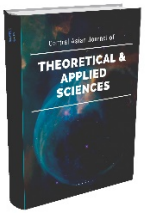

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Effect of Sowing Dates on Biometric Indicators of Soybean Variety "Madad"

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Abstract: *When "Madad" variety of soybean was sown early, its growth, development, application period, number of pods per plant, thousand grain weight and yield were found to be best when planted on April 25, and the yield was formed 29.1 c / ha.*

Keywords: *Sowing date, biometric indicators, soybean, variety, "Madad", stem height, praxis period, grain, first pod placement, 1000 seeds weight, yield.*

INTRODUCTION

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 issue of protein, which is to meet humanity's need for protein. Soybeans from legumes are important in solving this problem. Soybeans contain 40-55% protein and 20-25% oil.

Resolution of the President of the Republic of Uzbekistan Sh.M.Mirziyoev dated June 1, 2017 No PR-3027 "On measures for the placement of secondary crops in areas vacated by cereals, the timely supply of material and technical resources required for planting." In this resolution, it is necessary to determine the area of soybeans in the country on the basis of the decision and plant them as a secondary crop to fully meet the needs of the population in food, especially vegetable oil, sustainable supply of vegetable oil, reduce imports, livestock and poultry, and the development of agro-technologies for obtaining high-quality and high-quality grain from soybeans for the development of selection and seed production, increasing their livestock and poultry production through the provision of valuable fodder, and their introduction into production. About 35% of the vegetable oil produced worldwide is derived from soybeans. Soybeans are the best raw material in the food industry, as a protein-rich nutrient in livestock, poultry and fisheries. It is estimated that there are 107 million soybeans in the world today cultivated on an area of more than a hectare. Of this, about 36.3 mln. hectars USA, 33.7 mln. hectares to Brazil. Soybean grain yields are also higher than many other crops. More than 400 different products are obtained from this plant grain. In addition to butter, soybean milk, soybean protein, soybean isolate and other products are widely used in the world food industry today. In the food industry, non-fat soybean flour is used to make bread, bakery and other confectionery products. Soybean insulation is used in the technical fields of textiles, textiles, paper and industry. Soybean oil is widely used in the manufacture of soap and lacquer paints. In agriculture around the world, the area under soybeans, which is a legume, is

expanding day by day due to the increase in the variety of high-value food products from grain and the high coverage of processing. It is to provide our people with food, address protein shortages, increase oil production, improve seed quality, provide livestock with nutritious fodder and increase soil fertility, and increase crop yields. To solve this problem, it is expedient to develop high-yielding shade varieties of legumes, agronomic techniques, as well as planting dates and norms.

LITERATURA REVIEW

X.N.Atabaeva, F.B.Namozov, A.A.Kurbanov and S.Sh.Khayrullayev (2020), in their experiments in 2018-2020, found that when micronutrients affected soybean crops, micronutrients affected stem height, leaf and root development, root nodule formation, grain quality and yield, and provided high yields [7].

According to R.Juraeva, J.Tashpulatov, A.Iminov, H.Bozorov, Khatamov S.R, Khayrullaev S.Sh and L.Zaynitdinova (2020), in their experiments in 2015-2017, mineral fertilizers and rhizobium were applied to soybeans. When exposed to strains of azotabacteria belonging to the group, it was observed that the yield increased by 12.6-12.8 c / ha compared to the control variant, [4; pp.72-79], [3; p.172].

According to Khayrullayev Sardor Shamsiddin ugli (2021), the application of micronutrients in the suspension method 2 times during the application period of soybean varieties in the conditions of meadow-swamp soils provides an increase in grain quality [6].

According to data of Atabayeva Khalima Nazarovna, Khayrullaev Sardor Shamsiddin o'g'li, and Usmonova Shohista Usmon qizi (2020), sulfur has a positive effect on the branching of soybean varieties on the background of mineral fertilizers, and in 2018 the number of branches in the variety "Orzu" increased by 0.8-1.3 compared to the control option due to the micro element sulfur. In the "Nafis" variety, this figure was 0.3-0.4, and good results were obtained from medium and high sulfur standards. In 2019, these indicators increased by 0.3-0.7 in the variants of sulfur compared to the control in the "Orzu" variety, increased by 0.1-0.3 in the "Nafis" variety, and good results were obtained from the medium and high standards of sulfur [2].

