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## **RESULTS OF THE STUDY OF SETS OF SWEET PEPPER VARIETY SAMPLES AND F1 HYBRIDS IN THE REPEATED TERM**

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### **ABSTRACT**

The article describes the results of research on phenological indicators and productivity of 28 varieties of sweet pepper and 10 F1 hybrids, which were repeatedly studied in the conditions of the central region of Uzbekistan. The total productivity of the high-yielding varieties was 110.6-124.8% higher than the standard variety. The varieties Tong, Podarok Moldovy, Bolgarsky 79, Pamir, Kaliforniyskoe chudo, PP10674, PP10678, D11000, D11520, S7103, whose productivity is almost equal to the standard variety, were also isolated. Their yield was 27,7-29,0 t/ha. In the hybrids of the first generation, the yield was slightly higher. Standard F1 Jaihun hybrid yield was 40,9 t/ha. This is a 145% higher result compared to the standard Dar Tashkenta variety.

### **KEYWORDS**

Sweet pepper, repetition period, variety, hybrid, morphology, productivity.

### **INTRODUCTION**

The homeland of pepper is considered to be the Mexican and Guatemalan countries of South America. From here it spread to Europe, Africa and South Asia. Sweet pepper fruit is rich in vitamins, mineral salts and

dry matter. Its fruit surpasses all vegetables in terms of the formation of ascorbic acid (vitamin C). During the period when the fruit is technical, 100 g of the resulting mass contains 54-118 mg%, and when fully biologically

made, up to 368-535 mg% of ascorbic acid. In addition to vitamin C, there are vitamins A (carotene) – 4,60 mg, B1 (thiamine) – 0,06 mg, B2 (riboflavin) – 0,01 mg.

Uzbekistan occupies a leading position in Central Asia in the cultivation of vegetables, melons and potato crops. The peculiarities of vegetable growing in our country are that there are opportunities to get two or more crops from one land in a year and to grow a crop of many crops very early by correctly selecting planting vegetable crops using natural climatic amenities wisely. This feature makes it possible to greatly increase the economic efficiency of farms now. This field has always been supported by our government [1, 4, 5].

Based on the data presented in the literature and the results of the experiments carried out by many researchers in various soil and climatic conditions with the aim of studying the influence of sweet pepper varieties, planting dates and schemes on yield, which are one of the main vegetable crops, they expressed their opinion as follows.

## DISCUSSION

The catalog of varieties created in the regions of Central Asia and the post-Caucasian region based on the initial sources of the all-Caucasian Vegetable Center contains information about the valuable economic properties of sweet pepper 25 varieties of specimens. Including, in Kazakhstan, bayan Sulu, kozi Korpesh, Krasnoe chudo, Kaz-Thai varieties, in Kyrgyzstan 0636-6007, VIO3170, rr0636-6056, avpp0408 lines, AVPP0912, AVPP1115, VIO3217, AVPP0911, avpp0108 lines, Nabat is in Turkmenistan, Shadlik and Sabo varieties are in Uzbekistan, Mili, Emily, Natalie, loshtak, Mira, Naridj in Armenia and Tayvanuri variety is in Georgia and and Khumai varieties are in Azerbaijan.

This directory is home to varieties such as Sabo, Naridj, which turn yellow when physiologically ripe [3].

Volume 1 of the state register (2017), which allowed the application of selection achievements in the Russian Federation, included 742 varieties and hybrids of sweet pepper, of which 300 are F1 hybrids and 442 are varieties. In 2017 itself, it was allowed to plant 21 F1 hybrids and 19 varieties, a total of 40 varietal specimens. 94-95% of varieties and hybrids of sweet pepper are included in this register in the last 17 years from 2000, which means that there is an increasing demand for sweet pepper, its new varieties and hybrids from year to year [2].

