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Comprehensive Study Of Shadow Various Samples And Selection Of Promising Varieties

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ABSTRACT:

According to the results of the research, the average biological yield of controlled shade of Uzbek-2 variety was 30.1 ts / ha, Uzbek-6 variety - 32.8 ts / ha. The highest yields in the selected cultivar samples were observed in the samples of Competition-58/14 and Competition-64/15 and Competition 73/18 and amounted to 38.6-40.3-40.8 ts / ha.

Key words: Shade, varietal, hybrid, hybrid, stem, root, legume, tuber, seedling, protein, oil, yield.

1. INTRODUCTION

At present, the country pays great attention to grain, legumes and oilseeds and expands the sown areas. Great opportunities have opened up for the development of agriculture and the efficient use of land. One of the most pressing issues today is the protein issue, which is to meet humanity's demand for protein. In solving this problem, the importance of soybeans from legumes is great. In the world, soy production in 2014/2015 amounted to 118.14 million tons. 317.25 million hectares were planted. tons of soybeans were harvested. The highest yields belong to U.S. farmers, averaging 3.21 t / ha. The lowest yield is grown in India, with an average of 0.9 t / ha. obtained from. Worldwide soybean production in 2017 will be 347.9 min / ton. Soy is grown in more than 60 countries around the world. The U.S. accounts for half of the total crop area and more than 60% of gross harvest. Soybeans are grown in large areas in China, Brazil, as well as South America, Canada, Australia and Western Europe. Today, the area under soybeans in Uzbekistan is about 20,000 hectares, with a yield of 18-20 centners per hectare. In the conditions of irrigated agriculture in Uzbekistan, the yield of soybeans is 30-40 centners per hectare. In 2017/2018, 146 mln. tons, which is 5 mln. tons. In particular, in 2017, for the first time in the country, soybeans were planted on more than 12,000 hectares, 14,000 tons of soybeans were grown, and in 2020, 17,314 hectares were planted. According to the FAO, the world's population is expected to exceed 8 billion by 2020. This situation could exacerbate the problem of food security in many countries. One solution to this problem is to create and implement productive varieties of cereals and legumes.

To provide the population with food, solve protein deficiencies, increase fat production, provide livestock with nutritious food and increase soil fertility, soybeans and mosh crops, high-yielding, grain-rich in protein and fat, disease and pest resistant and diverse soils In recent years, Uzbekistan has been paying close attention to the study and development of

technology for the cultivation of this crop, and the technology of growing soybeans as a primary and secondary crop is being widely studied in the country.

At present, one of the main tasks of scientists in the field is to further strengthen research on the selection and agronomic techniques of this crop in the creation of heat, drought and salt-resistant, early maturing and new promising varieties of shade in the context of global climate change.

2. LITERATURE REVIEW

Favorable planting times are defined, and ensuring favorable heat, moisture and air regimes in the soil is one of the important agro-technical measures in the process of planting, high yields. [6]

Yield of soybean crop is provided by the following indicators: number of plants per unit area, number of pods per plant, number of grains and weight of 1000 grains, ie yield of the variety depends on plant productivity (average yield per plant) and crop thickness (seedlings) in the field [7].

Soybean is one of the most important sources of protein. In terms of protein content in grains and stems, they are 1.5-2 times superior to cereals. Their grains are very rich not only in protein but also in fat. In addition, legumes are rich in minerals and vitamins A, B, C, D, E. According to M. Mannopova, Mansurov (2002), soybeans contain A-1.2mg / kg, E-600mg, K12mg, biotin-0.6, pyridoxine, 6.4, folic acid-2. , 3mg, RR-30, inosine 1800-2100mg, choline-3000-3800 mg / kg, some of which increase several times during the period of soybean seed production. Of the mineral salts, potassium is 1.7-2.5%, calcium is 0.23-0.96, phosphorus is 0.44-1.09, magnesium is 0.55, iron is 0.5-2.40 mg, copper is 14.36, manganese-20-35, aluminum-5-35, boron-41-49, chromium -1.5, strontium 0.5-3.8 mg / kg [13].

