

## CULTIVATION METHODS ESTABLISHMENT AND PLANTING NEW VARIETIES OF POTATO

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### Abstract:

The article presents the studying results and establishing the cultivation and planting methods influence of new varieties of potatoes. It was revealed that the large-tuber new varieties cultivation of potatoes in an early and two-yielding culture with a two-line planting method (90 + 30x22cm) with 74 thousand / ha density contributes to obtaining the highest yield (25.8-47.0 t / ha) with 3.1 -4.8 reproduction factor. At the same time, the marketable tubers yield amounted to 34.6-46.5 t / ha (spring planting) and 24.6-34.4 t / ha (summer planting). The mid-early varieties Arizona, Yarokli-2010 and Bogizogon differed in yield, marketability, and multiplication rate.

**Key words:** varieties, cultivation methods, planting schemes, seed tubers yield, multiplication factor.

### Introduction

The potatoes large-scale varieties widespread introduction in our country, such as Aladdin, Arizona, Saviola, Condor, Picasso, Yarakli-2010, Evolution, Volare, Silvana, Lizetta, Roco, Arsenal, Almera, has led to an increase in productivity, however, it is noted that seed yield and reproduction coefficient are insufficient.

This problem can be achieved by optimizing the planting method and providing a comfortable feeding area and bush thickness. When growing potatoes, it is more efficient to grow 90 cm wide rows than the traditional 70 cm wide ones based on the research of Järvan, M., L. Edesi [2], Peters, R. [8]; Stokstad, Erik [10], Zerulla W., Knittel H. [11], O.Ya.Fonina, I.Esanov [4], T.E.Ostonaqulov [3, 5], T.E.Ostonaqulov, A.X.Hamzaev [6], T.E.Ostonaqulov, V.I.Zuev , O.K. Kodirkhodjaev [7].

In the experiments of S.Kh.Narzieva [9] it was noted that sowing of late potato Sulev and Lorx varieties in pairs on the scheme 90 + 30x20 cm has a positive effect on the seed potatoes yield , the seed pods yield. However, the growth, development, yield, seed yield,

and reproduction rate of large early-maturing new early and middle-maturing varieties have not been adequately studied when potatoes are grown for different periods (morning, evening) and methods (both conventional and biennial crops).

With this in mind, in 2015-2017 we conducted a special field experiment in the conditions of the old irrigated meadow soils of the training experimental farm of the Samarkand agricultural institute, located in Akdarya district of Samarkand region.

The research aim is to determine the cultivation and planting optimal method of new large-maturing early and middle-ripening potato varieties as a fairy and double crop in different planting methods, based on the study of the formation, productivity, commodity and seed yield and reproduction rate of the bush.

### **Material and methods**

New fast-ripening potato varieties - Memphis, Surkhan-1, mid-ripening - Arizona, Yaroqli-2010 and Bogizogon were taken as the object of the experiment, early and as a two-crop crop were sown in 3 ways - 70x19 (traditional), 90x15 (wide row) and 90 + 30x22 cm (double row) and compared with each other (Table 1). In all studied planting methods, the thickness of the bush per hectare was the same, i.e. 74,000 seeds. The area of the plot is 112 m<sup>2</sup> with 70 cm between rows, 90 cm - 144 m<sup>2</sup>, 90 + 30x22 cm in the scheme - 192 m<sup>2</sup>. The number of returns was 4.

Sowing was carried out in the spring at 6–8 cm depth on March 8–10, and in the summer at 8–10 cm depth from the newly dug ends on June 28–30. Freshly dug tubers were soaked for 2-3 minutes in a solution of growth stimulants (1 kg of thiourea in 100 liters of water, 1 kg of radon potassium, 0.5 g of gibberillen, 2.0 g of amber acid and 5-10 l of Roslin) before planting as a double crop. N<sub>200</sub>P<sub>160</sub>K<sub>100</sub> kg of fertilizer was applied per hectare and irrigated 8 times in 1-2-5 order, i.e. 1 time from germination to mowing, 2 times from mowing to flowering, 5 times from flowering to yellowing. Observations, measurements and calculations, as well as maintenance activities on the field experiment site were carried out on the basis of generally accepted methods and recommendations [1].

