.66 mg%, in Ruxshona variety - 80.22 mg% and in Elixir variety - 69.48 mg%.

The average content of vitamin C in the berries of Uzbekskaya krupnoplodnaya variety was 77.70 mg%, in the berries of Yadgor variety - 125.32 mg% of the vitamin C, in Alena variety - 105.40 mg%.

From the above data obtained from the chemical analysis of berries, it can be concluded that the highest content of vitamin C was found in Siuma, Alyona and Yadgor varieties of golden currant (Table 5).

**Table-5**  
**Amount of vitamin "C" in the content of golden currant berries**  
**(data of average of three years)**

Varieties	Amount of vitamin "C" in 100 g, mg%
Plotnomyasaya (st)	60,61 (39,6-82,4)
Elixir	69,48 (23,5-135,45)
Oltinoy	72,87 (69,2-101,10)
Uzbekskaya sladkaya	74,30 (43,80-133,3)
Uzbekistanskaya krupnoplodnaya	77,70 (39,0-129,0)
Rukhshona	80,22 (42,2-197,8)
Dustlik	87,66 (76,9-167,7)
Siuma	102,12 (71,91-199,9)
Alyona	105,40 (54,3-146,2)
Yadgor	125,32 (101-150)

When evaluating the tasting quality (degustation) of berries of golden currant varieties, the following results were identified:

The Plotnomyasaya control variety was rated at 4.06 and 4.08 points for appearance and color, 4.76 points for taste and flavor, 4.11 points for pulp density and 4.8 points for ripeness, with a total average of 4.2 points. Among the varieties, for good appearance Uzbekistanskaya krupnoplodnaya variety was highly rated at 4.53-4.56 points, Oltinoy variety 4.41-4.67 points, hybrid №15-12 rated at 4.64-4.58 points. In terms of taste preferences, the Lyovushka variety was highly rated at 4.4-4.56-4.21 points and the №13-7 hybrid was rated at 4.36-4.5-4.35 points. In the overall evaluation of all indicators, the varieties Oltinoy (4.5 points), Lyovushka (4.4 points), hybrids №13-7 and №13-2 (4.4) were rated with the highest score (Table 6).

**Table-6**  
**Taste quality (degustation) scores of the berries of golden currant varieties and hybrids, points**

Varieties and hybrids	appearance		taste preferences			Ripeness	Overall scores
	size	color	taste and flavor	taste features	Pulp density		
Plotnomyasaya (control)	4,06	4,08	3,76	4,5	4,11	4,8	4,2
Uzbekistanskaya krupnoplodnaya	4,53	4,56	4,02	4,2	4,13	4,21	4,3
Oltinoy	4,41	4,67	4,35	4,51	4,28	4,68	4,5
Siuma	4,1	4,6	3,9	3,9	3,9	4,1	4,1
Iroda	4,1	4,6	3,9	3,9	3,9	4,1	4,1
Lyovushka	3,91	4,51	4,4	4,56	4,21	4,56	4,4
Valentina	4,0	4,6	3,9	3,9	3,9	4,1	4,1
№15-12	4,64	4,58	4,02	4,1	4,14	4,4	4,3
№13-16	4,33	4,33	4,1	4,7	4,18	4,06	4,3
№13-7	4,5	4,5	4,36	4,5	4,35	4,4	4,4

№13-2	4,33	4,23	4,26	4,6	4,36	4,32	4,4
3760/10	4,0	4,6	3,9	3,9	3,9	4,1	4,1
36 85/3	3,9	4,6	3,9	3,9	3,9	4,1	4,1
37 60/6	4,0	4,7	3,9	3,9	3,8	4,1	4,1
37 59/6	4,0	4,6	3,9	3,9	3,9	4,2	4,1

According to the results obtained, the documents of Gulnoz (N15-5), Dustlik and Elixir varieties were submitted to the State Variety Testing Center in 2018, and since 2020 the following varieties have been included in the State Register and recommended for planting in all regions:

**Dustlik variety.** A medium ripening variety created at the Research Institute of horticulture, viticulture and winemaking named after academician M. Mirzaev.

Growth period – 215-240 days, plant height – 2-2.5 m. The bush grows moderately strong, bushy, straight. The flowers are medium, lemon-yellow in color. The cluster of berries is short, with 6-10 berries per cluster. The average mass of the berry is 0.6 g, the largest berry is 2 g. The variety is self-pollinating. The berries are early ripening and begin to ripen in the third decade of May. Berry ripening period is 16-20 days. The berries are harvested once. The berry smells sweet-lemon. It contains up to 12% sugar, 0.6% acid, 65-80 mg % vitamin C and up to 5% carotene. The taste rating of the variety is 4.8 points. Juices, jams and jelly are made from the berries. Crop weight in a bush – 6-7 kg. Yield is 100-120 c / ha. This variety was included in the State Register for planting in all regions of the Republic from 2020. This variety garden is located on an area of 0.01 ha.



**Gulnoza variety.** Early ripening variety created at the Research Institute of horticulture, viticulture and winemaking named after academician M. Mirzaev.

