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The Influence of Sowing Date and Norms on the Yield of "Madad" Variety of Soybean

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Abstract: This article presents data on the influence of sowing period and norms of soybean variety "Madad" on the grain yield in the conditions of meadow-swamp soils of Tashkent region. According to the data, sowing of this variety early, in the period of 25.04-30.04 at the rate of 60 kg per hectare, was the highest indicator among the options, 32.3 c/ha. In this case, the additional yield from soybeans was 1.2-3.8 c/ha according to sowing dates, and 0.6-2.8 c/ha according to sowing norms.

Keywords: Soybean, variety, seed, plant, sowing date, sowing norm, quintal, yield, additional yield.

Introduction

It is known that yield is dedateined by the yield of each plant, and its level depends on the type of plant, soil fertility, time and quality of agrotechnical activities, and soil-climate conditions.

Three main factors influence yield in soybeans, among other crops. The first of these is the space factor, that is, light and heat, the second is the earth factor, that is, water, mineral fertilizers, air, and the third factor is the agrotechnical factor, which includes soil fertility, row spacing, seed quality, sowing date, sowing norm, and other agrotechnical measures enters.

One of the main factors that directly affect the growth and development of plants, the cosmic factor - light and heat - can not be controlled by humans. However, the remaining factors, i.e., land and agrotechnical factors, are all controlled by humans and will play an important role in dedateining future crop yields.

More than 400 different products are obtained from soybeans in soybean-growing countries of the world. In addition to oil, soy milk, soy protein, soy isolate, soy meal and other products are widely used in the world food industry today. Protein is considered one of the most necessary nutrients for the human body, and the amount of protein in a person should be 12% of the calories in the food consumed by a person per day, that is, 60-90 grams. At the same time, this figure is 60 grams per day for one person in the world. In developed countries, this figure is 90-95%, while in developing countries it is 20-25% [3; 5].

Soybean (Glucine hispida) belongs to the legume family and is an annual plant. The origin is Central Asia. Soybean contains 38-52% protein, 22-25% fat, the oil contains various vitamins, and the husk contains 4-5% protein and up to 5% fat. Soybean protein contains more than 10 amino acids. Soybeans have 2.5 times more protein than wheat and 3.5 times more than corn. Blue pulp is a nutritious feed for livestock. Soybean roots, like the roots of all legumes, have nodules that can use nitrogen from the air, and with the help of nodules, they collect up to 100-150 kilograms of pure biological nitrogen per hectare. [1; 4].

In recent years, special attention has been paid to the establishment and cultivation of non-traditional agricultural crops in the republic. In particular, soybean cultivation in the republic started in 2017, in that year, soybeans were planted on an area of more than 12 thousand hectares, 14 thousand tons of soybeans were grown, and due to the processing of these raw materials, more than 2 thousand tons of soybean oil were distributed to the population, and 10 thousand tons of highly nutritious soybean meal to poultry enterprises. delivered. In the following years, the area of soybean cultivation increased almost 10 times, and now 124,000 hectares of irrigated areas of the republic, 83,000 hectares of which are planted in open fields, 41,000 hectares of cotton are planted as inter-row crops [2].

Materials and Methods

The research work was carried out in the conditions of meadow-swamp soils of Tashkent region. In the experiment, the "Madad" soybean variety entered into the state register in 2019 was studied. The part of the experiment in which this variety is studied consists of 9 options, each option consists of 8 lines. The depth of

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seepage in the field is 2.5-3.5 meters. The soil is low in humus, nitrogen and phosphorus, and medium in potassium. Mathematical analysis of soybean grain yield According to B.A.Dospekhov, phenological observations on plants were dedateined based on the "Methodological manual of the State Commission for Testing Agricultural Crops", and yield was dedateined by harvesting plants from the specified rows of all variants of the experiment and weighing them.

Research Results
According to the data obtained on the yield of soybean variety "Madad", the highest yield in the experiment was dedateined in the 2nd variant of the experiment, i.e. in the variant in which 60 kg of soybeans were planted per hectare during the early sowing period (25.04-30.04), and the average grain yield was 32.3 c/ha in two years. . In the early period of the experiment, it was found that the yield in the 1st option, planted at 45 kg per hectare, was 29.5 c/ha, and in the 3rd option, planted at 75 kg per hectare, it was 30.4 c/ha.

