THE IMPACT OF ADAPTATION IMPORTED SOYBEAN CULTIVARS FROM ABROAD ON THE RANCHING

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Absctract: This article provides data on the impact of the adaptation of soybean varieties imported from abroad on its branching. According to it, non-branching or low-branching varieties in its country was found to be prone to a slight branching, especially when it planted repeatedly, the number of varieties was much higher.

Keywords: Adaptation, branching, cultivars, irrigated earth, mean crop, repeated crop, soybean, sierozem soil

INTRODUCTION

Nowadays, when protein deficiency is prevalent all over the world, the protein richness of soybeans, the presence of all the amino acids useful for humans in the protein content, is of particular importance, further increasing the nutritional value of soybeans. It should be noted that the advantage of soybean is comparable to a number of foods in terms of richness in lysine, methionine, arginine, leucine and other essential amino acids.

In many countries where soybeans are grown, this crop is the only source of protein, which also provides livestock with nutritious food and increases its productivity. Soybeans contain 30-52% protein, 17-27% oil and 20% carbohydrate water. The prevalence of soybean crop on earth is related to the quality of grain and protein.

Based on the positive biological properties of soybeans in the country, it is necessary to study the norms of micronutrients on the background of mineral fertilizers, to determine the optimal ones in the creation and improvement of technology for growing soybeans as a primary and secondary crop.

LITERATURE REVIEW

Soybean is a plant demanding to nutrients. 124 kg of nitrogen, 22 kg of phosphorus, 102 kg of potassium, 34 kg of calcium, 23 kg of sulfur, 191 g of zinc, 18 kg of magnesium, 207 g of manganese, 865 g of iron and 75 g of copper are extracted from the soil at a grain yield of 24 c / ha per hectare. This shows that in addition to macronutrients, micronutrients are also necessary for the growth and development of soybean.

Micronutrients optimize plant nutrition [6], increase resistance to stress, stimulate growth [7]. Such cases are also observed in the soybean plant [3, 4].

According to the biological potential of modern soybean varieties, it is possible to grow 3.5-4.4 t / ha of seeds, but in practice, this is very difficult to achieve [2].

Sulfur promotes the formation of certain amino acids, namely protein. Sulfur is involved in the formation of chlorophyll, and soy absorbs a lot of sulfur during this period. Sulfur in the seeds yields 27–66% relative to the total amount. Kazakh scientists have studied the importance of sulfur and recommended the use of sulfur-containing nanopreparations to increase the germination of soybean seeds and increase the overall yield and quality. Among the various preparations, a good result was obtained from the dry nanopreparation [5].

Micronutrients are less absorbed by the soybean plant than nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur. Nevertheless, their importance is not small, the lack of microelements in the soil slows down the growth rate of the plant, the yield is reduced.

Zinc activates enzymes, participates in plant nitrogen metabolism and protein formation.

Iron is a component of chlorophyll and is important in respiration and photosynthesis.

Symptoms of calcium deficiency: slow development of meristem tissue of the stem, leaf and root tips. Due to the slow mobility of calcium, its deficiency is first seen in young leaves and growth points.

Manganese, barium, and molybdenum do not form seeds in legumes unless they are sufficient. At the beginning of the application period, molybdenum and barium have a positive effect on the plant [1].

Magnesium deficiency begins with yellowing of the veins of aged leaves. The yellowing of the leaves begins at the bottom and reaches the young leaves as the deficiency intensifies. Symptoms of magnesium deficiency are similar to those of potassium, iron, or manganese.

In iron deficiency, chlorophyll production stops abruptly. The interstices of young leaves turn yellow. As the deficit increases, the leaf veins also turn yellow and the leaf turns completely white. Brown spots appear on the edges of the leaves.

Iron deficiency is common in soils with a soil environment pH greater than 7. Soybean varieties have different approaches to iron deficiency. In resistant varieties, iron assimilation begins in the root system, while in the developed root system, iron is assimilated from various root wastes. As the pH of the soil increases, the absorption of manganese becomes more difficult.

To support and activate physiological processes in the development of soybeans, it is recommended to feed soybean varieties with micronutrients during the period of

deficiency of micronutrients outside the root (chelate feeding). Periods demanding to micronutrients: during the development of 4-6 leaves, during the period of branching and pod formation.

X.N.Atabaeva, F.B.Namozov, A.A.Kurbanov and S.Sh.Khayrullayev 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 [8].

According to R.Juraeva, J.Tashpulatov, A.Iminov, H.Bozorov, Khatamov S.R, Khayrullaev S.Sh and L.Zaynitdinova, 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, [9; pp.72-79], [10; p.172].

