Selection of evening samples of Brassica Capitata lizg

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Abstract. The aim of the research work was to select a variety of white cabbage for cultivation in repeated crops in the late period, to determine the coefficient of variation of phenological indicators of varieties (V, %), biometric, morphological and economic traits of varieties, to determine the correlation coefficient (r) between the relationship of indicators. In the experiment, 8 varieties and hybrids of white cabbage brought from different countries and 6 local varieties were selected from among them, on the basis of repeated sowing in the conditions of the Tashkent region in the late period. "Saratoni" and "Sharqiya-2" varieties were taken as standard. The experiment is non-reversible, each variety has 4 rows, the length of the is 10 m. Each variety was planted on 28 m2. Planting scheme 70x40 cm. Standard cultivars were placed after every 6 cultivar samples. The results of the study showed that, compared with the standard varieties Sharkia-2 and Saratoni among 14 varieties studied in the cultivation of white cabbage in the late period of the highest yield was the hybrid Geant F1 137.1%, followed by hybrid Kozak F1 - 130.4% and hybrid “W61-19” F1 - 135.4%. Economic efficiency of yield (70.9% for the standard variety), 95.0% for hybrid Geant F1, 90.9% for hybrid Kozak F1 and 94.0% for hybrid “W61-19” F1.

1 Introduction

Today, cabbage is the leading vegetable crop in the world. Today, cabbage, one of the most popular and delicious vegetable crops in the world, is cultivated on 2.82 million. hectare, the average yield is 29.4 tons per hectare, and the total yield is 82.8 million. tons (http://statinformation.ru/sel/cabbages.html). Vegetables are widely planted as repeated crops in agriculture in Southern Europe, Central and South Asia, North and South America, and Australia, which have moderate climate conditions and long warm days.

Increasing the productivity of this crop and the volume of gross product production by using effective agrotechnologies in the cultivation of white cabbage as a repeated crop based on the climate of the region with the effective use of existing irrigated areas is considered an urgent issue. In this regard, the introduction of scientifically based technologies into production will ensure the increase of product production, effective use of irrigated areas, and high economic efficiency indicators obtained from repeated crops.

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In order to meet the demand for white cabbage, it is important for agricultural producers to improve the technology of growing this crop as a repeated crop, in which research on the optimal planting period, determination of the area of plant nutrition, and the selection of marketable and productive varieties and hybrids is relevant.

S.V. Koroleva, S.V. Sitkinov, V.V. Skorina, V.F. Pivovarov, L.K. Gurkina, T.V. Lizgunova abroad on the issue of variety selection and improvement of maintenance technologies for growing white cabbage in a repeated crop , V.A. Denisov, R.D. Almasker, I.D. Rajabli, N.B. Petrov, A.F. Bukharov, L.I. Uralets, O.N. Vishnevskaya, M.N. Shapturenko, A .D. Dzhakhangirov, V.P. Kuzmishchev, V.N. Lukyanets, G.A. Kostenko, G.F.Monakhos; in the republic H. Ch. Boriev, V. I. Zuev, O. Kadirkhojaev, M. Mukhamedov, B. J. Azimov, T. E. Ostonakulov, A. M. Abbasov, A. A. Umarov, M. Kh. Aramov and researched by many other scientists.

For cultivation in repeated crops, there are recommendations on the selection of varieties specific to the soil climate of certain regions, the placement of plants in "ribbon" methods, the use of agrotechnics specific to varieties, irrigation, feeding, etc. [1].

Zto H. et al (1983) studied the influence of the growing season of cabbage varieties on its chemical composition in Japanese climate and made the following conclusion. That is, in all experiments with cabbage, the concentration of glucose is 0.99–2.14; fructose – 1.18–3.21; sucrose – 0.04–1.43; total free sugars were 2.35–6.55 mg/100 g of mass. When the harvest of late varieties is harvested in winter, the total amount of glucose, fructose, sucrose and sugars in the composition is higher than that of early varieties.

