

Selection of Promising Pumpkin Varieties For Re-Cultivation

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Abstract: In 2022-2023, 4 varieties and 8 lines were planted and the growth, development and productivity of plants were studied in order to select promising varieties for re-cultivation of crops. The regional variety Shirintoy served as the standard.

On June 10, 25-day-old seedlings of pumpkin varieties were planted on an experimental field with a pattern of 280×70/2×70 cm. In 2022-2023, the marketable yield of the total harvest was 31.0 t/ha or 87.0% for the Shirintoy variety (st), while the highest marketable yield was in - L-9 (43.2 t/ha) - 87.6%, L-14 (41.3 t/ha) - 85.6%, L-10 (39, 9 t/ha) - 85.0%, Ushiki Kuri (42.5 t/ha) - 88.5% and Ulybka (32.8 t/ha) - 92.0%. in varietal samples

Key words: pumpkin growing, vegetable, farmers, agriculture, agrarian sector, crop.

Introduction

Vegetables are the most valuable food products and are the main source of carbohydrates, vitamins, essential oils, mineral salts and phytoncides necessary for the normal functioning of the human body. Pumpkin fruit is very important in expanding the variety of vegetables, obtaining and consuming products in the spring-summer-autumn period. According to the information of the FAO organization, there are 26.5 million people in the world. tons of pumpkin fruits are grown, the leaders are China (7.8 million tons), India (5.1 million tons), Russia (1.22 million tons), Ukraine (1.21 million tons).) and the USA (1.0 million tons) are grown on a large scale". The total area of pumpkin cultivation in Uzbekistan in 2022 was 5 thousand hectares, the gross harvest was 156.4 thousand tons and the productivity was 206.3 s/ha.

In order to expand the range of types and varieties of pumpkins in the world, as well as to supply food and processing enterprises with raw materials, the technologies of creating and growing varieties of pumpkins in the USA, Italy, France, China, India, Japan and Russia with a compact palate, fruits of different colors and shapes studies have been carried out.

In Uzbekistan, scientific achievements in the field of horticulture and policing are being used to increase the income of agroclusters, farmers, peasants and private homesteads, and the production volume of processing enterprises, especially new varieties with high complex value and improved agrotechnologies. Despite this, in recent years extensive scientific research has been carried out in our republic to increase the yield and quality of pumpkin, but the selection of suitable varieties and cultivation technologies for growing pumpkin as a repeated crop are not scientifically based.

In the Decree of the President of the Republic of Uzbekistan dated January 28, 2022 "On the Development Strategy of New Uzbekistan for 2022-2026" No. PF-60 "Through intensive development of agriculture on a scientific basis, farmers and to increase the income of farmers by at least 2 times, to bring the annual growth of agriculture to at least 5%, especially by 2026, the volume of food products will be 7.4 mln. per ton, bringing the level of processing to 28% for fruits and vegetables" is paid special attention. In order to ensure the implementation of the tasks defined in the above decisions and decrees, it is important to choose early-ripening pumpkin varieties suitable for repeated cultivation in the conditions of our Republic, to expand the assortment, and to improve the technology of growing high-yielding varieties.

On the study of morpho-biological and economic characteristics of pumpkin in foreign countries: H.S. Paris (USA), selecting high-yielding varieties and hybrids of pumpkin: Robert Westerfield (USA), Rosie Lerner B. (USA), Michael N. Dana (USA), R.N. Rashmi (India), K. Sato-Nara (Japan), K. Yuhashi (Japan), K. Higashi (Japan), on the production of crops in different planting periods: K. Hosoya (Japan), on the creation of new promising varieties of pumpkin in Russia : V.A. Ludilov, O.V. Chernyavskaya and improving the technology of selection and cultivation of pumpkin varieties: V.I. Fatyanov, T.A. Oktabrskaya, T.Ye. Lushits, O. Ganichkina, V.F. Pivovarov, L.P. Barakayeva, A.B. The Goncharovs conducted scientific research.