According to Iminov Abduvali Abdumannobovich, Khayrullayev Sardor Shamsiddin ugli, et al, Nitragine treatment of soybean and mung bean seeds before sowing had a positive effect on seed germination under both laboratory and field conditions, the germination rate of seeds in the laboratory under the conditions of cotton cultivation in the following ear under the background of non-treatment by nitragine before sowing the seeds of soybean and mung bean crops grown as a secondary crop after winter wheat was 0.3-1.3%, and field fertility was 0.2-0.8% higher. Also, it was found that the use of phosphorus and potassium fertilizers in soybean and mung bean crops grown as a secondary crop was 0.6-1.0% higher in the laboratory, and 0.6-0.7% higher in the field than in the control options without mineral fertilizers in studies [1].

According to Umarova Nigora Sadriddinovna, Bo'riboyev Bekzod Yetmish ugli, Khayrullayev Sardor Shamsiddin ugli, Usmonova Shokhista Usmon kizi, & Turdaliyeva Shokhista Tulkinjon kizi, the demand of the soybean plant for mineral fertilizers, it was observed that when NPK and liquid fertilizer were used together, all the biometric parameters and yields of the plant increased by varieties compared to other methods. The use of mineral fertilizers in different ways in typical sierozem soil conditions affects the grain yield of local and foreign varieties. In other words, the average yield of medium-ripe soybean varieties "Nafis" was 43.4 c / ha, "Vilana" was 42.4 c / ha, and the best way to increase the yield is to apply fertilizers as NPK in combination with liquid fertilizer [8].

According to data of Khayrullayev Sardor Shamsiddin o'g'li and Usmonova Shohista Usmon qizi, the location of the lower first pod in soybean varieties is 12.8-15.9 cm in Orzu variety, 3-3.1 cm in Radimax stimulator, 2.2-2.4 cm in Gummat stimulator, 2.1 cm in Tecamin stimulator and 3.1 cm in Algora

stimulator was found to be high. The most effective results were observed in Radimax, Gummat and Algora bio-simulators, and the location of the lower first pod was detected 14.7-17.6 cm in the "Nafis" variety, which was 2.5-2.9 cm higher in the Radimax stimulator, 2.2-2.5 cm higher in the Gummat stimulator, 2.1 cm higher in the Tecamine stimulator, and 2.4 cm higher in the Algora stimulator than in the control variant. The most effective results were observed in Radimax, Gummat and Algora biosimulators [5].

MATERIALS AND METHODS

The research was conducted in the experimental fields of the Rice Research Institute for 2018-2020. The Rice Research Institute is located in the south-eastern part of the Tashkent region, in the Chirchik oasis, 15 km from Tashkent, on the left bank of the Chirchik River. In terms of geographical location, the coordinates of the institute are bounded on the Greenwich scale by $69^0$18 east longitude and $41^0$20 north latitude. The topography of the area is flat, the soil in the experimental fields corresponds to the soil of the riverside areas, the soil layer of the area consists of meadow-swampy soil.

The reason for the emergence of this type of soil is mainly that the lands attached to the institute are located close to the banks of the Chirchik River, the surrounding farms are also engaged in rice cultivation, and there is an excess of moisture in the soil.

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

The driving layer of the experimental farm of the Rice Research Institute is 0-30 and 0-40 cm, below the driving layer 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.

The soil in the experimental farm was not saline (pH 7.1-7.3). According to its mechanical composition, heavy sand belongs to the soil type. The amount of physical mud in the driving layer was 40-60 percent.

The amount of humus in the driving layer was 1.63-1.95%, total nitrogen was 0.27-0.30%, phosphorus was 0.17-0.21%, and potassium was 0.71-0.76%.

There are no mineral salts due to the fact that the experimental area is partly sloping, the bottom layer of the soil consists of sand and small stones, and the groundwater flows from the northeast to the southwest. Groundwater varies at a depth of 0.5-1.0 meters during periods when rice plots are flooded. When the rice is not filled with water, the groundwater begins to deepen, which lasts until February at a depth of 1.5-1.6 m.

The experiments were conducted in an area free of rice. Field experiments showed that in 4 turns the plots were 20 m long, 2.4 m wide, 4 rows, the total area of each plot was 48.0 m^2, including 2 rows in the middle and 2 rows of protection rows at the edges. The options are placed by the randomization method.