K.F. Stoner, A.M. Shirlton (1990) conducted experiments in 1988 to study the resistance of white-headed cabbage varieties to tobacco thrips and found the following. When four varieties of cabbage were planted in wheat, oat and alfalfa fields infested with tobacco thrips, 28.4 and 16.2 percent of Market Prize and Supergreen varieties were infected. In "Titanic-90" and "Falcon" varieties, this indicator did not exceed 5.5 and 2.9 percent. They found that these varieties of cabbage are resistant to tobacco thrips.

G.A. Kostenko, G.F. Monachos [2] defined the model of white cabbage before starting breeding work. It has a growing period of 120–125 days, the diameter of the bush is 60–65 cm, the weight of the cabbage is 3–4 kg, it is round or flat-round in shape, the density and taste are 4.5–5 points, it is resistant to Fusarium wilt disease, it is good and excellent when fresh and pickled. must have grades. When the authors evaluated 50 hybrids of white cabbage, they considered 4 hybrids No. 313, 314, 316 and 416 as promising. Product yield per hectare is 113.4; 107.1; 137.4 and 110.8 tons [2].

V.A. Maslov (2013) compared the yield of seedlings of several cabbage cultivars by determining the age and development of the root system. By reducing the age of seedlings of the "Kudesnitsa" variety to 25 days and increasing the root volume to 150 cm3 at the seedling stage, it was possible to harvest early. Its growth period was 81–100 days, while "Nika" hybrid was 89–118 days from the appearance of sprouts to the technical preparation of cabbage [3].

G.A. Kostenko, G.F. Monakhos, A.N. Khovrin [2], the selection and seed company "Poisk" under the All-Russian Research Institute of Vegetables and N.N. At Timofeeva Selection Experimental Station, the results of testing new hybrids of white cabbage "Beaumond-Agro", "Kupidon", "Flibuster" were described as follows. The yield of tested hybrids is 100-120 t per hectare "Bomond Agro"; "Cupid" - 90-118 t; "Flibuster" was 75-119 tons, and these hybrids were characterized by disease resistance [4].

V.A.Sapeta (2014) studied the productivity and adaptation parameters of white cabbage varieties and hybrids in the conditions of Northern Zauralia. Strong genotype interactions in the specified environment, different productivity, most varieties and hybrids noted that the intensity decreased by half [5].

N.A.Potapov, R.R.Galeev, S.S.Potapova, E.V.Rogovalar (2015) conducted special experiments on the cultivation of new hybrids and varieties of white cabbage in the conditions of Western Siberia. Early cabbage seedlings were planted in a 70x35 cm scheme at the end of the first decade of June - the beginning of the second decade. Based on the research results, the authors recommended planting early hybrids G'1 "Pandion" - 49 days, yield 57.9 tons and G'1 "Green Flesh" - 56 days, yield 63.8 tons [6].

"Beyko" (2006) recommended planting the following hybrids of white-headed cabbage in Russia for fresh consumption: "Kombria", "Artost", "Invento", "Trigger", "Gazebo", "Frelko", "Tomas"; early hybrids with a short growing period (85–87 days): "Alfredo", "Rotonda", "Leopold" and medium hybrids with a growing period of 118–141 days: "Kiekshen", "Candela", "Topgan", "Paradox" [7].

Syngenta [2008] is a leading international organization engaged in research into vegetable crop breeding, seed production and protection. This company recommended planting the following hybrids of white cabbage for Russia and CIS countries: ultra-early: "Kevin" F1 (ripening period 50-52 days), "Mirror" F1 (48-50 days); morning: "Reactor" F1 (55-60), "Gordius" F1 (68-70), "Gregorian" F1 (70-72) days; mid-morning: "Kuizor" F1 (80–85 days), "Septon" F1 (90–95 days); for storage, processing, fresh use: "Aggressor" F1 (ripening period 115-120 days), "Bloktor" F1 (125-130 days); evening: "Novator" (130-135 days).