SH in creating a local variety of pumpkin in Uzbekistan. Jabbarov, studies on the selection of varieties, planting period and development of schemes N.N. Balashev, M.N. Kulakova, V.I. Zuev and Kh.Ch. Done by the wolves.

Under the conditions of our republic, scientific and research work on improving the technology of growing new promising varieties of pumpkin in repeated crops has not been carried out enough.

In this regard, it was considered urgent to conduct scientific research within the scope of this dissertation.

The purpose of the study is to evaluate the valuable economic characteristics of the samples of pumpkin varieties for cultivation as a repeated crop in the conditions of our Republic, to identify promising high-yielding varieties.

Tasks of the research: evaluation of morphological and economic indicators of pumpkin variety samples grown in a repeated crop;

selection of high-yielding varieties of pumpkin varieties in repeated crops;

is to determine the economic efficiency of growing pumpkin varieties under conditions of repeated cropping.

The object of the research is "Shirintoy" (st), "Palov kadu", "Ushiki kuri", "Ulibka" varieties belonging to the Russian selection and L-1, L-2, L-3, L-6, regionalized in Uzbekistan. Lines L-9, L-10, L-11 and L-14 were served by plants, fruits and productivity.

The subject of the research is seedlings of varieties and lines of the pumpkin plant, in a repeated crop (280+70)/2×70 cm. planting scheme, plants, fruits and productivity were calculated.

The following methodological manuals were used to conduct field experiments: "Methodology of conducting experiments in vegetable growing, potato growing and potato growing" (Azimov B.J., Azimov B.B., 2002), "Metodikiya polevogo opita v ovoshevodstve i bakchevodstve" (Belik V.F., 1992), " "Methodika polevogo opyta v ovoshcheyevodstve". (S.S.Litvinov., 2011.) and "Metodicheskiye ukazaniya VIR po izucheniyu i podderzhaniyu mirovoy kolleksii tikvennix kultur (pumpkin)" (1977) were conducted on the basis of methodological manuals. Statistical analysis of research results was calculated in Excel 2010 and Statistica 7.0 for Windows computer program, with a confidence interval of 0.95% according to the dispersion method of "Metodika polevogo opita" (Dospikhov B.A., 1985).

In the experiments, the Shirintoy variety of pumpkin, recommended for planting in the Republic of Uzbekistan, was used as a standard, based on the goals and objectives of the research, in order to select samples of pumpkin varieties suitable for growing as a repeat crop in the evening period in the soil and climate conditions of our Republic. The seeds of pumpkin samples were sown in the second ten days of May.

On June 10, 20-25-day-old seedlings of 280×70/2×70 cm were sent to the experimental field. planted in the field in the scheme. Irrigation works were carried out immediately in order to speed up the establishment of the seedlings when they were planted in the field.

After the seedlings of pumpkin varieties were planted in the experimental area, phenological observations were made. 10 and 75% of the appearance of male flowers in variety samples is in Shirintoy (st) pumpkin variety (16-20/VII), compared to it Ulibka variety - (01-05/VII) 15 days, Ushiki kuri variety 9 days, Lines L-2, L-3, L-10, L-11 and L-14 - it was found that male flowers were formed 5-7 days early. On the contrary, it was found that L-9 line - 1 day, L-6 line and Palov pumpkin - 2 days, and L-1 - 3 days later male flowers appeared.

10 and 75% appearance of female flowers in Shirintoy (st) variety (20/VII - 25/VII) is 66 days, compared to L-2, L-3 L-10, and L-10 lines. - 3-5 days later, L-1, L-9 and L-11 lines were found to have formed female flowers after 9-10 days. Standard Shirintoy variety and Palov pumpkin variety have the same 66 days for mother flowers to appear, Ushiki kuri variety bloomed 10 days earlier, Ulibka variety 15 days earlier. From other studied pumpkin lines, L-6 plants bloomed 16 days later than the standard variety.

