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EFFECT OF SOWING DATES AND NORMS ON HEIGHT AND NUMBER OF LEAVES OF SOYBEAN VARIETIES

Dusmatova Lola Khashimovna
PhD of Agricultural Sciences, Rice Research Institute

Khalikov Bahadir Meylikovich
Professor of Agricultural Sciences, Cotton Selection,
Seed Breeding and Cultivation Agrotechnologies

Abstract
This article presents data on the effect of different sowing dates and norms on the height and number of leaves of the soybean varieties "Madad" and "Sevinch" and their analysis. When the soybean varieties were sown 10 days later than the early sowing date (25.04-30.04), the height was lower by 10.9-10.0-7.0 cm, and when sown 20 days later, it was 24.2-28.8-14.0 cm. Soybean was sown early and the sowing norm was increased by 15 kg (60 kg) compared to 45 kg per hectare, the height was increased by 4.6 cm, by 30 kg (75 kg) by 5.2 cm, when sown in the middle sowing date by 5.5-9.1 cm, and when sown late by 6.4; It is reported to be 15.4 cm height.

INTRODUCTION

The Stnormgy of the President of the Republic of Uzbekistan for the Development of Agriculture for 2020-2030 sets as priority tasks “rational use of natural resources in the sustainable development of agriculture, ensuring food security of the population and environmental protection”. Based on this, soybean cultivation began in the republic in 2017, and this year soybeans were sown on 12 thousand hectares of land, 14 thousand tons of soybeans were produced, more than 2 thousand tons of soybean oil were supplied to the population through raw

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material processing, and 10 thousand tons of high-quality soybean meal were supplied to poultry enterprises. To date, the area under soybean cultivation has increased almost 10 times, and currently 124 thousand hectares of the republic are irrigated, of which 83 thousand hectares are sown in open fields, and 41 thousand hectares are sown as a companion crop between cotton rows.

In view of this, extensive scientific research is being conducted to obtain abundant and high-quality grain yields from soybeans in various soil and climatic conditions of our republic. As is known, the normal growth and development of a plant and the production of high and high-quality yields largely depend on photosynthesis and its productivity. The normal and high productivity of photosynthesis depends primarily on the number of leaves in a plant and the size of the leaf surface area. Naturally, the larger or smaller the leaf surface area of a plant in most cases depends on the number of leaves in the plant.

LITERATURE REVIEW

A lot of scientific research has been conducted on soybean, and most of the research is focused on the agrotechnical aspects of soybean cultivation in order to obtain a high and high-quality harvest.

According to B.R.Ntare., A.T.Diallo., J.Ndjeunga., F.Wallar [5], K.D.Sayre [4], optimal conditions are important for achieving high productivity. For this, it is necessary to take into account not only the size of the plant's feeding area, light distribution, moisture, nutrients, but also the morphological characteristics of the plant, i.e. height and number of leaves, and other factors.

According to K.Ellis., M.E.Barbercheck [3], B.Khalikov [2], O.Amirkulov [1], it is advisable to use 80 kilograms of seeds per hectare in soybean cultivation, regardless of soil type, with a row spacing of 60-70 centimeters wide. Early-ripening varieties are sown at a norm of 90-100 kilograms per hectare, while mid-ripening varieties are tall and have side branches, a large number of leaves, and a large leaf surface area, so sowing seeds with a germination capacity of 70-80 kilograms per hectare ensures high yields.

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METHODS AND MATERIALS

This study was conducted in 2020-2022 in the experimental fields of the Rice Research Institute located in the Middle Chirchik district of Tashkent region, in the conditions of meadow-swamp soils. The experiment consisted of 18 variants, the area of each variant was 240 m^2, and the calculated area was 120 m^2. The experiment was conducted in one layer, with three replications. The area of one replication was 4320 m^2 , and 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

According to the preliminary data of the research, obtained on June 1, 2020, the "Madad" variety of soybeans was sown in the early period, in the 1st option, where 45 kg per hectare was sown, the height of the plant was 9.6 cm, and the number of leaves was 6.1 pieces. It was found that 6.6 pieces, 10.3 cm and 6.8 pieces in the 3rd option sown at 75 kg per hectare. Similar data are observed in the options sown in the mid-season (05.05-10.05) and these indicators are 7.3 cm-4.5 pieces, respectively; 7.8 cm-4.8 pieces; 8.4 cm-5.1 pieces, and 4.5 cm-3.4 pieces when sown in the late period (10.05-15.05); 4.6 cm-3.9 pieces; It was 4.4 cm-4.3 pcs.

According to the data obtained for the “Sevinch” variety, since this variety ripens relatively early, its growth and development norm was slightly higher than that of the “Madad” variety. According to the data obtained at the beginning of June, the height of the soybeans in early-sown varieties was 10.3-10.8-11.6 cm, and the number of leaves was 6.9-7.1-7.2, in accordance with the sowing norms, while in mid-sown varieties it was 8.6-8.9-9.0 cm and 5.8-6.4-7.0, and in late-sown varieties it was 5.4-5.3-5.7 cm and 2.3-2.5.

The peak leaf development in the shade varieties began in the second half of July and continued until mid-August, clearly demonstrating the differences between the variants.