Ch.Boriev, V.I.Zuev, O.Q.Kadirkho'jaev, M.M.According to the recommendations of Muhamedov [8], quick-cooking varieties and hybrids of white cabbage such as "Navroz", "Iyunskaya", "Number pervy gribovsky-147" and "Parel" F1 were recommended for planting in the early period. Average late-season varieties such as "Ashkhabad", "Saratoni", "Sudya Uzbekskiy", "Uzbekistan-133" are recommended to be planted in the late period, and the local improved variety "Derbent" is recommended to be planted in the southern regions of our republic only in late autumn-before winter. Planting heat-resistant varieties "Apsheron Kuzgisi" and "Tashkentskaya 10" for mid-term planting gives good results [9].

In the climatic conditions of Surkhandarya region, the newly created "Termez-2500" variety of white cabbage was tested in comparison with the "Saratoni" and "Tashkentskaya 10" varieties zoned for planting in mid-summer periods. In hot summer conditions, the yield of the comparative variety "Saratoni" was 17.5 tons per hectare, while the yield of the new variety "Termez-2500" was higher (22.6 t/ha) (Khasanov A. R., Aramov M. X .) [10].

T.E. Ostanakulov [9] in his textbook gave the following varieties of white cabbage, which are widely planted in Uzbekistan: tezpishar - "Number pervy gribovskiy-147", "June", "Derbent local improved", "Apsheronskaya winter", "Navro'z"; middle school - "Saratoni", "Tashkentskaya 10", "Termez-2500"; average evening - "Uzbekistan-133", "Uzbek Judge"; evening - "Sharqiya-2" is one of them.

The purpose and objectives of the research are to select varieties of white cabbage as a repeated crop in the late period, and the tasks are to select varieties of white cabbage for cultivation in a repeated crop in the late period, to determine the coefficient of variation of the phenological indicators of the variety samples (V, %), biometric, morphological and economic characteristics of the variety samples is to determine the correlation coefficient (r) between the correlation of indicators.

The object of research is white cabbage "Tashkentskaya-10", "Sharqiya-2", "Saratoni", "Termez-2500",“Uzbek Judge”, “Stone Head” and introduced varieties "Sutra", "Sudak", "Kubok" in Uzbekistan. "F1, "Geant" F1, "Kozak" F1, "Ranoki" F1, "Brady" F1 and "W61-19" F1 varieties and hybrids served.

The subject of the research is the areas freed from spiked grain crops as a repeated crop, morpho-biological characteristics and productivity elements of the samples of white cabbage grown in the repeated crop.

2 Research methods

Researches B.J.Azimov, B.B.Azimov's "Methodology of conducting experiments in vegetable growing, rice growing and potato growing" (2002), V.F. Belik's "Methodology of experimental work in vegetable and melon growing" (1992), "Guidelines for environmental testing vegetable crops" (1987)was carried out on the basis of the methods presented in the manuals. Statistical analysis of the research results was carried out using the dispersion method of B. A. Dospehov "Methodology of field experience" (1985) in "Excel 2010" and "Statistica 7.0 for Windows" computer programs, with a confidence interval of 0.95%.

3 Conditions and methods of research

Field experiments were conducted in the fields of the farm "Sarkor" in Boka district of Tashkent region. The soil of the experimental field is grass-gray soil, seepage water is located at a depth of 2.0-2.5 m, it is not saline.

4 Results

According to the calculation of the duration of the growing season of white cabbage repeatedly planted in the fields free from grain in the conditions of Tashkent region, it was determined that it is 165 days from the time the grass sprouts until the harvest in the Dutch varieties, 147 days in the Uzbek varieties, and 147-154 days in the French samples;

When 40-45-day-old seedlings of Dutch varieties were planted, cabbage began to harvest after 30-31 days (Fig. 1).