When observing the formation of the first (10%) fruits of pumpkin variety samples on plants as a repeated crop, it was found that it happened after 3-5 days after the formation of mother flowers in all studied variety samples. It took 70 days for the first fruits to form in the standard Shirintoy variety. In the Pilov pumpkin variety, the formation of the first fruits is the same, while in L-2, L-10 and L-14 lines (73-74 days) it is 3-4 days later, in L-3, L-9 and L-11 in lines (75-77 days) formed 5-7 days later. It took 87 days after germination to form the first fruits in plants of L-6 line, and it was 10-32 days later than all varieties.

Among the studied varieties of pumpkin, the first fruits of Ushiki kuri and Ulibka varieties were formed 9-15 days earlier than the standard variety.

The biological ripening of the first (10%) fruits formed on the plants of the pumpkin varieties took place on 125-126 days from the day of germination of the seeds in the standard Shirintoy variety. Among the studied samples, the ripening of the first fruits in lines L-1, L-6, L-10 and L-14 (123-126 days) did not differ much compared to the standard variety (1-2 days earlier and 1-2 days later). The first fruits of the Pilov pumpkin variety ripened in 119 days, which was 6 days earlier than the standard variety, while the first fruits of the L-3, L-9 and L-11 lines were 11-12 days earlier than the standard variety. Isa, Ushiki kuri variety ripened 25 days earlier, Ulibka variety 30-31 days earlier. Among the samples of the studied pumpkin variety, the first fruits of the L-6 line plants ripened in 134 days, compared to the standard Shirintoy variety, 9 days later, and 40 days later compared to the Ulibka variety.

When studying the productivity indicators of samples of pumpkin varieties grown in a repeated crop: the length of the fruits of the standard Shirintoy variety is 24.5 cm, compared to it, lines L-11 (36.3 cm), L-3 (32.5 cm) and Palov pumpkin variety (30.3 cm) by 48.1 - 31.8 and 23.6 % respectively, L-9 (28.6 cm), L-14 (26.0 cm) and L-10 (25.5 cm) lines were 16.7 - 6.0 and 4.0% longer. Ushiki kuri (24.7 cm) did not differ, but the length (23.2 cm) of the L-1 line (23.2 cm) and Ulibka varieties was smaller by 5.4%. The length of the fruits of the L-6 line is 20.0 cm and is 18.4% smaller than the standard Shirintoy variety, while the length of the fruits of the L-2 line is 17.2 cm. in the range of 42% smaller than the standard variety indicator. It was found that the length of the fruits of the L-11 line was 2.1 times longer compared to the fruits of the L-2 line.

In terms of fruit length, L-11, L-3 lines and Palav pumpkin varieties showed their superiority over the standard variety and all variety samples in terms of the length of the pumpkin varieties studied. Table 1.

1-Table

Productivity indicators of fruits of pumpkin variety samples grown in a repeated crop. 2022-2023

Variety samples	The size of the fruit, cm.						Fruit index
	Bo`yi, sm.	St.ga nisbatan, %	Eni, sm.	St.ga nisbatan, %	Etining qalinligi, sm.	St.ga nisbatan, %	
Shirintoy (st)	24,5	100,0	14,4	100,0	3,2	100,0	1,7
L-1	23,2	94,7	12,5	86,8	4,1	128,1	1,8
L-2	17,2	70,2	10,6	73,6	2,7	84,3	1,6
L-3	32,5	132,6	18,3	127,0	2,1	65,6	1,8
L-6	20,0	81,6	17,6	122,2	2,9	90,6	1,1
L-9	28,6	116,7	18,3	127,0	2,7	84,3	1,5
L-10	25,5	104,0	20,0	138,9	3,7	115,6	1,3
L-11	36,3	148,1	18,4	127,7	2,8	87,5	2,0
L-14	26,0	106,1	17,4	120,8	2,4	75,0	1,5
Palov kadu	30,3	123,6	17,1	118,7	2,5	78,1	1,8
Ushiki kuri	24,7	100,8	24,8	172,2	3,2	100,0	1,0
Ulibka	23,2	94,7	24,3	168,7	2,5	78.1	0,9