### **Results and discussion**

According to the results, when planting potato varieties as a future crop in the traditional way in the scheme 70x19 cm, the growth period is 77-88 days, during the flowering period the plant height is 73-92 cm, the number of stems is 4.1-4.7 pieces, one bush mass was 295–372 g, and the yield per tuber was 619–809 grams, and the average weight of a single tuber in the bush was 83–101 grams. The studied medium-fast ripening varieties Arizona, Yaroqli-2010 and Bogizogon had a longer growing period of 7-10 days compared to the fast-ripening varieties Memphis and Surkhan-1, and the plant was distinguished by its tall, slender, vigorous stalks and productivity.

When potatoes are planted in a wide row 90x15 cm scheme, it is found that the growth period is 1-2 days in all tested varieties, compared to the traditional 70x19 cm scheme, since the plant height is more than 3-6 cm, the weight of a bush is 17-54, while the finished crop is 82-203 gramm high.

When planted in the order of 90+30x22 cm, the growth period of the plant was 78-89 days, the highest growth and development, the energetic trunks was formed, the productivity indicators of one bush of the finished products increased by 785-1188 gram in varieties, the mass of one bush increased by 101-135 gram.

Table 1. Growth, development, productivity, commodity and seed yields and reproduction coefficient of potato varieties as a fairy and double crop in different planting methods (2015 - 2017)

№	Variety name and place of creation	Seed germination, %	Growth period, in days	Plant height, cm (during flowering)	Number of stems, pcs	Bush productivity indicators				Productivity, t / ha	From that				Planting rate, t / ha	Multiplication factor
						trunks mass, gr	tubers harvest, gr	number of tubers	грамм, ұрпақ массасы, г		brand yield		seedbop yield			
											t / ha	%	t / ha	%		
<b>When planted in the traditional 70x19 cm scheme as a future crop (control)</b>																
1	Memfis (NL)	98	77	74	4,1	295	619	7,5	83	28,4	27,8	97,7	8,6	31,0	4,0	2,2
2	Surkhon-1 (UZ)	96	78	73	4,1	323	704	7,7	91	31,7	30,7	96,8	9,9	32,7	4,0	2,5
3	Arizona (NL)	99	87	88	4,6	348	785	7,8	101	32,7	36,6	98,3	10,5	28,7	4,0	2,6
4	Yarokli-2010 (UZ)	99	85	89	4,8	357	777	8,1	96	35,8	35,1	98,1	10,6	30,3	4,0	2,7
5	Bogizogon (UZ)	99	88	92	4,7	372	809	8,0	101	39,7	39,1	98,5	12,4	31,6	4,0	3,1
<b>EKF<sub>05</sub> = 1,3 - 2,2 t/ha</b>																
<b>When planted in a wide row 90x15 cm scheme as an early crop.</b>																
6	Memfis (NL)	99	78	75	4,3	312	701	7,7	91	32,1	31,5	98,1	10,5	33,2	4,0	2,6
7	Surkhon-1 (UZ)	97	79	74	4,6	344	806	7,8	103	34,6	33,7	97,5	11,2	33,5	4,0	2,8
8	Arizona (NL)	98	88	91	4,8	405	915	8,1	113	42,5	42,0	98,8	13,2	31,4	4,0	3,3
9	Yarokli-2010 (UZ)	97	87	94	5,1	387	892	8,4	115	40,1	39,5	98,5	13,4	34,0	4,0	3,4
10	Bogizogon (UZ)	97	89	98	5,0	416	1012	8,7	116	45,3	44,8	98,9	14,8	33,1	4,0	3,7
<b>EKF<sub>05</sub> = 1,8 - 2,5 t/ha</b>																
<b>When planted in pairs 90 + 30x22 cm in the scheme as an early crop</b>																
11	Memfis (NL)	98	78	79	4,2	318	785	7,8	101	35,3	34,6	98,0	13,3	38,4	4,0	3,3
12	Surkhon-1 (UZ)	98	77	76	4,6	359	868	8,0	109	38,1	37,2	97,7	14,7	39,6	4,0	3,7
13	Arizona (NL)	99	88	94	4,8	412	996	8,3	120	45,8	45,3	98,9	16,9	37,3	4,0	4,2
14	Yarokli-2010 (UZ)	97	88	98	5,2	395	975	8,7	112	43,6	43,0	98,7	17,3	40,2	4,0	4,3
15	Bogizogon (UZ)	98	89	105	5,1	424	1188	8,8	135	47,0	46,5	99,0	18,3	39,3	4,0	4,8
<b>EKF<sub>05</sub> = 1,1 - 1,7 t/ha</b>																
<b>When planted in the traditional 70x19 cm scheme as a double crop (control)</b>																
1	Memfis (NL)	86	74	68	2,1	247	561	5,6	100	22,7	21,5	94,5	8,0	37,2	3,5	2,3
2	Surkhon-1 (UZ)	88	73	70	2,5	295	604	5,8	104	26,2	24,7	94,3	9,0	40,0	3,5	2,6
3	Arizona (NL)	90	82	82	2,7	302	686	6,1	112	29,5	28,6	97,1	10,3	36,1	3,5	2,9
4	Yarokli-2010 (UZ)	93	82	84	3,2	331	703	6,4	110	27,1	26,3	97,0	10,1	38,3	3,5	2,9
5	Bogizogon (UZ)	92	84	86	3,4	345	765	6,8	113	31,4	30,6	97,6	12,4	40,5	3,5	3,5
<b>EKF<sub>05</sub> = 1,9 - 2,8 t/ha</b>																
<b>When planted in a wide row 90x15 cm scheme as a double crop</b>																
6	Memfis (NL)	87	76	70	2,3	261	605	5,7	106	23,5	22,4	95,3	8,7	39,0	3,5	2,5
7	Surkhon-1 (UZ)	90	75	71	2,7	308	648	6,0	108	28,1	29,6	95,0	12,3	41,6	3,5	3,5
8	Arizona (NL)	91	85	84	3,0	325	715	6,3	109	31,7	30,9	97,6	11,7	37,7	3,5	3,3
9	Yarokli-2010 (UZ)	92	86	87	3,6	338	742	6,6	112	29,4	28,8	98,0	11,6	40,4	3,5	3,3
10	Bogizogon (UZ)	93	88	90	3,9	356	802	7,0	115	32,8	32,2	98,1	13,4	41,6	3,5	3,8
<b>EKF<sub>05</sub> = 1,4 - 2,6 t/ha</b>																
<b>When planted in pairs 90 + 30x22 cm scheme as a double crop</b>																
11	Memfis (NL)	87	76	70	2,2	263	614	5,7	108	25,8	24,6	95,4	10,7	43,5	3,5	3,1
12	Surkhon-1 (UZ)	90	75	72	2,8	311	665	6,1	109	29,4	28,0	95,2	13,1	46,7	3,5	3,7