In total, 41 sweet pepper varieties and hybrids were included in the State Register of agricultural crops recommended for planting on the territory of the Republic of Uzbekistan in 2017, of which 8 are varieties and 33 are hybrids. Of this, 8 varieties and 1 hybrids were created in our country, 19 belong to the Dutch, 7 French, 3 Italian, 2 Korean and 1 German breeding. In 2015, the list was 38, and in 2016 3 new foreign hybrids were included and 41, and in 2017 not a single variety and hybrid was included [6, 7].

## RESEARCH RESULTS

28 samples of varieties of sweet pepper and 10 hybrids of F1 were studied by sowing in 2013-2014 in a repeated period. Dar Tashkent, Jaikhun F1, which included the State Register in Uzbekistan, was selected as the standard variety. Of the varieties and hybrids studied, 10 were created in Uzbekistan, 11 are samples from Italy, 2 from Japan, Holland, Spain, Turkey, South Korea, Russia, 1 from France, USA, Moldova, Germany.

The study of the periods of development of varieties and hybrids studied in the iterative term and the duration of the growth period has a very important

significance. After germination, 10-16 days were required for varietal specimens until the seedlings were germinated to the cover. Some varieties sprouted 3-4 days later than the standard variety. These include Emerald, Podarok Moldovi, Pamir, Cmorogd, Bulgarskiy 79, Californiyskoe chudo,, ECo1-

144, C7103. Only two varietal specimens germinated one, two days before the standard variety C24177 and D11000. The period from the germination of seeds to the flowering of plants to the cover was divided into 2 groups (Table 1).

**Table 1**

**The duration of the development phases of sweet pepper varieties and hybrids planted in a repeated period**

№	Variety name of specimens and hybrids	From seeded day to germination, day		From germination to germination..., day			
		10%	75%	until flowering		until the fruit is technically ripe	
		10%	75%	10%	75%	10%	75%
1	Dar Tashkent (st)	10	12	67	71	97	102
2	Zarya Vostoka	11	13	65	70	100	110
3	Zumrad	12	15	72	79	112	127
4	Nargiza	10	12	66	70	90	100
5	Tong	8	12	62	67	92	100
6	Sabo	12	14	68	75	100	110
7	Yulduz	9	12	65	70	97	104
8	Shodlik	10	13	66	72	96	102
9	Lastochka	11	14	65	70	98	106
10	Podarok Moldovi	12	15	68	74	100	110
11	Pamir	13	16	72	80	112	122
12	Maxi Bell	9	11	68	75	108	115
13	Gampion	10	14	66	72	96	102
14	Smorogd	12	16	68	73	100	106
15	Bulgarskiy 79	11	15	65	70	98	105
16	Californiyskoe chudo	13	16	72	80	110	120
17	PP 10674	10	13	64	70	94	100
18	PP 10676	9	12	63	68	92	100
19	D 11200	10	14	64	70	95	100
20	D 08018	9	11	64	70	91	97
21	PP 10678	10	13	65	72	98	105
22	C 24177	8	10	62	66	92	98
23	C 24043	9	12	63	68	92	100
24	EC 01-144	12	15	65	72	92	105
25	D 11000	9	10	63	67	91	98
26	D10130	11	13	66	71	96	105
27	D11520	10	12	64	68	94	102

№	Variety name of specimens and hybrids	From seeded day to germination, day		From germination to germination..., day			
				until flowering		until the fruit is technically ripe	
		10%	75%	10%	75%	10%	75%
28	C7103	12	15	65	72	97	108
29	Jaykhun F <sub>1</sub> (st)	10	12	66	72	98	106
30	El Real F <sub>1</sub>	12	14	70	75	105	115
31	Adriatico F <sub>1</sub>	8	12	68	73	102	110
32	Figaro F <sub>1</sub>	10	13	72	80	110	124
33	Donna F <sub>1</sub>	8	10	64	70	96	102
34	Vedrana F <sub>1</sub>	8	10	65	70	97	105
35	Dovras F <sub>1</sub>	9	11	68	73	100	108
36	Pkocraft F <sub>1</sub>	10	12	70	76	105	112
37	C30393 F <sub>1</sub>	8	10	65	70	97	105
38	C30414B F <sub>1</sub>	9	11	64	70	96	102
V%				4,2	4,7	5,9	6,7
x=				66,0±2,8	72,0±3,4	98,2±5,8	106,6±7,2

The first group included varieties with a duration of this period of up to 70 days, the second group included varieties with a duration of more than 70 days. The first group included varieties Zarya Vostoka, Nargiza, Tong, Yulduz, Lastochka, Bulgarsky 79, PP10674, PP10676, D11200, D08018, C24177, C24043, D11000, D11520.