Yormatova D. According to (2003y), soybean grain is used in all sectors of the economy, from which about 300 different food products, technical raw materials, animal and poultry feed are prepared. Among plants, a single soybean grain has the highest protein content. The protein in soybeans contains 10 essential amino acids that are found only in animal protein. The amount of protein in soybeans is 14 times higher than in chicken, 4 times higher than in eggs, and 3.5 times higher than in beef. At the same time, these plants belong to the group of legumes, assimilate natural nitrogen and at the same time increase soil fertility [8].

The process of photosynthesis is a key factor in the productivity of soybean plants and high soil fertility [2].

Lack of protein in the body is a big problem. Therefore, the expansion of soybean plantations, the production of various food products from it will help to eliminate protein deficiency. The results of medical and biological research show that foreign scientists have proved that foods made from soybeans are very useful for human health [15].

Khalikov.BM, Namozov.FB noted that the cultivation of grain and legumes in the world, along with the creation of new high-yielding varieties suitable for different soil and climatic conditions, the development and improvement of agrotechnologies for their cultivation in different periods and methods, scientific use of mineral fertilizers Research on the rational use of irrigated lands, providing the population with quality food products, planting of secondary crops after winter wheat, regular increase of soil fertility and crop yields is important [16].

Siddiqov. R.I.Mannopova M and others point out that the main condition for the seeds to have varietal seeds is that all attention is paid to ensuring the purity of these varieties, starting

from the study of the offspring of new varieties. For this purpose, it was studied based on the specific phenological characteristics of the growth stages depending on the type of plant [14].
According to H.N. Atabaeva, water consumption increases from flowering to the formation of pods, the temperature is high. Water consumption is high during the legume and legume filling phases, but the process of enrichment with organic matter is reduced. Drought during the flowering phase reduces yields by 48–58%, drought during flowering sheds stalks and flowers (87–92%), and seed weight decreases [17].
Phosphorus deficiency occurs in virtually all acidic soils in an environment with low pH. Phosphorus deficiency reduces the number of nitrogen-fixing bacteria. When phosphorus is low, the absorption of spirit, iron and copper decreases (agrodialog / com.ua) [18].
According to Mavlyanova and Suleymanov, it is necessary to intensify research on soybean breeding in order to grow large areas of soybeans in different soil and climatic conditions of the country and to create new promising varieties resistant to various stressors, including heat, drought and salt [12].
In European countries, special attention is paid to the creation and introduction of early varieties of shade. In particular, experiments in Bukovina yielded an average of 188 grains per soybean crop. The results of the analysis show that the amount of protein and fat in the seeds has increased and it has been proven that straw can be used in cattle [10].
In the first half of the shade application period, the topsoil grows slowly and is resistant to drought during the period when the root system is actively growing but is very demanding to water during the flowering, budding and seed-filling periods. When the moisture is not enough, the existing pods are shed and new pods are formed.The optimum soil moisture is 26-36% or 60-80% relative to ChDNS [19].
Anarboev I, Sattarov M. According to 2012, the optimal rate of mineral fertilizers for soybeans is N90P90 K100 kg / ha, 50% of phosphorus and potassium fertilizers are fed with nitrogen fertilizers 2 times before the first feeding, the second feeding is during the flowering period at the end of [3].
Soy belongs to the group of legumes and is unequal among the plants in the farming system due to the versatility of its use. Soybeans can compete with the most important foods such as meat, milk, eggs in terms of high quality amino acid content. It contains 30-52% of protein, 17-27% of ecologically pure vegetable oil and 20% of carbonated water. . Experiments have shown that by increasing the seedling thickness of the shade in order to reduce grain loss, it is possible to increase the position of the first pod to 2.5-3.5 cm. [14]
Mineral fertilizers and sulfur soy have a positive effect on grain size and grain yield. [4]
The processing industry is a strategic direction for soybean production for poultry, livestock, bread production, and food industry. [9]
Breeders have tried to find a solution by creating varieties that increase the yield by prolonging the period of reproductive development (the period of seed filling). The filling property of seeds does not pass from generation to generation, it depends only on external factors. When the flowering period of late genotypes is over, the period of seed maturation is shortened under the influence of a short day of the external environment. Selection work aimed at prolonging the reproductive period should be carried out in the required photo cycle. If the flowering period begins at the same time in all genotypes, at the end of the flowering period these genotypes develop under the influence of the same photo cycle.
From an agronomic point of view, important stages of ripening are physiological maturation and crop ripening. Decreased water content in the seed means that it has reached the stage of harvest when it is possible to carry out harvesting operations. [17]
Like other legumes, shade ontogeny is divided into several developmental stages. These include embryonic reproduction, juvenile maturation, and the gradual cessation of the activity of living organisms.