Growth period – 230-255 days, plant height – 2-2.5 m. The bush grows moderately strong, bushy, straight. The flowers are medium, yellow in color. The berry cluster is short, with 6-10 berries per cluster. The average weight of the berry is 1.5 g, the largest berry is 2.5 g. The variety is crosspollinating. The berries are early ripening and begin to ripen in the third decade of May. Berry ripening period is 20-25 days. The berries are harvested three times. It contains up to 12% of sugar, 0.6% of acid, 60-85 mg /% of vitamin C and up to 5% of carotene. The taste rating of the variety is 4.5 points. Juices, jams and jelly are made from the berries. Crop weight in a bush – up to 3-6 kg. Yield is 85-100 c / ha. This variety was included in the State Register for planting in all regions of the Republic from 2020.



**Elixir variety.** A medium ripening variety created at the Research Institute of horticulture, viticulture and winemaking named after academician M. Mirzaev.

Growth period – 210-240 days, plant height – 2-2.5 m. The bush of the variety grows medium half-spread. The flowers are medium, lemon-yellow in color. The berries are large round, black in color. There are 4-6 berries on the cluster. The first berries are large, weigh up to 5-6 g, the average mass of the berry is 1.6 g. The berries are early ripening and begin to ripen in the first decade of June. The variety is well pollinated by bees and other varieties planted next to it. It is resistant to diseases and pests. Berry ripening period is 20-25 days. The berries are harvested 1-2 times. The berries contain sugar of 6-7%, acid up







to 1.0%, vitamin C up to 60-90 mg %. The taste rating of the variety is 4.6 points. Juices, jams and jelly are made from the berries. Crop weight in a bush is up to 3–6 kg. Yield is 85-100 c / ha. This variety was included in the State Register for planting in all regions of the Republic from 2020.

## CONCLUSION

1. The vegetation, i.e the bud opening in golden currant varieties was observed from March 1 to March 7, 2018, while in 2019 it was much earlier, i.e from February 20 to February 27, and in 2020 from February 23 to March 7. In an average of 3 years, the bud opening in varieties ranged from 25 February to 28 February. The difference among the varieties was 4 days.
2. The onset of blooming in the varieties was observed from March 20, 2018, from March 12 in 2019, and the same March 12 in 2020. In an average of 3 years, the onset of blooming of varieties was from March 14 to March 25, the difference among varieties was 6 days.
3. The ripening of berries in golden currant varieties was observed from May 16 to May 22 in 2018, from May 16 to May 30 in 2019, and from May 25 to June 7 in 2020. For an average of 3 years, the berries began to ripen from May 20 to June 1. The ripening duration of the berries was from 5 to 17 days in varieties, while the difference among varieties was 13 days.
4. The yield in the varieties in 2018 was from 38.33 centners to 100.99 centners per hectare, in 2019 from 9.73 centners to 52.41 centners, and in 2020 from 0.75 centners to 7.55 centners. In the spring of 2020, when the -1°C cold temperature affected the main flowers of the golden currant varieties, the yield was very low, i.e., the yield was obtained at the expense of the opening of the remaining flowers after the frost.
5. The average yield for three years ranged from 15.57 centners per hectare to 53.65 centners.
6. It was noted that the dry matter content in the berries of golden currant varieties was higher in Siuma (25.7%), Yadgor (24.8) and Dustlik (24%) varieties. Yadgor (15.1%) and Oltinoy (15.89%) varieties were distinguished by their high sugar content. The berries of the currant varieties Siuma (102.12 mg%), Alyona (105.40 mg%) and Yadgor (125.32 mg%) were found to have the highest content of vitamin C

## BIBLIOGRAPHY

1. Abdullaev R., Yagudina S. "Berries grown in the field", Tashkent, "Mehnat" 1989, -Pp.37-70
2. Abdullaev R., Abdullaeva Kh. "Agrotechnics for high yields of the best varieties of berries on farms" Tashkent 2011.-Pp.10-15
3. Ermakov A.I. (ed.) Methods of biochemical research of plants. Ed. 2nd, rev. and add. - Leningrad: Kolos. Leningrad print, 1972 .-p.456.
4. Program and methodology for the variety study of fruit, berry and nut crops - Oryol: ARRIFCB. - 1999. - Pp. 361–370.
5. Abdullaev Ravshan Mavlyanovich, Abdullaeva Khilola Ravshanovna, Kosimov Akhmadjon Abdukodirovich // Studying the drought-resistance of berry plants// International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 04, 2020. Pp-2859-2870
6. Abdullaeva Kh.R Economic and biological traits of local and introduced varieties of strawberries and the development of some elements of agricultural technology in the condition of Tashkent region: 06.01.07- Horticulture and viticulture: diss. abst. for Doctor of Philosophy (PhD) agri.sci. - Tashkent, 2018 .-p. 49.
7. Akhmadjon Kosimov // The study of heat resistance of golden currant (*ribes aureum pursh*) varieties // EPRA International Journal of Research and Development (IJRD)// Volume: 4 |Issue: 11 November 2019 pp 30-32
8. Khilola Ravshanovna Abdullayeva // The Study of the Resistance of Garden Strawberry Varieties Belonged to Various Ecological Groups to Unfavorable Air Temperatures in the Condition of Uzbekistan // International Journal of Science and Research (IJSR) - Volume 8 Issue 10, October 2019/ pp-1450-1452
9. Kosimov A.A. Economic and biological traits of varieties of golden currant and technology of growing high-quality seedlings (on the example of the Tashkent region): 06.01.07 - Horticulture and viticulture: diss. abst. for Doctor of Philosophy (PhD) agri.sci. - Tashkent, 2018 .-p. 48.