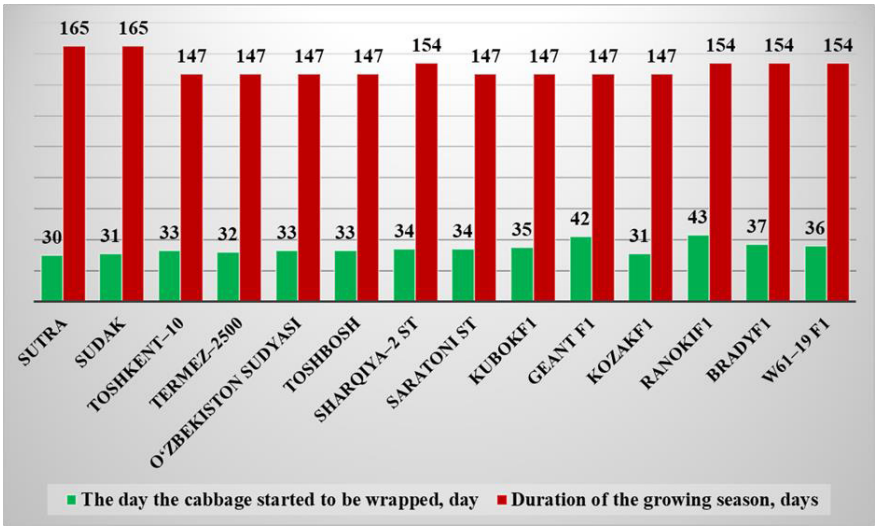

Fig. 1. Indicators of the growth period of white cabbage variety

This period was 32-34 days in local varieties and 31-43 days in French hybrids. Harvesting date according to variety samples is 30.11; 09.11 and 09-16 November. The growing season is 165 days in Dutch varieties; In varieties of Uzbekistan - 147-154 days and in French hybrids - 147-154 days.

Standard "Saratoni" variety had 21.3 leaves per plant, compared to "Sutra" variety - 29.1%; "Sudak" variety - 21.7; "Ranoki" F1 - 15.0%; "Brady" was found to be 12.7% more in the F1 hybrid.

The coefficient of variation for the number of free leaves on the stem in the variety "Sudak" V=6.8%, =15.3±0.33 units; V=5.8% in F1 hybrid "Kupak"; =24.1±0.58 units.

The leaf area per bush was 12.2 dm2 in the standard "Saratoni" variety and 14.8% more in the standard "Sharqiya-2" variety.

Variation coefficient of leaf length in "Sudak" variety V=6.3%; =20.5±0.41; In the "Geant" F1 hybrid - V=5.6%; =25.7±0.6 and V=5.4% in "Cup" F1 hybrid; =20.5±0.46 cm. is equal to.

The weight of a leaf on a bush is 1.19 kg in the standard "Sharqiya-2" variety. organized the Compared to it, 17.6% in the standard "Saratoni" variety; "Geant" F1 hybrid was 12.6% higher and "W61-19" F1 hybrid 25.2% higher.

Cabbage shape index in round: 0.8–1.1; on flats: 0.4–0.7; in flat-round: 0.7–0.8; in cones: 1.1–1.4; in ovals: equal to 1.4–2.1. Var samples are flat (0.4–0.7); varieties and hybrids with conical (1.1–1.4) and oval (1.4–2.1) shape were not produced (Table 1).

Table 1. Biometric parameters of white cabbage samples

Variety samples	Cabbage height		Cabbage width diameter		Cabbage index		Cabbage shape
	sm	%	sm	%	sm	%	
Sutra	17,7	74,4	23,4	83,6	0,76	98,7	flat-round
Sudak	18,2	76,5	22,6	80,7	0,80	103,9	flat-round
Tashkentskaya 10	21,8	91,6	24,5	87,5	0,89	115,6	round
Termez-2500	20,3	85,3	23,3	83,2	0,87	113,0	round
Judge Uzbek	23,8	100,0	28,0	100,0	0,85	110,4	round
Stone head	22,0	92,4	26,4	94,3	0,83	107,8	round
Sharqiya–2 – st	21,5	90,3	28,0	100,0	0,77	100,0	flat-round
Saratoni – st	21,8	91,6	27,7	98,9	0,79	102,6	flat-round
Kubok F_1	19,1	80,3	22,6	80,7	0,85	110,4	round
Geant F_1	18,3	76,9	20,3	72,5	0,90	116,9	round
Kozak F_1	18,5	77,7	21,7	77,5	0,85	110,4	round
Ranoki F_1	17,8	74,8	20,6	73,6	0,86	111,7	round
Brady F_1	17,3	72,7	18,2	65,0	0,95	123,4	round
W61–19 F_1	20,7	87,0	22,8	81,4	0,91	118,2	round
$\overline{X}$	*19,914*		*23,578*	*0,84*	*0,84*	*109,1*	
$\sum$	*278,8*		*330,1*		*11,76*		