Conducting field calculations, calculations and observations were carried out on the basis of "Methodological manual of the State Commission for Variety Testing of Agricultural Crops (1989)", "Methods of field experiments (UzPITI, 2007)" and B.A.Dospekhov's "Methodology of field experiment." Leaf area is determined by the method of A.A. Nichiporovich, by leaf cuttings, the number of stems and weight were determined by the method of G.S. Posypanov. To determine the weight of the roots, a monolith measuring 60x5x30 cm was dug. The roots were washed and weighed both wet and dry. Biometric measurements were performed on the counted plants prior to harvest. The plant height, branching, number and weight of pods, number and weight of grains, weight of 1000 grains were determined. To determine the yield, the pods were collected, crushed, and pulled from the accounted area

of the stalks. Yield was determined by converting the yield per hectare using the number of bushes per hectare. The results of the study were analyzed by variance according to the method of B.A.Dospekhov.

RESULTS AND DISCUSSION

The Rice Research Institute conducts regular research on the impact of planting dates on the yield of new varieties of soybeans. It is very important to determine the most favorable times for planting soybean, as well as the comfort of heat, humidity and air temperature in the soil. Scientific experiments to determine the sowing dates of soybean varieties were conducted in the experimental field of the Rice Research Institute. Experiments were carried out on April 25, May 5, May 15 in the Madad variety of soybean. During the growing season, phenological observations and agro-technical measures were carried out on the basis of recommendations developed by the State Variety Testing Commission of Agricultural Crops and RRI, as well as field experimental methods. Seeds sown on April 25 in the Madad variety of soybean germinated on the 6th day, seeds sown on the 5th of May on the 7th day, and seeds sown on the 10th of May on the 6th day. The number of stems was determined by measuring plant height and dry weight every 20 days after germination, and accurate results were obtained after harvest (Table 1).

As can be seen in the table, after the ripening of the crop, biometric measurements were taken from each period and farm indicators (plant height, height of lower pod placement, number and weight of pods per plant, weight of 1000 seeds) were determined, quality indicators and productivity were found to be high. At each time, the yield of the fractional areas was determined separately and a mathematical analysis was performed. It was found that the growing period of Madad was 130-135 days when planted on April 25, 132-140 days when planted on May 5 and 130-138 days when planted on May 15, and the growth period was slightly shortened when planted in April. It was also found that the planting dates affected the height of the plant stem, which was 145 cm when planted on April 25, 148 cm when planted on May 5, and 147 cm when planted on May 15. Sowing times also affected the location of the lower pod, and it was found that the first pod was 10 cm when planted on April 25, 12 cm when sown on May 5, and 14 cm when sown on April 15. The number of legumes per plant was 112 when planted on April 25, 102 when planted on May 5, and 86 when planted on May 15, and the best results were obtained when planted early. The experiment also determined the weight of a thousand grains. The weight of 1000 grains was 168.2 grams when sown on April 25, 161.4 grams when sown on May 5, and 158.8 grams when sown on May 15, and the best result was obtained when sown early.

Table 1: Effect of sowing dates on biometric indicators of soybean variety “Madad”

№	Sowing dates	The name sown crop	Praxis period, day	Plant height, cm	Placement of first pod	Number of pods in one plant, pc	1000seeds weight.g	Yield, c/ha
1	25. IV	Madad	130-135	145	10	112	168,2	29,1
2	5. V		132-140	148	12	102	161,4	28,5
3	15. V		130-138	147	14	86	158,8	27,6

The average yield of soybean Madad, planted on April 25, was 29.1 c / ha. The soybean variety planted on 5 May was 28.5 c / ha and the soybean variety planted on 15 May was 27.6 c / ha.

From these indicators, it can be noted that compared to other periods, it was observed that the yield of soybean varieties planted at the time of sowing on April 25 was higher. As a result of experiments on sowing dates, it was determined that the alternative period in the Tashkent region is April 25.

CONCLUSION

The results of the yexperiment s'howed that when Madad variety of soybean was planted yearly, its growth, development, period of application, number of legumes per plant, thousand grain weight and yield were found to be best when planted on April 25, and the yield was 29.1. c / ha.

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