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EFFECT OF SOWING DATE AND NORMS ON LEAF AREA OF SOYBEAN VARIETIES

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Abstract
This article presents data on the effect of different sowing dates and norms on the surface area of the soybean varieties "Madad" and "Sevinch" and their analysis. It is reported that when the sowing norm of soybean varieties is increased by 15 kg compared to 45 kg per hectare, the leaf area is increased by 240-340 cm2, and when it is increased by 30 kg, the leaf area is increased by 470-780 cm2, and when the sowing date is delayed by 10 days compared to the period of 25.04-30.04, the leaf area is reduced by 532-785 cm2, and when it is delayed by 20 days, the leaf area is reduced by 1220-1375 cm2.

Keywords: Sowing dates, sowing norms, leaf area, soybean, variety.

INTRODUCTION

Soybean cultivation in our republic began in 2017, this year soybeans were sown on 12 thousand hectares and 14 thousand tons of soybeans were harvested. As a result of raw material processing, more than 2 thousand tons of soybean oil were supplied to the population, and 10 thousand tons of high-quality soybean meal were supplied to poultry enterprises. At the same time, the area under soybean cultivation has increased 10 times, and now it is sown on 83 thousand hectares of irrigated land in the republic.

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According to data from studies conducted by B.Khalikov [2] on obtaining a high-quality and abundant harvest of soybean, it is advisable to use 80 kilograms of seeds per hectare, regardless of soil type, with row spacings of 60-70 centimeters wide when growing soybeans. O.Amirkulov [1] emphasizes that early-ripening varieties should be sown at a rate of 90-100 kilograms per hectare, and mid-ripening varieties should be sown at a rate of 70-80 kilograms per hectare, since they are tall and produce side branches, have a large number of leaves, and have a large leaf area, while K.D.Sayre [4] believes that optimal conditions are important for achieving high productivity.

MATERIALS AND METHODS

This study was conducted in 2020-2022 in the experimental fields of the Rice Research Institute located in the "Urta Chirchik" district of the Tashkent region, in conditions of meadow-swamp soils. The experiment consisted of 18 variants, the area of each variant was 240 m2, and the calculated area was 120 m2. The experiment was conducted in one layer, with three replications. The area of one replication was 4320 m2, the total area was 1.30 hectares. Phenological observations and calculations in plants were carried out based on the "Methods of conducting field experiments" and the "Methodological manual of the State Commission for Testing Agricultural Crop Varieties".

RESULTS AND DISCUSSION

The normal growth and development of a plant and the production of high and quality crops largely depend on photosynthesis and its productivity. The normal and high productivity of photosynthesis depends primarily on the number of leaves in the plant and the leaf area.

This fact was also confirmed in the soybean varieties studied in our research.

Naturally, the larger or smaller the leaf area of a plant in most cases depends on the number of leaves of the plant. In the study, early sowing of soybean at a high rate also led to an increase in its leaf area.

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According to the data obtained from the first experiment, on August 1, 2020, soybean "Madad" variety, the leaf area was 5785.1 cm2 in variant 1, sown at 45 kg per hectare, in variant 2, sown at 60 kg per hectare, 5874.5 cm2, and in variant 3, sown at 75 kg per hectare, 5887.3 cm2. was found to be cm2. Therefore, increasing the sowing norms will increase the leaf area from 89.0 cm2 to 102.2 cm2.

Table 1 Effect of sowing dates and norms on leaf area of soybean varieties (2020-2021)

Option No	Soybean varieties	Sowing dates	Sowing norms kg/ha, thousand piece	2020 year				2021 year			
				01.08		Before harvesting		01.08		Before harvesting	
				Number of leaf, (piece)	Leaf area, sm^2	Number of leaf, (piece)	Leaf area, sm^2	Number of leaf, (piece)	Leaf area, sm^2	Number of leaf, (piece)	Leaf area, sm^2
1	Madad	25.04-30.04	45 (280)	98.7	5785.1	84.7	4912.4	103.7	6014.7	89.1	4985.0
2			60 (375)	100.4	5874.5	91.6	5343.0	109.6	6271.7	100.2	5847.7
3			75 (465)	101.7	5887.3	91.7	5347.4	110.4	6289.3	101.1	5816.4
4		05.05-10.05	45 (280)	87.6	5001.2	81.2	4784.5	92.3	5441.3	86.2	4872.1
5			60 (375)	95.6	5342.3	91.4	5295.4	102.5	5989.7	98.6	5687.3
6			75 (465)	98.7	5785.4	93.5	5412.7	106.6	6102.1	100.7	5894.2
7		15.05-20.05	45 (280)	76.9	4410.2	70.1	4002.3	81.6	4725.4	75.4	4201.6
8			60 (375)	79.1	4654.1	72.3	4185.0	86.6	4874.3	79.3	4389.3
9			75 (465)	82.1	4875.4	75.9	4378.7	91.4	5225.4	84.7	4685.4
10	Sevinch	25.04-30.04	45 (300)	78.1	4589.0	69.7	3954.7	83.6	4875.4	74.4	4184.1
11			60 (400)	85.4	4995.0	72.5	4201.3	92.6	5482.4	77.3	4295.4
12			75 (500)	91.2	5321.4	79.7	4705.7	100.1	5823.1	88.4	4982.5
13		05.05-10.05	45 (300)	76.2	4395.4	69.7	3950.7	81.4	4735.1	74.7	4198.3
14			60 (400)	79.1	4651.7	76.5	4398.7	88.3	4965.4	83.6	4595.7
15			75 (500)	80.2	4695.4	75.8	4301.9	89.4	4978.2	84.7	4618.1
16		15.05-20.05	45 (300)	68.7	3890.1	65.1	3657.2	73.5	4154.7	70.3	4003.7
17			60 (400)	71.4	4100.2	68.7	3841.7	78.4	4358.7	75.6	4213.7
18			75 (500)	76.4	4418.7	71.2	4084.3	85.3	4782.6	80.6	4325.7

These regularities were also observed in the variants of soybean sown in the middle and late periods, and the indicators were 5001.2-5342.3-5785.4 cm2 and 4410.2-4654.1-4875.4 cm2, respectively, according to the sowing standards.

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So, when sowing soybeans, when the sowing rate is increased by 15 kg compared to 45 kg per hectare, the leaf area is 240-340 cm2, when it is increased by 30 kg per hectare and it was found to be higher by 470-780 cm2. In turn, the effect of sowing dates on leaf area was also observed.

According to the obtained data, the leaf area of this soybean variety was 5785.1 cm2 when sown at the rate of 45 kg per hectare in the early period, 5001.2 cm2 when sown at the same rate in the middle period, and 4410.2 cm2 when sown in the late period. A similar pattern was observed when sowing 60 kg per hectare, in which it was 5874.5 cm2 in the early period, 5342.3 cm2 in the middle period, and 4654.1 cm2 in the late period. This pattern was also observed in options 3, 6, 9, where 75 kg per hectare were sown. From the analysis, it can be seen that relatively late sowing date has a negative effect on the width of the leaf area in the soybean.

These laws were also found in the data obtained in 2021 of the experiment. The data is given in the table.

CONCLUSION

From the obtained data, it can be concluded that when the sowing norm of soybean is increased by 15 kg per hectare compared to 45 kg, the leaf area is 240-340 cm2, and when it is increased by 30 kg per hectare, it is 470-780 cm2, the sowing date is 10 days later than the 25.04-30.04 period - 532-785 cm2, If it is late for 20 days, it will be less by 1220-1375 cm2.

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