When the width of the fruits of the pumpkin variety samples is measured from the widest point, the width of the fruit of the standard Shirintoy variety is 14.4 cm. compared to it, Ushiki kiri and Ulibka varieties are 24.8 - 24.3 cm respectively and 72.2 - 68.7% longer than other varieties due to the fact that the fruits of these varieties are round or flat round. stood out. The fruit of the L-10 line is 20.0 cm wide and 20.0 cm long. compared to our standard variety by 38.8%, the fruits of L-3, L-9 and L-11 lines were 18.3-18.4 cm in diameter and 27.0-27.0 cm higher than the standard variety .7 percent larger. The diameter of fruits of L-6, L-14 lines and Palav pumpkin variety is in the range of 17.7 - 17.4 - 17.1 cm, respectively, compared to the indicator of the standard variety, 22.2 - 20.8 -18 It was found to be 7 percent wider.

From the variety samples, the fruit of the L-1 line is diametrically 12.5 cm wide. If the width of the fruit of the standard variety is 13.3% smaller than the diameter, this indicator of the fruit of the L-2 line (10.6 cm) is 26.4% smaller. From the studied samples of pumpkin varieties: L-11, L-3 lines were distinguished by the largest fruit size (length and width), while L-2 and L-6 lines were the smallest. did

The flesh of the fruits of the standard Shirintoy variety is very dense, the thickness of the flesh is 3.2 cm. It was found that the seed chamber is located at the tip of the fruit and is very small. Line L-1 (4.1 cm), the thickness of the fruit flesh was 28.4% thicker than that of the standard Shirintoy variety, and line L-10 (3.7 cm) was 12% thicker. If the thickness of the flesh of Ushiki Kuriniva was 3.2 cm and equal to the standard variety indicator, that of L-6 (2.9 cm) line was 11.0 percent, L-11 (2.8 cm) It was found that that of the line will be 13.4 percent smaller. In L-2 and L-9 lines, this indicator is 2.7 cm and 15.8% compared to the standard variety, in Ulibka and Palov kadu varieties (2.5 cm) it is 22.0% and L-14 (2.4 cm) line turned out to be 27.0 percent smaller. The thickness of the fruit of the L-3 line is 2.1 cm, and it is 30% smaller than the fruit of our standard variety.

When fruit weight was analyzed for 2022-2023, the heaviest fruits were shown by lines L-9, L-10 and L-14 (respectively: 4.2, 3.8 and 3.7 kg). L-2, L-3 lines and Ushiki kuri variety 2.1-1.5 kg. found to have fruit weight Table 2.

2- Table

The average weight of one fruit of pumpkin variety samples grown as a repeated crop (2022-2023 year)

Varietal name of specimens	Weight of one fruit, kg			
	2022 yil	2023 yil	o`rtacha	vs. st variety, %
Shirintoy (st)	1,3±0,26	1,5±0,30	1,4±0,28	100,0
L-1	1,9±0,28	1,9±0,28	1,9±0,38	135,7
L-2	1,2±0,24	1,4±0,28	1,3±0,26	92,8
L-3	2,1±0,43	2,1±0,43	2,1±0,43	150,0
L-6	2,9±0,57	2,6±0,53	2,8±0,57	200,0
L-9	4,0±0,82	4,3±0,88	4,2±0,86	300,0
L-10	3,8±0,78	3,8±0,78	3,8±0,78	271,4
L-11	2,6±0,52	2,7±0,55	2,7±0,55	192,8
L-14	3,6±0,73	3,8±0,78	3,7±0,76	264,2
Palov kadu	2,4±0,49	2,6±0,52	2,5±0,51	178,5
Ushiki kuri	1,4±0,29	1,6±0,32	1,5±0,30	107,1
Ulibka	1,1±0,22	0,9±0,18	1,0±0,20	71,4
EKF05	0,1	0,1	0,1	
Sx, %	4,2	4,3	4,3	

When the 2-year average fruit weight of the variety samples was analyzed, the average weight of our standard Shirintoy variety was 1.4 kg. One fruit of the L-9 (4.2 kg), L-10 (3.8 kg), L-14 (3.7 kg) and L-6 (2.8 kg) lines from the studied variety samples. the average weight was 300.0 - 271.4 - 264.2 and 200.0 percent, respectively, compared to the standard.