From the second group, the varieties Dar Tashkent, Zumrad, Nargiza, Sabo, Shodlik, Podarok Moldovi, Pamir, Maxi Bell, Californiyskoe chudo, Gampion, Smorogd, PP10678, EC01-044, C7103 took place.

The same situation was observed in F<sub>1</sub> hybrids. In the standard Jaihun F<sub>1</sub> and El Real F<sub>1</sub>, Adriatico F<sub>1</sub>, Figaro F<sub>1</sub>, Dovras F<sub>1</sub>, Pkocraft F<sub>1</sub> standings, it took 72-80 days from germination to germination to flowering to the top, while in the hybrids Donna F<sub>1</sub>, Vedrana F<sub>1</sub>, C30393 F<sub>1</sub>, C30414V F<sub>1</sub>, 70 days.

The duration of the period or period of growth, from the germination of plants to the initial technical

maturity of fruits, was 98-127 days in the studied varieties.

When the yield of sweet pepper varieties and hybrids grown in the repeated term was determined, the highest yield was observed in the varieties Zumrad, Sabo, Yulduz, Shodlik, PP10676, D11200, D08018, and it was 31,2-35,2 t/ha.

The total yield of varieties with high yields was 110.6-124.8% higher than that of the standard variety. Varieties Tong, Podarok Moldovi, Bulgarskiy 79, Pamir, Californiyskoe chudo, PP10674, PP10678, D11000, D11520, C7103 were also distinguished, the yield of which is almost equal to the standard variety. Their yield was 27,7-29,0 t/ha.

The yield of other studied varieties was 85,5-96,1% compared to the standard variety.

In the first-generation hybrids, the yield was slightly higher. The yield in the standard F<sub>1</sub> Jayhun hybrid was

40,9 t/ha. This is 145% more than the standard Dar Tashkent variety. A slightly higher yield compared to the standard hybrid was observed in the hybrids Adriatico F1, Figaro F1, Vedrana F1, Dovras F1, Pkocraft F1 and amounted to 42,9-45,0 t/ha. This is a result of 104,9-110,0% more than a standard hybrid.

Commodity yield amounted to an average of 89,2-94,0% of the total yield. The best indicator in this is Dar Tashkent, D11200, D08018, Sabo, Yulduz, Shodlik, PP10676, Zarya Vostoka, 92,5 – 94,2% in Zumrad

varieties, 92,5-94,7% in hybrids of the first generation Adriatico F1, Figaro F1, Dovras F1 and Pkocraft F1.

According to observations, the non-commodity crop sweet pepper was 1,6-3,2 t/ha or 6,6-10,8% in varietal samples. In the first-generation hybrids, an indicator of 2,3-3,8 t/ha or 5,3-9,7% was recorded.

The average yield of 5,8-10,8% compared to the total yield is certainly higher. There are several reasons for this, indicating the need for research in subsequent studies (Table 2).