During this period of development, a number of scientists have made observations on changes in the growth and development of soybeans as a result of external factors and agro-technical measures. [5].

Soy is most susceptible to zinc, manganese, molybdenum and copper deficiencies. To overcome the deficiency of these micronutrients, it is recommended to use sulfate salts of these elements. In soybean cultivation, 70-100% of phosphorus and potassium fertilizers are applied to the soil in the fall before plowing. Nitrogen fertilizers are applied before planting or at the same time as planting. Nitrogen fertilizer can be applied at the end of the flowering period and during the flowering period, because during this period the activity of rhizobium bacteria stops and this does not adversely affect the nitrogen-accumulating rhizobium bacteria [1].

Demand for soybeans is growing in all production systems of the country, in a market economy. In recent years, local and foreign soybean varieties, as well as moss, have received special attention as both primary and secondary crops [11].

In the selection work aimed at increasing the protein content, it should be noted that in the seeds of early-maturing varieties of colored and black color of the seed coat is stored more than in yellow-seeded mid-ripe. In multi-protein varieties, the concentrated amount of protein and fat is higher than in many fats. [11].

2. EXPERIMENTAL CONDITIONS, SOIL AND WEATHER

Scientific research was carried out on the experimental area of the Rice Research Institute on the 12-card 2-check (0.50) 13-card 1-check (1.0 ha), a total of 1.5 hectares.

The experimental site is located in the south-eastern part of the Tashkent region, 15 km from Tashkent, on the left bank of the Chirchik River on the Greenwich scale. $69^0$18’ East longitude and $41^0$20’ Located in the plains of the northern latitudes.

The soil layer in the experimental area is meadow-swampy, loamy sandy soil. It is known that gray soils are less stratified and are characterized by a lack of humus, which is also evident from the peculiar color that occurs in meadow swampy soils.

The driving layer of the experimental farm of the Rice Research Institute is 0-30 and 0-40 cm, below the driving layer there is a layer of gel 30-40 cm thick, at a depth of 60-70 cm there is a layer of sand and small stones (Table 2.1).

Table 2.1
Agrochemical composition of the soil in the driving layer

Years	Humus, percent	Total, percent			Mobile forms, mg / kg		
		nitrogen	Phosphorus	Potassium	$N\text{-}NH_4$	P_2O_5	K_2O
2019	2.53	0.28	0.24	0.78	26.8	110.0	27.2

The soil in the experimental farm was low salinity with sulfate (pH 7.3). According to its mechanical composition, the soil belongs to the type of medium sandy soil. The amount of physical mud in the driving layer was 43.1%. (Table 2.2)

The humus content in the driving layer was 2.53%, total nitrogen was 0.28%, phosphorus 0.24%, and potassium 0.78%.

According to the sum of useful air temperatures, agricultural crops in Uzbekistan are conditionally divided into 3 groups for cultivation in irrigated areas (with an average daily temperature above 10 degrees). The climate of the Tashkent region is also sharply

continental, with extremely hot summers and cold winters, as well as dry and natural rainfall, with very little for plant growth.

Table 2.2
Mechanical composition of soil samples

Depth, cm	The amount of soil particles, in%							Physical mud	Name on mechanical composition
0-30	>0.25	0.25-0.1	0.1-0.05	0.05-0.01	0.01-0.005	0.005-0.001	>0.001		
	7.6	1.9	21.2	26.2	13.7	20.9	8.5	43.1	Medium sand

The soil layers are swamp-type soils that are characteristic of the oasis. There are also mixtures of large and small stones and sand in different depth layers. These soils are due to the typical excess moisture conditions on the left bank of the river and are very suitable for the cultivation of agricultural crops. Soil-meadow. The soil of the experimental field is not saline, the driving layer is 30-40 cm. The pH of the solutions in the soil is in the range of 6.8-7.3 units and is heavy clay in mechanical composition.