For the years 2022-2023, the L-9 (6.3 kg) and L-10 (6.4 kg) lines showed high productivity per bush (141.5-105.8 %), while Shirintoy (st) compared to the variety (4.3 kg) - 67.3-25.3% higher yield of L-1 (5.5 kg), L-11 (4.8 kg) and L-14 (6.3 kg) lines was found to be. It was also found that the L-3 (4.2 kg) line and the Ulibka (4.6 kg) variety produced 5.3 and 4.9% higher yields per bush, Table 3.

3-Table.

Yield per bush of samples of pumpkin varieties grown under conditions of repeated cropping (2022-2023 year)

Varietal name of specimens	Productivity per bush, kg			vs. st variety, %
	2022 yil	2023 yil	o`rtacha	
Shirintoy (st)	4,14±0,85	4,54±0,93	4,34±0,89	100,0
L-1	5,26±1,07	5,76±1,18	5,51±1,12	127,0
L-2	2,23±0,46	2,45±0,50	2,34±0,48	53,9
L-3	4,01±0,82	4,39±0,90	4,20±0,86	96,8
L-6	4,01±0,82	4,39±0,90	4,20±0,86	96,8
L-9	6,02±1,23	6,58±1,34	6,30±1,29	145,2
L-10	6,17±1,26	6,75±1,38	6,46±1,32	148,8
L-11	4,64±0,95	5,08±1,04	4,86±0,99	112,0
L-14	6,01±1,23	6,57±1,34	6,29±1,28	144,9
Palov kadu	4,30±0,88	4,70±0,96	4,50±0,92	103,7
Ushiki kuri	5,59±1,14	6,11±1,25	5,85±1,19	134,8
Ulibka	4,35±0,88	4,85±0,97	4,60±0,92	105,9
EKF05	0,20	0,22	0,21	
Sx, %	4,1	4,1	4,1	

In the analysis of the productivity of the samples of the studied variety, when all varieties were compared to the average of the samples, the Ulibka variety was equal to the average. L-1 line is 5.51 kg per plant. production was 10% higher. L-9, L-10, L-14 lines and Ushiki kuri varieties were found to be 26-35 percent higher than the average of all varieties.

The amount of dry matter in the fruits of L-1 (8.2 %), L-9 (8.1 %), L-11 (8.2 %) lines and Ushiki kuri (8.2 %) varieties is higher than the standard variety index. It was higher by 5.1 - 6.5%. The dry matter content of the fruits of the Palov pumpkin variety was 8.9%, 15.5% higher than that of the Shirintoy variety, and 29.1% higher than the dry matter of the L-2 line and Ulibka varieties.

When analyzing the amount of sugar in the fruits of the variety samples, the indicators of all the variety samples ranged from 1.52 to 2.81%. The amount of sugar in pumpkin fruit is of great importance in evaluating the value of the product. The amount of sugar in the fruit was 1.78% in the standard Shirintoy variety. The sugar content of the fruits of L-1 (2.19 %), L-6 (2.31 %), L-9 (2.25 %), L-14 (2.17 %) lines is 21.9 - 29 more than the standard, Up to 7%, the sugar content of the fruits of Palov kadu, Ushiki kuri varieties and L-11 lines is 2.66-2.81%, and the sugar content is 49.1-57.8% higher than the standard variety. It's done.

The fruits of the total harvest collected from the samples of the pumpkin varieties grown in the repeated crop were sorted, and the immature fruits were divided into goods and non-goods. When the formed fruits of the variety samples were separated from the fully ripe ones, the relatively early variety samples prevailed. Table 4.

4-Table

Takroriy ekin sharoitida yetishtirilgan qovoq nav namunalarning hosildorligi (2022-2023 yy.)