Cabbage height is 18.0 cm in Dutch varieties, 21.9 cm in Uzbek varieties and 18.6 cm in French hybrids. organized; the width of the cabbage is 23.0 cm, respectively; 26.3 cm and 21.0 cm. established It was observed that the shape of cabbage was flat-round and rounded in the studied varieties and hybrids.

Flat-round shape (0.76–0.80) "Sutra"; "Pike"; It was recorded in such varieties as "Termez-2500" and "Judge Uzbek". The index of the remaining samples corresponded to 0.8–1.1, and they had a rounded shape.

Cabbage weight in the standard "Saratoni" variety was 3.2 kg, and compared to it, it was 21.9-28.1% heavier in French hybrids; Cabbage of Dutch varieties was in the range of 65.6-71.9% compared to the standard.

The average productivity in the 1st standard "Sharqiya-2" variety is 96.9 tons and 2nd standard "Saratoni" variety was 95.7 tons.

Compared to the standard "Saratoni" variety, a higher yield was observed in French hybrids: 137.1% in the "Geant" F1 hybrid; 130.4% in the "Kozak" F1 hybrid and 135.4% in the W61–19 F1 hybrid.

The average yield of Dutch varieties is 70.8 tons; Uzbek varieties - 90.2 tons and French hybrids - 110.6 tons.

Although the size of cabbage in Uzbekistan varieties is high, its density is average. In French hybrids, because cabbage is denser, its weight is heavier (Table 2).

Table 2. Cabbage weight and yield of white cabbage variety samples

Variety samples	Cabbage weight		Average 4 years	
	kg	relative to the standard, %	$\overline{X}$	relative to the standard, %
Sutra	2,1	65,6	67,2	70,2
Sudak	2,3	71,9	74,4	77,7
Tashkentskaya 10	2,9	90,6	84,9	88,7
Termez-2500	3,3	103,1	91,9	96,0
Judge Uzbek	2,9	90,6	87,4	91,3
Stone head	2,9	90,6	84,7	88,5
Sharqiya–2 – st	3,2	100,0	96,9	101,3
Saratoni – st	3,2	100,0	95,7	100,0
Kubok F1	3,1	96,9	98,7	103,1
Geant F1	4,1	128,1	131,2	137,1
Kozak F1	3,9	121,9	124,8	130,4
Ranoki F1	2,9	90,6	92,8	97,0
Brady F1	2,7	84,4	86,4	89,9
W61–19 F1	4,1	128,1	129,6	135,4

The LSD_{05} indicator of productivity in years is accurate to 1.-3.6 tons; the accuracy of the experiment was reliable S,% 1.7-4.3%.

The net profit was 9,655 thousand soums per hectare in the standard "Sharqiya-2" variety. In "Geant" F1, "Kubok" F1, W61-19 F1 hybrids, this indicator was higher than the standard (151.3-162.8%).

The cost of one ton of product varied between 150,000 soums for standard "Sharqiya-2" variety and 131-133,000 soums for other hybrids.

The rate of profitability is 66.3% in the standard variety; "Geant" in F1 - 92.0%; Kozak was 88.02% in F1 and 91.03% in W61-19 F1.

Conditional net profit from the introduction of tested hybrids was 4951-6060 thousand soums per hectare (https://www.syngenta.ru/products/search/seed-vegetable).

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