3. EXPERIMENTAL STYLE.

Soybean selection was carried out on the basis of general methods developed for the creation of new varieties of agricultural crops and recommendations developed by scientists of the Rice Research Institute, field experimental methods.

The sowing area for each variety of the varietal selection nursery was 50m2 and was carried out in 4 rounds. For all saplings, regionalized middle-ripe “Uzbek-2” and late-ripe “Uzbek-6” varieties of shade were planted. The sowing rate was 60 kg per 1 hectare in the shade, 60 cm between rows, 10 cm between plants, 2 seeds were sown in each nest.

1. Phenological observations were carried out in soybean seedlings. The main phases of shade growth: germination, budding, flowering, legume formation and ripening were observed and the duration of the application period was determined;
2. Seedling thickness (at germination and before harvest) was determined in the variety selection nursery;
3. Biometric parameters were determined. In the obtained bundles, plant height, location of lower pods, number of branches, number of pods per plant, grain weight, weight of 1000 grains were determined.
4. Mixing works were performed on the planned mixing systems.
5. The yield of each sample was determined. To do this, the product of each sample was harvested, crushed, weighed. In the obtained results, productivity indicators were analyzed on the basis of B.A. Dospekhov's manual.

4. EXPERIMENTAL RESULTS.

The main task of varietal selection is to transfer to the state varietal testing of new varieties with biological, economic characteristics and characteristics in comparison with the best varieties selected on the basis of the initial varietal testing and created in other selection institutions.

9 varieties of shade were tested in the nursery. “Uzbek-2” and “Uzbek-6” varieties of soybean were planted for control. Paykal area 50 m2 number of reps 4, placement method is standard. Phenological observations were made during the growing season.

Seedling thickness. The yield of a soybean crop depends on the number of plants per unit area and the productivity of the plants (average yield per plant).
Therefore, in determining the yield of samples in the experiment, the number of seedlings per unit area was determined.
To determine the thickness of the seedlings, calculations were carried out on the designated 1m2 area after shade emergence and before harvest. The results obtained are presented in Table 3.1.
According to the table, the degree of seedling preservation in the samples of the shade with the highest performance in the varieties of Competition-65/18, Competition-73/18, Competition-58/14, Competition-39/14, Competition-18/18 is 6-8 compared to control. % higher. Based on the results of other varietal samples obtained, it can be concluded that since the seedling thickness was obtained at the required level, this in turn had a positive effect on the good development of the crop and its yield.

3.1. table
Seedling thickness in varietal nursery (1 m^2 / piece)

T / R	Catalog number	Origin	Seedling thickness, pcs		Saved interest, %
			After germination	Before the harvest	
Soy					
1	D-ST v-2	Uzbekistan	25	20	80,0
2	D-ST Uzbek -6	Uzbekistan	26	21	80,1
3	Choice 65/18	K-24 USA	28	24	85,7
4	Choice 64/15	6806 Yugoslavia	30	25	83,3
5	Choice 18/18	8850 Uzbekistan	25	20	80,0
6	Choice 39/14	5382KNR	26	22	84,6
7	Choice 73/18	514504	27	23	85,2
8	Choice 5/14	3926	27	24	88,8
9	Choice 58/14	K-15	29	23	79,3

Usually placed in 4-6 rows, the area of seedlings is 50-100 m^2 for cereals. Standard is planted after every 5-10 varieties. Variety testing is conducted for three years. In this case, all the quantitative data obtained are statistically processed and the test error and accuracy are found. As a result of the comparison with respect to control, the State is sent for varietal testing (Table 3.1).
This year, 305 flowers were mixed in 10 combinations in the shade using the hybridization method in the hybrid nursery. The average number of hybrid flowers was 2.9% in the shade and 9 hybrids were obtained. The low percentage of mixed hybrids is due to the fact that this year's weather was much hotter than the previous year during the mixing period.
4 F0, 3 F1 generation hybrids and 3 F2 generation hybrids were planted in the hybrid nursery. The 2 F2 generation hybrids of the shade were planted side-by-side with their parents and studied

to produce a false hybrid due to the fact that they showed signs of resemblance to the father. In them, observations were made and the seeds were removed for planting the following year (Table 3.2).

