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TREATMENT OF SOYBEAN SEEDS WITH NITRAGIN DURING SECONDARY SOWING AND THE INFLUENCE OF MINERAL FERTILIZER APPLICATION RATES ON THE NUMBER OF ROOT TUBERS OF THE PLANT

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Abstract:
The article provides information on the number of tubers formed at the root of a plant when mineral fertilizers are applied at different rates when treating Orzu soybean seeds with nitragin, grown as a secondary crop.

Keywords: Reseeding, soybeans, nitragin, inoculation, mineral fertilizers, nitrogen, phosphorus, potassium, tubers.

Introduction

The introduction of leguminous crops as a secondary crop after winter grain crops in the short-term crop rotation systems introduced in the country will serve to increase cotton yields and improve their quality. As a result, soil fertility is maintained and increased, and the efficiency of irrigated land use is improved. This, in turn, will serve to provide the population with food and fodder for livestock. In this regard, after making changes to the structure of crops in the country on the area freed for winter wheat, a number of research works were carried out on the introduction of secondary and intermediate crops, their effectiveness in increasing soil fertility and yield. The obtained results are recommended for various soil and climatic conditions of the republic.

According to A. Iminov, Sh. Karimov and D. Usmanova [2020], in short-term crop rotation systems after sowing winter grain crops, sowing legumes (soybeans, mung beans) is recommended as a repeat sowing. Seeds of leguminous crops (soybeans, mung beans) are treated with nitrogen fixers of tuberous bacteria before sowing. Application of mineral fertilizers NQF 30:90:60 kg/ha during sowing leads to an increase in the amount of ammonificators, oligonitrophils and micromycetes in the soil. This, in turn, ensures a high grain yield.

According to Z. Islamov [2011], the use of nitragine in combination with mineral fertilizers contributes to an increase in the number of tuberous bacteria formed in the roots of the plant, providing a yield of 3.3-5.4 centners per hectare higher than in the control variant. Excessive amounts of nitrogen fertilizers have been shown to reduce or eliminate the formation of tuberous bacteria. It turned out that the yield increases only due to nitrogen fertilizers.

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According to O.M. Shirinyan and N.F. Chaika [2005], high soil fertility, an increase in the number of tuberous bacteria in the roots of leguminous crops and the property of high nitrogen fixation provide a high yield and a significant protein content in soybean grains. At the same time, the grain yield was determined by 4-0.7 t/ha, and the protein content was 3-8% higher.

According to B. Mavlonov, A. Khamzaev, and Z. Bobokulov [2018], tuberous bacteria living in the roots of legumes absorb atmospheric nitrogen and enrich the soil with nitrogen. In the conditions of our republic, legumes such as mung beans, soybeans and peas accumulate from 40 to 120 kg of easily digestible nitrogen per hectare. Most of the nitrogen absorbed by legumes remains in the plant itself, and some of it is returned to the soil through the remains of roots and stems after harvest. According to the data obtained, field sowing was carried out against the background of treated and untreated nitragine in the Bradyrhizobium japonicum SB5 strain and mineral fertilizers applied at different rates before sowing soybean seeds as a re-sowing after winter wheat.

According to the results of the analysis of the formation of tuberous bacteria in the roots of the plant, it turned out that according to the 4th option, during the period of budding of soybeans, the use of mineral fertilizers in the norm of NPK 60:90:60 kg/ha, the number of tubers was 11.8 pieces, and according to option 5, when using mineral fertilizers in the norm of NPK 90:90:60 kg/ha, the number of tubers was 9.2 pieces. In the control variant without the application of mineral fertilizers, this indicator was 8.5.

In the variant when in the pre-sowing period soybean seeds were treated with nitragine without the application of mineral fertilizers, the number of tubers was 12.6, while in option 8, where the seeds were treated with nitragine and the application of mineral fertilizers was NRK 30:90:60 kg/ha, 18.9 tubers were counted.

Soybean seeds grown for secondary sowing were treated with nitragine before sowing, and in option 9, where mineral fertilizers were applied at the rate of NPK 60:90:60 kg/ha, the number of tubers formed was 15.4 pieces.

Based on this, it can be said that the excessive use of nitrogen fertilizers in soybeans grown as a secondary crop leads to a decrease in the number of tuberous bacteria formed in the roots of plants, resulting in a decrease in the plant's ability to store biological nitrogen. The decrease in the number of tubers in the root of the plant is due to the use of excess nitrogen fertilizers during the feeding period. These patterns persist during the flowering period (Table 1).

Effect of nitragine and mineral fertilizers on the formation of plant root tubers / in pieces

Table 1

№	Mineral fertilizer rate, kg/ha (NPK)	Phases of development		
		Budding	flowering	Pod formation
1	Mineral-free	8,5	11,6	13,5
2	R90C60	9,1	12,7	15,0
3	N30 R90C60	10,3	14,4	17,4
4	N60 R90C60	11,8	15,2	18,8
5	N90 R90C60	9,2	13,7	15,7
6	Nitragine (without minerals)	12,6	17,3	21,6
7	R90C60 + Nitragine	17,5	21,6	26,3
8	N30 R90C60+Nitragine	18,9	22,5	28,9
9	N60 R90C60+ Nitragine	15,4	19,1	24,0

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According to the data of the 4th variant obtained at the stage of soybean pod formation, with the use of mineral fertilizers NPK 60:90:60 kg/ha, the number of tubers in 2010 was 18.8 pieces, and in the 5th variant with the use of mineral fertilizers NPK 90:90:60 kg/ha 15.7 pieces were formed. In the control variant of soybean cultivation, without the application of mineral fertilizers, this figure was 13.5 pcs. This once again indicates that the excessive use of nitrogen fertilizers leads to a decrease in tubers in the roots of the plant.

It is known that any crop absorbs a significant amount of nutrients from the soil during the germination period After harvesting or harvesting, a certain amount of nutrients is returned to the soil in the form of organic matter through the stems and root remains of the plant.

References

1.Holdarov, D., Holdarova, M., Isagaliyev, M., & Turdaliyev, A. (2013). *Agrarian Bulletin of the Urals*, (3 (109)), 13-15.

2. Iminov, A. A., & Kholdarova, D. E. (2021). EFFECT OF NITRAGINE APPLICATION ON THE YIELD OF REPEATED LEGUMINOUS CROPS. *Internauka*, *16*(192 part 2), 39.

3. Kholdarova, D., Ulzhaboyev, A., Zhumaboev, Z., Kodirov, O., Atabaeva, M., & Mamadalieva, S. (2023). EFFECT OF NITRAGINE APPLICATION YIELD OF REPEATED LEGUMINOUS CROPS. *HOLDERS OF REASON*, *2*(1), 56-64.

4.Holdarova, D.E. (2022). Takrori Takrori Takryeva takrolin takryn et al-Mörgirin va minerals meyuring tajikistan.*PEDAGOGS jurnali*, *8*, 150-156.

5.Iminov, A. A., Holdarova, D. E., & Djuraev, M. Y. (2014). INFLUENCE OF APPLICATION OF NITRAGIN AND MINERAL FERTILIZERS FOR SOYBEAN AS A REPEAT CROP ON THE ACCUMULATION OF DRY WEIGHT AND COTTON PRODUCTIVITY. *The Way of Science*, 50.

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