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Effect Of Stimulators On Thousand Piece Grain Weight Of "Vilana" Cultivar Of Soybean

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Abstract: *This article provides data about the effect of stimulators on 1000 piece grains per hectare when treated with Gummat and Rival stimulants in the conditions of muddy-swamp soils of Tashkent region by Vilana cultivar from seed, seed + leaf application and leaf application. In this experiment, it was found that the weight of 1000 piece grains under the influence of Gummat stimulator was 2.2-7.4 grams higher than that of the variant where was used basis of mineral fertilizers, and under the influence of Rival stimulator, it was 3.0-6.0 grams.*

Keywords: *Vilana, cutivar, soybean, stimulants, Gummat, Rival, 1000 piece grain weight, seed processing, leaf application.*

INTRODUCTION

The importance of the soybean plant is related to the biochemical composition of its grain, the quantity and quality of its protein. On the ground, soybean has the ability to adapt to different soil-climatic conditions, the soybean is planted in regions of the earth from 60osouth latitude to 60onorth latitude, or planted in 2/3 of the earth's geography. Soybean originated in China and India and has been widespread in America and Europe for the past 50 years. The cultivation of soybeans is steadily increasing on earth. Such rapid growth depends on the use of soybeans in food, fodder and machinery, as well as their economic efficiency. (Tastanbekova et al., Almaty, 2019, collection .sci.conf., 4 vols)

Today, a lot of attention is paid to the cultivation of soybeans in order to fully meet the demand of the world's population for protein foods. According to the Bureau of Food and Agriculture (BFAP), the average soybean yield has increased by 2.7 tons per hectare, resulting in 1.62 million tons soybean production in 2020 . World soybean production will increase by 2.2% annually, reaching 371.3 million tons by 2030 is expected . Soybeans are grown on 32 percent of the total cultivated area in the United States, 31 percent in Brazil, and 18 percent in Argentina. Due to the growing population of the world, the provision of food to the population is becoming a pressing problem. In this regard, it is advisable to create or improve the existing technology of growing soybeans.

LITERATURE REVIEW

Seed germination is of great importance in Plant science, so it is possible to increase this indicator under the influence of various stimulants and growth regulators, fertilizers, substances with different active effects (Agafonov O.M. and others) [1].

The main part of the plant consists of water. Water is the most important factor in plant life. By using various growth regulators, it is possible to improve the water exchange in the plant and increase its adaptation to external environmental conditions. In some conditions, it increases the plant's resistance to disease and external adverse factors [5, 6, 9].

During 45 years of research, scientists have noted that processing soy with nitragin increased productivity by 0.06 - 0.37 t / ha (average 0.17 t / ha) and protein content increased by 2.3% (Baranov V.F. i dr., 2009, Petibskaya V.S, 2012), [3].

The effect of stimulants on the activity of photosynthetic pigments of the plant (chlorophyll and carotenoids) on the leaves has been studied by foreign scientists (Ivebor L.U., 2007) [4].

In today's modern soybean feeding system, great emphasis is placed on growth-regulating substances. According to scientists, the effect of physiologically active substances (vitamins, phytohormones, amino acids) activates the growth process.

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 [10].

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 [8].

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 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 [7].

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 69018 east longitude and 41020 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 m2, 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 60x50x30 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 absolute weight of the grain is an indicator of the biological characteristics of the variety, as well as the larger the grain, the higher the yield, but the formation, development, size of the grain, its filling and yield depends on the applied agro-technological measures and external factors.

In our experiment, the positive effect of soybean on the growth of thousands of grains when fed Gummat and Rival stimulants from seeds, seeds + foliar application and foliar application from substances that regulate growth on the background of Vilana cultivar mineral fertilizers. It was found that one thousand grains weighed 119.3 grams in return for basis of the mineral fertilizers. In the variant treated with seeds with Gummat stimulator before sowing of soybean Vilana cultivar, the weight of one thousand grains was 121.5 grams, which is 2.2 grams more than in the background variant. When the Gummat stimulator was given as a suspension from the leaf, the weight of one thousand grains under this stimulator was slightly

higher, 126.7 grams, and it was observed that it was 7.4 grams higher than the background variant and 5.2 grams higher than the second variant treated with seeds. Both the treatment of this stimulant with seeds and the foliar application showed that the weight of a thousand grains was 123.7 grams, which was slightly higher than in the first and second options, but 3.0 grams less than in the third option (Table 1).

Table 1

Вилана навининг 1000 piece grain weight of Vilana cultivar of soybean, g

№	*a) Options*	1000 piece grain weight
1	Background+$N_{50}P_{100}K_{70}$	119.3
2	Gummat+seed processing	121.5
3	Gummat+foliar application	126.7
4	Gummat+seed processing+foliar application	123.7
5	Rival+seed processing	122.3
6	Rival+ foliar application	125.3
7	Rival+seed processing+foliar application	124.1

When the seeds were treated with Rival stimulator before planting in the soybean Vilana cultivar, the weight of one thousand piece grains was 122.3 grams, which is 3.0 grams more than in the background variant. When the Gummat stimulator was given as a suspension from the leaf, the effect of this stimulator was slightly higher per thousand grains, 125.3 grams, and it was observed that it was 6.0 grams higher than the background variant and 3.0 grams higher than the second variant treated with seeds. Both the processing of this stimulant to the seed and the suspension from the leaf showed that the weight of a thousand grains was 124.1 grams, which was slightly higher than in the first and second options, but 1.2 grams less than in the third option.

CONCLUSION

It is known from the results that under the influence of stimulants on soybeans affected the weight of 1000 grains of Vilana cultivar, under the influence of Gummat stimulator this figure was 2.2-7.4 grams higher than on basis of mineral fertilizers (Background), and under the influence of Rival stimulator - 3.0-6.0 grams.

nfluence of Rival stimulator - 3.0-6.0 grams.

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