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## THE EFFECT OF CULTURAL FERTILIZER RATE ON YIELD AND GROWTH DEVELOPMENT OF REPEATED SOY CROP

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### *ABSTRACT*

*Under the conditions of light gray soils of the Kashkadarya region, on lands free from winter corn crops, the influence of local and imported soybean varieties on the growth and productivity of growth was studied when feeding with different amounts of nitrogen fertilizers.*

**KEYWORDS:** soybean, variety, fertilizer, transplant, harvest, rate, soil, fertility, yield, nitrogen, phosphorus, potassium

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Today, with the global climate change process and the world's population increasing year by year, the demand for environmentally friendly quality products used in the food industry is also increasing.

In the future, in order to ensure food safety in our country, the planting of soybean varieties resistant to different soil conditions will lead to an increase in the number of soybean products. It should be noted that it serves to more fully satisfy the demand for protein products of the growing population. However, while increasing soil fertility is an urgent issue in the Republic, there are urgent tasks such as development of shade farming and double harvest from the same area.

Kh.N. Atabaeva, N. According to Umarova, I.I Abitova (2014), soybean grain contains 30-52% protein, 17-27% oil and 20% carbonic water. The widespread distribution of soybeans on the earth is related to the quality of the grain and protein. The amount and ratio of protein, oil and other important organic and mineral substances in the grain allows it to be used in various industries. Oil, margarine, cheese, milk, flour, confectionery and preserves are produced from soybeans [2].

N.G' Yodgorov, Q.H Torakulovni (2020) According to the results of the conducted research, in the second period (July 5) the yield in repeated soybean planting options was in the range of 15.8-22.1 centners per hectare, and the highest recorded yield ( 22.1 ts/ha) was observed in the option with a bush thickness per hectare (300 thousand pieces/ha), while the lowest productivity (15.8 ts/ha) was observed in the option with a 200 thousand pieces/ha bush thickness per hectare, i.e. 6 It was determined in the conducted studies that it was less than .3 ts/ha [1].

Based on the experimental results of U.Norkulov, O.Sottorov (2018), it was concluded that the soybean crop planted as a repeated crop should be irrigated 5 times during the season when the soil moisture before irrigation is 70-80-60% compared to the marginal moisture yield of the soil and every other irrigation the norm of 500-600 m<sup>3</sup>/ha ensured grain yield of 20.2 tons/ha [3].

In the experimental field of the Southern Agricultural Research Institute in 2021, soybean varieties were planted as a repeated crop in the field freed from wheat in the fall of 2021. 120 kg/ha (option 4) and 150 kg/ha (option 5) were applied.

The Tomaris Man-60 variety obtained an average grain yield of 3.4 t/ha in the variant without nitrogen fertilization (control), while in the 2nd option, 60 kg/ha of nitrogen fertilizer was applied, it was 5.7 t/ha, and 90 kg/ha of nitrogen fertilizer was used. In option 3, 7.2 t/ha, nitrogen fertilizer rate of 120 kg/ha was used, in option 4, 7.4 t/ha, nitrogen fertilizer rate of 150 kg/ha was used, in option 5, 7.5 t/ha grain yield was obtained, compared to the control, it was found that in the 2nd option 2.3 ts/ha, in the 3rd option 3.9 ts/ha, in the 4th option 4.1 ts/ha, in the 5th option 4.2 ts/ha.

Oyjamol variety obtained an average grain yield of 3.0 t/ha in the variant without nitrogen fertilizer (control), 5.0 t/ha in the 2nd variant with nitrogen fertilizer rate of 60 kg/ha, and 5.0 t/ha in the 3rd option where the nitrogen fertilizer rate was 90 kg/ha. 6.4 t/ha, nitrogen fertilizer rate 120 kg/ha was used in option 4, 7.0 t/ha, nitrogen fertilizer rate 150 kg/ha was used in option 5, grain yield was 7.1 t/ha, compared to the control It was found that in option 2, 2.0 tons/ha, in option 3, 3.4 tons/ha, in option 4, 4.0 tons/ha, and in option 5, 4.1 tons/ha.

Selekta-201 variety received an average grain yield of 2.2 t/ha in the variant without nitrogen fertilizer (control), 4.6 t/ha in the 2nd option, where the nitrogen fertilizer rate was 60 kg/ha, and 90 kg/ha of the nitrogen fertilizer 3 -variant 5.9 t/ha, nitrogen fertilizer rate 120 kg/ha was used, in option 4, 6.1 t/ha, nitrogen fertilizer rate 150 kg/ha was used, in option 5, 6.3 t/ha grain yield was obtained, control It was found that in the 2nd option 2.4 ts/ha, in the 3rd option 3.7 ts/ha, in the 4th option 3.9 ts/ha, and in the 5th option 4.1 ts/ha.