MATERIALS AND METHODS

Our research was conducted in 2011-2013 in the fields of the experimental plot of the Tashkent State Agrarian University. The soil of the experimental field is a typical sierozem, which has been irrigated for a long time, the mechanical composition is sandy, the groundwater is located at a depth of 15-18 meters.

In our research, the adaptation of foreign soybean on the stem height of the plant was studied.

The research was conducted in the field and in the laboratory, including the placement of field experiments, calculations and observations "Methods of field experiments" (T. UzPITI 2007), "Methods of field experiments (B. Dospekhov, 1985) and" Methods of State Variety Testing of Agricultural Crops " (1985) based on methodological guidelines.

RESULTS AND DISCUSSION

In the soybean, the branching is one of the most important parameters, and in return for the productivity can increase by it. The branches of the varieties are their sign and can also change depending on growing conditions. The fruits on good branches are reached and the yield may increase significantly, but when the branches are developed at the bottom of the stem, the yield decreases, the yield decreases. In the first year of experience, scientific work was done to adapt foreign varieties to local climatic, especially in this period, the early and mid-ripening varieties of soybeans were selected. When soybean cultivars were planted as the main crop, the optimal variety was 1.6 pieces / bush in 2021, Riana cultivar is a slightly higher, i.e. 2.2 pieces / bush because it is biological branching varieties, and it was assumed that the Optima variety was 0.6 pieces / bush or 27.3% higher.

Viola variety is a plant biologically low-branching plant in fact, but in our conditions, its branching reached 1.7 pieces / bush, while at this time it was found that 2.7 pieces of plant is formed in Planta variety. In 2022, when these varieties were replanted, the legality was further observed, and the number of branches in the optima variety was 1.8, in Riana variety, it was 2,6 piece/bush, or 0.8 pieces/bush higher than the Optima variety, and compared to the previous year It is found that more than 0.4 branches have been formed. In Viola cultivar, while the number of branches increased slightly than the previous year, accounting for 1.9 pieces / bush. In the Optima variety, the number of branches was 2.3 pieces / bush in 2022 due to sufficient conditions, i.e. 0.3 pieces / bush above the previous year was observed to be high.

Table 1

The effect of adaptation of foreign varieties of soybean on branching

№	Options	Number of branches, piece/bush		
		2021	2022	o‘rtacha
As maen crop				
1	**SK Optima**	1,6	1,8	1,7
2	SK Riana	2,2	2,6	2,4
3	SK Viola	1,7	1,9	1,8
4	SK Planta	2,0	2,3	2,15
As repeated crop				
5	**SK Rusa**	3,4	3,6	3,5
6	SK Sparta	3,0	3,2	3,1
7	SK Veda	3,5	3,7	3,6
8	SK Optima	2,8	3,0	2,9

The number of branches in the Optima variety was 1.7 pieces/bush when calculated on average from 2-year data. Compared to other varieties, the best result was observed in the Riana variety, which averaged 2.4 pieces/bush. It was observed that the number of branches was slightly less in the Viola variety, it was found to be 1.8 pieces/bush. It was observed that this indicator was 2.15 units/bush in the Planta variety.

In order to adapt foreign varieties by planting them as repeated crops, we used very early, mid-early and early varieties in our experiments. In our 2021 experiments, it was found that the number of branches was 3.4 pieces/bush when the Rusa variety was planted as a repeat crop. In the Sparta variety, this indicator was 3.0 units/bush. Veda and Optima were planted early, and it was found that the number of branches in these varieties was 3.5 and 2.8 pieces/bush, respectively. The best branching was observed in Rusa and Veda varieties.

When the same varieties were planted in 2022, it was found that branching was slightly higher due to good climatic conditions and provision of all sufficient conditions. The number of branches was 3.6 pcs/bush in Rusa variety and 3.2 pcs/bush in Sparta variety. In the case of Veda and Optima varieties, this indicator was found to be 3.7 and 3.0 units/bush, respectively. This year, it was observed that the best branching was in Rusa and Veda varieties.

When we analyzed the average data of 2 years, the number of branches observed that in Rusa variety was 3.5 units/bush, Sparta variety was 3.1 units/bush, Veda variety was 3.6 units/bush and Optima variety was 2.9 units/bush. Even when the average data were calculated, the best results were obtained from Rusa and Veda varieties.

CONCLUSION

In conclusion, it can be said that the varieties that do not branch at all or rarely branched in their homeland, when grown in our region, it was found that they tended to branch somewhat, especially when repeated planting, the level of branching of the varieties was much higher.

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