Varietal name of specimens	Total yield, t/ha		Commercial yield, t/ha	In relation to the total yield, %
	o`rtacha	st navga nisbatan, %		
Shirintoy (st)	35,6	100,0	31,0±6,3	87,0
L-1	45,2	127,0	36,1±7,3	80,0
L-2	19,2	53,9	16,3±3,3	85,0
L-3	34,5	96,8	30,1±6,1	87,5
L-6	34,5	96,8	29,6±6,0	86,0

L-9	51,7	145,2	43,2±8,7	83,6
L-10	53,0	148,9	39,9±8,0	75,0
L-11	39,9	112,0	32,3±6,5	81,0
L-14	51,6	145,0	41,3±8,3	80,1
Palov kadu	36,9	103,7	31,8±6,3	86,0
Ushiki kuri	48,0	134,8	42,5±8,4	88,5
Ulibka	35,7	100,1	32,8±6,6	92,0

87% of the total yield obtained from the standard Shirintoy variety was 31 t/ha. L-1 line 80% product yield was 36.1t/ha, 16.5% higher than the standard variety. In the L-3 line, the product yield was 30.1 t/ha equal to the standard grade, while in the L-6 line, 29.6 tons of product were produced, which was 4.6% lower than the standard grade. The yield of 36.9 t/ha of the pilov pumpkin variety was 14% unproductive, and the marketable yield was 31.8 tons. The yield of L-11 line was 81% goods (32.3 t/ha), which was 4.2% more compared to the standard variety, while in L-10 line it was 39.9 tons of goods left.

When the unripe 15.9% of the yield of 51.6 t/ha in the L-14 line was separated into non-product, the yield of 41.3 tons was higher than the standard variety by 33.25%, while the first fruits ripened in 114 days L Of the 51.7 t/ha yield in the -9 line, 43.2 tons of marketable yield was 39.3% higher than the standard variety. 88.5% (42.5 tons) of the yield of 48.0 t/ha of the Ushiki kuri variety was marketable fruits, which was 37.0 times higher than the standard variety's marketable yield.

The earliest Ulibka variety yielded 35.7 t/ha, 8% of which was allocated to non-goods, and 32.8 tons were allocated to goods. The yield per hectare of this variety was equal to that of the standard variety, while the product yield was 5.8% higher.

The total yield per hectare of L-2 line was 19.2 tons, and when 15% of the yield was divided into non-productive, 16.3 tons of yield was considered valuable. It was found that the yield of the L-2 line was 47.5% lower than that of the standard Shirintoy variety (31 t/ha).

In the years 2022-2023, the yield of the marketable crop in the total yield of the Shirintoy (st) variety was 31.0 t/ha or 87.0%, while the highest marketable yield was obtained by L-9 (43.2t/ha) – 87.6%, as well as 85.6-85.0% marketable yield L-14 (41.3 t/ha), L-10 (39.9 t/ha), Ulibka (32.8 t/ha ha), L-11 (13.1 t/ha) and Ushiki kuri (42.5 t/ha) were found in samples of pumpkin varieties.

Conclusions

If the standard variety required 125 days for the first fruits to ripen, the L-3, L-9, L-11 lines (113-115 days) took 10-12 days, the L-2 line and the Ushiki kuri variety took 20-25 days. days, the fruits of the Ulibka variety ripened 94 days and 31 days early and ripened the earliest.

According to the chemical composition of the fruits of pumpkin variety samples: dry matter content is relatively high (8.1-8.2%) in lines L-1, L-9, L-11 and Ushiki kuri varieties, while in Palov pumpkin variety it is 8, 9% is the highest, and the highest sugar content (2.66-2.81%) was found in L-11 line, Palov kadu and Ushiki kuri varieties.

The highest number of fruits per bush was formed in the standard Shirintoy variety, L-1, L-9 lines and Ushiki kuri varieties (2.9-3.1 pieces), while the Ulibka variety was small (1.0 kg). 4.6 pieces formed the most fruits.

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