It was found that the grain yield of the options planted in the middle period (05.05-10-05) was slightly lower than the grain yield of the options planted in the early period. According to the obtained data, in the same sowing date, the grain yield in the 4th option with 45 kg per hectare was 28.6 c/ha, in the 5th option with 60 kg per hectare, it was 31.1 t/ha, and in the 6th option with 75 kg per hectare, the yield was 30.0 formed c/ha.

It was found that the grain yield of this variety was significantly lower than the yield of the remaining variants in the variants planted in the late soybean period (15.05-20.05). According to the received data, the grain yield in the 7th option, in which soybeans are planted at the rate of 45 kg per hectare in the late period, is 27.9 c/ha, in the 8th option, in which 60 kg is planted per hectare, it is 28.5 c/ha, and in the 9th option, in which 75 kg is planted per hectare, It was observed that it formed 28.8 c /ha.

In this variety, the lowest grain yield was observed in option 7, which planted 45 kg per hectare in the late period of the experiment (15.05-20.05), and this indicator was 27.9 c/ha on average.

When the data on the additional yield obtained in this variety are analyzed according to the sowing period, the highest additional grain yield was obtained from the option 2, which was planted at 60 kg per hectare in the early period of sowing (25.04-30.04) compared to the variant in which 60 kg of soybeans were planted in the late period (15.05-20.05) and 3.8 formed c/ga. At the same rate, it was found that in the 3rd option, where 75 kg was planted per hectare, it was 1.6 c/ha, and in the 1st option, where 45 kg was planted per hectare, it was 1.6 c/ha. 0.9, respectively, according to sowing norms, compared to sowing in the medium date; It was observed that it was 1.2 and 0.4 c/ha.

When this variety is planted at the rate of 45 kg per hectare in the middle period (05.05-10.05), the additional grain yield is 0.7 c/ha compared to the option planted in the late period, 2.6 c/ha in the option planted at 60 kg per hectare, and in the option planted at 75 kg per hectare formed 1.2 c/ha.

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Table 1
Grain yield of soybean variety "Madad", c/ha
(2020-2021 average)

Var no	Sowing date	Sowing norms kg/ha, (ha/thousand units)	2020 year according to repetitions			Average yield	2021 year according to repetitions			Average yield	Average two in the year yield	Additional yield according to sowing date	according to sowing norm
			I	II	III		I	II	III				
1	25.04-30.04	45 (280)	28.1	30.1	27.0	28.4	28.5	30.8	32.6	30.6	29.5	1.6	-
2		60 (375)	31.0	33.3	29.7	31.3	31.3	33.7	35.3	33.4	32.3	3.8	2.8
3		75 (465)	29.0	31.1	27.2	29.1	29.6	31.7	33.9	31.7	30.4	1.6	0.9
4	05.05-10.05	45 (280)	27.2	29.6	25.3	27.5	27.9	29.7	31.8	29.8	28.6	0.7	-
5		60 (375)	30.5	32.8	28.8	30.7	29.8	31.3	33.8	31.6	31.1	2.6	2.5
6		75 (465)	29.6	31.8	27.4	29.6	28.5	30.1	32.9	30.5	30.0	1.2	1.4
7	15.05-20.05	45 (280)	27.3	28.8	24.8	26.9	27.2	29.0	33.5	28.9	27.9	-	-
8		60 (375)	27.8	29.9	26.1	27.8	27.1	29.3	31.2	29.2	28.5	-	0.6
9		75 (465)	27.6	29.7	25.8	27.6	28.4	29.3	31.9	30.0	28.8	-	0.9

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$NSR_{05} =$ 0.42 c   *0.89 c*

$NSR_{05}(A) =$ 0.25 c   *0.51 c*

$NSR_{05}(V) =$ 0.25 c   *0.51 c*

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Analyzing the results obtained by sowing rates, when soybeans were sown at 60 kg per hectare in the early period, an additional yield of 2.8 c/ha was obtained compared to 45 kg per hectare, and 0.9 c/ha compared to 75 kg per hectare. These indicators are respectively 1.4 in options planted in the medium date; 2.5 c/ha, and 0.6 in late-planted options; It was 0.9 c/ha. The data is given in the table.

Conclusion

In dates of yield of the "Madad" variety in the conditions of the meadow-swamp soils of the Tashkent region, this variety was obtained when 60 kg per hectare was planted in the early 25.04-30.04 period, and it was 32.3 c/ha. This indicator ensures an additional grain yield of 1.2 c/ha compared to sowing in the middle period (05.05-10.05), and 3.8 c/ha compared to sowing in the late period (15.05-20.05).

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