**Table 1: Effects of rates and timing of mineral fertilizer feeding on soybeans planted as a repeat crop in a field free from winter wheat on yield.**

τ/p	Name of varieties	Options	Productivity according to instructions, c/ha				Average productivity c/ha	difference , +, -
			I	c/ha	III	IV		
1	Tumaris Man-60	1	3,5	3,1	3,6	3,2	3,4	-
		2	6,1	5,1	5,9	5,6	5,7	2,3
		3	7,9	6,5	7,4	7,1	7,2	3,9
		4	8,1	6,7	7,3	7,6	7,4	4,1
		5	8	7	7,8	7,4	7,5	4,2
2	Oijamol	1	3,5	2,7	3,2	2,7	3	-
		2	5,3	4,7	5,1	4,9	5	2
		3	6,7	6,1	6,5	6,3	6,4	3,4
		4	7,2	6,7	7,4	6,7	7	4
		5	7,5	6,5	8	6,5	7,1	4,1
3	Selecta-201	1	2,1	2,5	2,4	1,8	2,2	-
		2	4,4	5,1	4,9	4	4,6	2,4
		3	5,6	5,3	6,6	6	5,9	3,7
		4	5,9	5,7	6,8	6	6,1	3,9
		5	6,2	6	6,7	6,3	6,3	4,1
4		1	2,9	2,7	2,6	2,2	2,6	-
		2	5,7	5,2	5,2	4,4	5,1	2,5
		3	6,7	6,5	6,4	5,6	6,3	3,7
		4	7,1	7	6,8	6,7	6,9	4,3
		5	7,3	7,2	7	6,9	7,1	4,5

Amigo Navi yielded an average of 12.6 t/ha in the control variant without nitrogen fertilization, 5.1 t/ha in variant 2 with nitrogen fertilizer rate of 60 kg/ha, and 5.1 t/ha in variant 3 with nitrogen fertilizer rate of 90 kg/ha. 6.3 c/ha, nitrogen fertilizer rate of 120 kg/ha was used in option 4, 6.9 c/ha, and in option 5, nitrogen fertilizer rate of 150 kg/ha was used, grain yield was 7.1 c/ha, compared to the control. In option 2, 2.5 tons/ha, in option 3, 3.7 tons/ha, in option 4, 4.3 tons/ha, and in option 5, 4.5 tons/ha were found.

According to the results of the conducted field experiments, when the rate of nitrogen fertilizer was given in the stages of tillering and flowering and flowering, when feeding the Tumaris variety, 120 kg/ha of pure nitrogen fertilizer was given on average 7.4 kg/ha in option 4, and 7.4 kg/ha when 150 kg of nitrogen fertilizer was given on average in option 5. A yield of 5 kg/ha was obtained. Although the rate of nitrogen fertilizer was increased by 30 kg/ha in the 5th option compared to the 4th option, it was found that the additional grain yield compared to the 4th option was 0.1 centner.

In conclusion, it should be noted that the most effective option among the options was to apply the rate of nitrogen fertilizer at 120 kg/ha for Tomaris variety as a repeat crop in the area freed from winter wheat.

In the feeding of the Oyjamol variety, an average yield of 7.0 kg/ha was obtained in option 4, when 120 kg/ha of nitrogen fertilizer was applied, and in option 5, when 150 kg of nitrogen fertilizer was

applied, an average yield of 7.1 kg/ha was obtained. Although the rate of nitrogen fertilizer was increased by 30 kg/ha in the 5th option compared to the 4th option, it was found that the additional grain yield compared to the 4th option was slightly higher by 0.1 centner. It was determined that the use of nitrogen fertilizer rate of 120 kg/ha in the area freed from winter wheat as a repeat crop for Oyjamol variety is economically effective among the options.

During the fertilization of the Selecta-201 variety, in the 5th option, when 150 kg of nitrogen fertilizers were applied, an average yield of 6.3 kg/ha was obtained. For Selecta-201 variety, it was determined that the application of 150 kg/ha of nitrogen fertilizer was the most effective among the options for planting as a repeat crop in the area freed from winter wheat.

In the feeding of Amigo variety, an average yield of 6.9 kg/ha was obtained in option 4 with 120 kg/ha nitrogen fertilizer, and 7.1 kg/ha in option 5 when 150 kg nitrogen fertilizer was applied. Despite the fact that the rate of nitrogen fertilizer was increased by 30 kg/ha in the 5th option compared to the 4th option, it was found that the additional grain yield was 0.2 centners more. Therefore, it was determined that the application of nitrogen fertilizer rate of 120 kg/ha is the best among the options for soybean Amigo variety when planting as a repeat crop in the field freed from winter wheat.

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