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Table 1 Effect of sowing dates and norms on height and number of leaves of soybean varieties, *day, (2020)*

No	soybean varieties	Sowing dates	Sowing norm kg/ha, thousand pieces	1.06		1.07		1.08		Before harvesting	
				Height (cm)	The number of leaves is in pieces)	Height, (cm)	The number of leaves is in pieces)	Height, (cm)	The number of leaves is in pieces)	Height, (cm)	The number of leaves is in pieces)
1	Madad variety	25.04-30.04	45 (280)	9.6	6.1	34.5	24.1	81.4	98.7	112.1	84.7
2			60 (375)	9.9	6.6	38.8	28.7	87.6	100.4	116.7	91.6
3			75 (465)	10.3	6.8	39.3	29.2	88.4	101.7	117.3	91.7
4		05.05-10.05	45 (280)	7.3	4.5	30.4	22.7	75.4	87.6	101.2	81.2
5			60 (375)	7.8	4.8	31.6	25.4	78.3	95.6	106.7	91.4
6			75 (465)	8.4	5.1	33.1	28.2	81.2	98.7	110.3	93.5
7		15.05-20.05	45 (280)	4.5	3.4	27.4	19.7	69.8	76.9	87.9	70.1
8			60 (375)	4.6	3.9	29.4	19.3	75.8	79.1	94.3	72.3
9			75 (465)	4.4	4.3	31.2	20.4	78.4	82.1	103.3	75.9
10	Sevinch variety	25.04-30.04	45 (300)	10.3	6.9	37.8	27.4	70.1	78.1	98.7	69.7
11			60 (400)	10.8	7.1	39.4	31.2	72.4	85.4	103.4	72.5
12			75 (500)	11.6	7.2	40.1	33.1	74.2	91.2	106.7	79.7
13		05.05-10.05	45 (300)	8.6	5.8	34.1	23.1	65.2	76.2	89.7	69.7
14			60 (400)	8.9	6.4	37.5	25.4	68.7	79.1	102.1	76.5
15			75 (500)	9.0	7.0	38.1	25.1	69.1	80.2	102.5	75.8
16		15.05-20.05	45 (300)	5.4	2.4	30.1	21.0	58.4	68.7	85.4	65.1
17			60 (400)	5.3	2.3	32.4	22.3	61.2	71.4	98.7	68.7
18			75 (500)	5.7	2.5	35.2	22.9	65.4	76.4	101.0	71.2

According to the data obtained from the experiment on August 1, the leaves in option 1, in which 45 kg per hectare of soybean variety "Madad" was sown in the early term number was 98.7 pieces, in the 2nd version of the experiment, this indicator was 100.4 pieces, and in the 3rd version, it was found that it was 101.7 pieces, that is, when the sowing norm of soybeans was increased by 15 kg per hectare, the number of leaves increased by 1.7 pieces, and 30 kg per hectare increased by 3.0 pieces.

This regularity in terms of sowing norms was also observed in the variants sown in the middle and late periods of the experiment.

Different sowing dates of soybeans also had an effect on the number of leaves. According to the obtained data, the number of leaves on the plant was 98.7 pieces

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in option 1, where 45 kg per hectare was sown in the early period of soybean variety "Madad", and 87.6 pieces when sown in the middle period according to the same norm, that is, the number of leaves was 11.1 less than in the early period. The same regularity was observed in the variants sown in the late period, and it was found that the number of leaves was 21.8 less than in the early period. These similarities were also observed in the variants of the experiment sown at the norm of 60 kg and 75 kg per hectare.

At the end of the application period, as a result of the shedding of the lower leaves in the shade, it can be seen that the number of leaves has decreased from 9.0 to 14.0 pieces for the options sown in the early period, and from 5.0 to 7.0 pieces for the options sown in the middle and late periods compared to August.

According to the information obtained on the height of soybean varieties at the end of the application period, the height of the "Madad" variety was 112.1 cm when sowing 45 kg per hectare, 116.7 cm when sowing 60 kg per hectare, and 117.3 cm when sowing 75 kg per hectare. It was determined that when soybeans were sown in the medium period, these indicators were 101.2-106.7-110.3 cm, and when they were sown in the late period, they were 87.9-94.3-103.3 cm. In this place, the influence of sowing period of soybean on its height was observed. According to the data obtained, in variant 1, where soybeans were sown early at a norm of 45 kg per hectare, the height was 112.1 cm, while when sown at the same norm in the middle term, the height was 10.9 cm lower, and when sown late, it was 24.2 cm lower. These patterns were also observed in variants where soybeans were sown at norms of 60 and 75 kg per hectare, and these indicators were 10.0-28.8 and 7.0-14.0 cm, respectively. These patterns were also observed in the data obtained for the soybean variety “Sevinch” (table 1).

The above patterns were also observed in the data obtained in the 2021 and 2022 experiments.

CONCLUSION

Soybean varieties are 10.9-10.0-7.0 cm height when sown 10 days later than 25.04-30.04, and 24.2-28.8-14.0 cm when sown 20 days late. Also, when soybean

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varieties are sown in the early term, increasing the sowing norm by 15 kg per hectare increases the height by 4.6 cm, by 30 kg, by 5.2 cm, and by 5.5 in the middle term, respectively; 9.1 cm, 6.4 in the late period; It provides a height of 15.4 cm.

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