3.2. table
Confusion results.

T.r.	Combination		Number of flowers mixed	They chatted number of flowers	%
	Motherhood ♀	Fatherhood ♂			
Soy					
1	9177	9601	35	1	3,5
2	614521	Tomaris MM	30	1	3,0
3	64644	Flight	28	1	2,8
4	7037	3926	27	1	2,7
5	Nafis	CH2CH 113-1001	29	1	0,4
6	K-025	5280	36	0	-
7	K-63	Nafis	32	2	-
8	K-13	K-14	30	0	-
9	Friendship	K-4470	30	1	3.0
10	Universal	Sultan	28	1	-
	Total		305	9	2,9

Table 3.3
Number and weight of root buds in soybean variety samples.

T.r	Catalog	Origin	Tuganak number, pcs	Tuganak weight, gr.	
				Wet	Dry
1	D-ST Uzbek -2	Uzbekistan	91	2,4	1,0
2	D-ST Uzbek -6	Uzbekistan	110	2,9	1,4
3	Choice 65/14	K-24 USA	135	5,4	2,4
4	Choice 65/15	6806 Yugoslavia	131	2,9	1,6
5	Choice 18/18	8850 Uzbekistan	140	3,1	1,3
6	Choice 39/14	5382KNR	211	3,3	1,5
7	Choice 73/18	514504	177	5,9	3,9
8	Choice 5/14	3926	108	2,2	1,1
9	Choice 58/14	K-15	123	4,5	2,9

The development of the ends:

Shade is an annual herbaceous plant, the roots are well-developed, with bullet roots. The main part of the root is located in a layer of 0-50cm, but the bullet penetrates the root soil to a depth of 2 m. 7-10 days after germination, nodules begin to form on the roots. Bacteria enter

the root through the root hairs and this is where the nodule begins to form. One of the most important economic benefits of legumes is that they assimilate air nitrogen through endogenous bacteria and accumulate biological nitrogen in the soil. Many factors affect the accumulation of biological nitrogen, such as plant type, soil-climatic conditions, soil environment, humidity. The soybean plant accumulates biological nitrogen in the soil through its root buds due to its symbiotic activity. In return, the protein content of the grain and soil fertility increase, and the yield of the next crop is higher. Therefore, in order to assess the symbiotic activity of cultivars selected in the variety selection nursery, the number and weight of buds on their roots were determined. The data obtained from the experiments are given in Table 3.3.

As can be seen from the table, the highest values in terms of number and weight control were observed in Sample-73/18, Contest-39/14, Contest-18/18, which was 2.1-3.5 g more than in weight control. The symbiotic activity of the remaining cultivar samples proved to be higher than that of the control cultivars.

In general, high symbiotic activity was observed in selected varieties.

Disease resistance:

The natural geographical conditions, soil and climate of our region provide full opportunities for the development and spread of disease-causing microorganisms. In this case, if disease control measures are not taken in a timely manner, the plants will lag behind in growth and development, reduce productivity and deteriorate quality, sometimes leading to complete drying of the plant. Disease resistance of cultivar specimens in the varietal nursery was studied in the field. Disease resistance is assessed on a 6-point scale. The experiment was performed in collaboration with plant protection laboratory specialists.
As can be seen from the data in this table, it was noted that all varietal samples of shade in the variety selection nursery have high resistance to disease. It was noted that the soybean Sample-65/18,, Tanlov-58/14 cultivars had a higher resistance to disease than control. The application of disease control measures in soybean crops will create sufficient opportunities to provide the population with environmentally friendly food rich in protein.