13	Arizona (NL)	92	86	84	3,1	332	741	6,3	118	33,2	32,5	98,0	14,7	45,2	3,5	4,2
14	Yarokli-2010 (UZ)	92	86	86	3,6	346	763	6,7	114	31,7	31,2	98,3	14,9	47,8	3,5	4,3
15	Bogizogon (UZ)	92	88	89	4,0	360	819	7,0	117	34,9	34,4	98,7	16,3	47,3	3,5	4,7
EKF <sub>05</sub> =		0,9-1,7 t/ha														

In wide-row and double-cropping methods, the plant environment (throat) is based on the provision of sufficient soil, water, food and especially light. The above regularity was noted when the studied varieties of potatoes were grown as a dicotyledonous crop.

The total yield differed sharply in the methods of cultivation and planting in the studied varieties (Table 1).

When potato varieties are sown in the traditional 70x19 cm yield per hectare when planted in the scheme is 28.4-39.7 tons per hectare, of which the yield is 27.8-39.1 tons or 96.8-98.5%, and the seed yield is 8.6-12, 4 t / ha, the multiplication factor was 2.2-3.1. When sown in wide rows in the order of 90x15 cm, the yield by varieties was 32.1-45.3 tons per hectare, seed yield was 10.5-14.8 t / ha, the coefficient of reproduction was 2.6-3.7.

In the method of double sowing, the yield is 35.3-47.0 tons per hectare, the highest seed yield (13.3-18.3 t / ha) and the coefficient of reproduction (3.3-4.8) sowing is carried out in the order of 90 + 30x22 cm obtained when increased. Similar data were observed when the studied varieties of potatoes were planted as a dicotyledonous crop.

## Conclusion

Thus, the sowing of large potato varieties in the order of 90 + 30x22 cm in combination as a fairy-tale and two-crop crop, the highest yield per hectare (25.8-47.0 t / ha) in the same (74 thousand) bush thickness compared to the traditional sowing in the order of 70x19 cm and provides a multiplication factor (3.1–4.8).

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