**Table 2**

**Yield indicators of varieties and hybrids of sweet peppers grown in repeated terms**

№	The name of the variety and hybrids	Productivity		Commodity yield		Non-commodity yield	
		t/ha	%	t/ha	in relation to the total yield, %	t/ha	in relation to the total yield, %
1	Dar Tashkent (st)	28,2	100,0	26,3	93,3	1,9	6,7
2	Zarya Vostoka	24,1	85,5	22,5	93,4	1,6	6,6
3	Zumrad	33,3	118,1	30,8	92,5	2,5	7,5
4	Nargiza	25,3	89,7	23,1	91,3	2,2	8,7
5	Tong	28,7	101,8	26,4	92,0	2,3	8,0
6	Sabo	31,4	111,3	29,5	93,9	1,9	6,1
7	Yulduz	31,2	110,6	28,9	92,6	2,3	7,4
8	Shodlik	32,9	116,7	30,5	92,7	2,4	7,3
9	Lastochka	24,5	86,9	22,5	91,8	2	8,2
10	Podarok Moldovi	28,2	100,0	25,8	91,5	2,4	8,5
11	Pamir	29,6	105,0	26,4	89,2	3,2	10,8
12	Maxi Bell	26,9	95,4	24,6	91,4	2,3	8,6
13	Gampion	26,3	93,3	24,0	91,3	2,3	8,7
14	Smorogd	25,6	90,8	23,2	90,6	2,4	9,4
15	Bulgarskiy 79	27,7	98,2	25,2	91,0	2,5	9,0
16	Californiyskoe chudo	28,5	101,1	26,0	91,2	2,5	8,8
17	PP 10674	29,0	102,8	26,4	91,0	2,6	9,0
18	PP 10676	32,9	116,7	31,0	94,2	1,9	5,8
19	D 11200	35,2	124,8	33,1	94,0	2,1	6,0



№	The name of the variety and hybrids	Productivity		Commodity yield		Non-commodity yield	
		t/ha	%	t/ha	in relation to the total yield, %	t/ha	in relation to the total yield, %
20	D 08018	34,8	123,4	32,4	93,1	2,4	6,9
21	PP 10678	27,9	98,9	25,1	90,0	2,8	10,0
22	C 24177	27,1	96,1	24,5	90,4	2,6	9,6
23	C 24043	26,9	95,4	24,2	90,0	2,7	10,0
24	EC 01-144	26,9	95,4	24,5	91,1	2,4	8,9
25	D 11 000	28,4	100,7	26	91,5	2,4	8,5
26	D10130	26,5	94,0	24,1	90,9	2,4	9,1
27	D11520	28,9	102,5	26,1	90,3	2,8	9,7
28	C7103	28,4	100,7	26	91,5	2,4	8,5
29	JaykhunF <sub>1</sub> st	40,9	100	37,5	91,7	3,4	8,3
30	El Real F <sub>1</sub>	34,9	85,3	31,4	90,0	3,5	10,0
31	Adriatico F <sub>1</sub>	43,7	106,8	41,2	94,3	2,5	5,7
32	F <sub>1</sub> Figaro	42,9	104,9	39,7	92,5	3,2	7,5
33	Donna F <sub>1</sub>	37,8	92,4	34,2	90,5	3,6	9,5
34	Vedrana F <sub>1</sub>	43,2	105,6	39,8	92,1	3,4	7,9
35	Dovras F <sub>1</sub>	45,0	110	42,3	94,0	2,7	6,0
36	Pkocraft F <sub>1</sub>	43,1	105,4	40,8	94,7	2,3	5,3
37	C30393 F <sub>1</sub>	39,7	97,1	36,0	90,7	3,7	9,3
38	C30414B F <sub>1</sub>	39,0	95,4	35,2	90,3	3,8	9,7
r=0,99±0,02							

The classification of the fruit of the studied varietal specimens is considered one of the important indicators.

The fruit of the standard dar Tashkent variety is conical, the color is light green during technical ripeness, the thickness of the fruit flesh was 3-4 mm. Such fruits are considered to be haridorgir in the domestic and foreign markets. Varieties whose fruit is conical, light green in color include: Nargiza, Yulduz, Lastochka, Podarok Moldovi, Gampion, RR10678, C24177, EC01-144.

Of the hybrids of the first generation, the Jaykhun F<sub>1</sub>, Adriatico F<sub>1</sub> were distinguished, which embodied such

signs. In most hybrids, it was observed that the shape of the fruit was prismatic, the color was green, dark green. Many of these hybrids are brought from European Qualifications, and the demand for such varieties or hybrids in the domestic market of our country is not so great at the moment. However, the future demand for varieties and hybrids of this indicator will definitely increase.

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