Table 3.4
Disease resistance of soybean varieties

T.r.	Varieties	Origin	Morbidity rate, %
1	St	Uzbek -2	1,5
2	St	Uzbek -6	0,80
3	K-24	Choice -65/18	0,95
4	5382	Choice -39/14	1,55
5	514504	Choice -73/18	1,75
6	6806	Choice -64/15	2,0
7	8850	Choice -18/18	1,88
8	3926	Choice -5/14	2,42
9	K-15	Choice -58/14	1,25

Biometric measurements:

According to the results obtained from the varietal samples tested in the nursery, all varietal samples matured faster than the control varieties during the growing season. The best indicator of plant height compared to control was observed in Samples-58/14, Choice-64/15, and was found to be 20-23 cm higher. In all cultivars, the number of pods per plant was 15–50, and the grain weight per 1000 grains was 4–4.8 g, with good performance in all specimens except sample-39/14. The height of the lower beak was found to be 5-7 cm higher in the Contest 18/18, Contest-5/14 and Contest-58/14 samples than in the control. Variety samples isolated from this cultivar were better than control navigators with morphological and biological characteristics, the stem was erect, the number of pods per plant was high, the number of branches and the location of the lower pod were high.

Table 3.5.
Biometric indicators of samples selected from varietal selection seedlings

№	Catalog	Origin	Number of plants m^2	Growth period, days	The plant height, cm	The location of the lower duk kak. see	pieces		Weight, gr.		Biological productivity, gr / m^2	Productivity ts / ga
							horn	A plant legume	A plant grain weight, gr	1000 grains weight, gr.		
Soy												
1	D-STUzbek-2	Uzbekistan	20	131	137	11,0	1,0	90	21,5	155,0	430,0	30,1
2	D-STUzbek-6	Uzbekistan	21	145	139	12,0	2,0	95	22,3	158,0	468,3	32,8
3	Choice 65/18	(K-24 USA)	24	116	144	15,0	2,0	77	22,0	161,2	528,0	36,9
4	Choice 64/15	(6806 Yugoslavia)	25	122	145	14,0	2,0	89	23,3	158,0	582,5	40,8
5	Choice 18/18	(8850 Uzbekistan)	20	126	148	14,0	1,0	122	22,0	172,4	440,0	31,0
6	Choice 39/14	(5382KNR)	22	128	147	15,0	3,0	111	23,4	164,0	514,8	36,0
7	Choice 73/18	(514504)	129	23	157	14,0	3,0	134	25,1	156,0	577,3	40,3
8	Choice 5/14	(3926)	24	131	134	13,0	3,0	142	22,0	156,4	542,0	37,6
9	Choice 58/14	(K-15)	25	133	150	15,0	2,0	94	24,0	162,0	552,0	38,6
										NSR_{05} -2,15 NSR% 3,6%		ts / ga

The table shows that the average biological yield of controlled shade of Uzbek-2 variety was 30.1 ts / ha, Uzbek-6 variety - 32.8 ts / ha. The highest yields in the selected cultivar samples were observed in the samples of Competition-58/14 and Competition-64/15 and Competition 73/18 and amounted to 38.6-40.3-40.8 ts / ha.
Sample-65/18 and Contest-73/18 and Contest-18/18 samples taken from the control nursery to the varietal selection nursery in the previous year will be re-tested next year and the selection process will continue.
The selected cultivar specimens were better than the control navigator with morphological and biological characteristics, the stem was erect, the number of pods per plant was high, the number of branches and the location of the lower pod were high.

5. CONCLUSION

- It was found that the level of seed storage in the varieties Sample-65/18, Contest-73/18, Contest-58/14, Contest-39/14, Contest-18/18 was 6-8% higher than the control..
- The highest rates of control over the number and weight of stems were observed in Sample-73/18, Competition-39/14, Competition-18/18 varieties, and it was noted that it was 2.1-3.5 g more.
- Control of soybeans The average biological yield of Uzbek-2 variety was 30.1 ts / ha, Uzbek-6 variety - 32.8 ts / ha. The highest yields in the selected cultivar samples were observed in the samples of Competition-58/14 and Competition-64/15 and Competition 73/18 and amounted to 38.6-40.3-40.8 ts / ha.

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