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EFFECT OF ORGANOMINERAL AND MINERAL FERTILIZER APPLICATION ON THE CHANGE OF MOBILE NITROGEN IN THE SOIL

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Abstract:

The article highlights the influence of mineral and organomineral fertilizers introduced into the shade in the soil conditions of an ancient irrigated meadow of the Fergana region on the change in nitrogen content in the soil.

Keywords. Soil, soil reserve, nitrogen in the soil, mineral fertilizers, organic fertilizers, tuberous bacteria.

Introduction

In recent years, high productivity has been achieved in our republic as a result of the correct selection of repeatedly planted soybean varieties suitable for different soil and climatic conditions, as well as the development and application of agrotechnics for the cultivation of soybean varieties with high yield and grain quality suitable for repeated planting. In the strategy of agricultural development of the Republic of Uzbekistan for 2020-2030, "...application of intensive methods to the field of agricultural production, first of all, modern agro-technologies that save water and resources" is defined as one of the important tasks.

Based on the above, in order to study the effect of the simultaneous use of mineral and organomineral fertilizers applied to soybeans on the changes in the amount of mobile nitrogen in the soil in the conditions of the irrigated meadow soils of the Fergana region 2022 - During 2023, scientific research was conducted based on the established program.

Field experiments were conducted in the conditions of irrigated meadow soils of Fergana region. Field experiments included 12 variants, arranged in 3 replications and variants in 1 stratum. The total area of each option is 240 m2, of which 120 m2 is calculated. The total area of the experiment is 0.36 hectares. Compost prepared from cattle dung was used as an organomineral fertilizer in the research. Researches were carried out on the background of non-application of mineral fertilizers, application of N-60, P-90, K-60 kg/ha and application of N-100, P-90, K-60 kg/ha, Organomineral o Fertilizers were not applied, 10 t/ha, 15 t/ha and 20 t/ha were applied. During our scientific research, the Sevinch soybean variety was planted.

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It was found that the initial nitrogen supply before starting the field experiments was 19.4 and 10.3 mg/kg in the 0-30 and 30-50 cm layers of the soil, respectively. Table 1.

By the end of the season, mineral and organomineral fertilizers are not applied in option 1, 0-30 of the soil; 2.0 in layers of 30-50 cm; Decreased by 0.2 mg/kg, 0.9 in 2 options; by 0.2 mg/kg, 1.7 in 3 options; 0.7 mg/kg, 20 tons of organomineral used in 4 options, 1.9; It was found that it increased by 0.9 mg/kg.

0.8 in the 0-30 cm layer of the soil in 5 options where soybeans were cultivated only at the expense of N60, P90, K60 kg of mineral fertilizers; It was found that it decreased by 0.2 mg/kg, and in the 30-50 cm layer of the soil, it increased by 0.2 mg/kg. In addition to mineral fertilizers, 10 tons of organominerals were used in 6 options, 1.3; 0.6 mg/kg, 2.1 in 7 options where 15 tons of organominerals were used in addition to mineral fertilizers; 2.3 in 8 options where 20 tons of organominerals were used in addition to mineral fertilizers at 1.1 mg/kg; It was found that it increased by 1.2 mg/kg.

1-Table Effect of application of organomineral and mineral fertilizers on changes in the amount of mobile nitrogen in the soil

№	Organomineral fertilizer normsi	Standards of mineral fertilizers	At the beginning of the season	
			0-30	19,4
			30-50	10,3
			At the end of the season	
1	-		0-30	17,4
			30-50	10,1
2	10 tons		0-30	20,3
			30-50	10,6
3	15 tons		0-30	21,1
			30-50	11,0
4	20 tons		0-30	21,3
			30-50	11,2
5	-	N-60, P-90, K-60	0-30	18,6
			30-50	10,5
6	10 tons		0-30	20,7
			30-50	10,9
7	15 tons		0-30	21,5
			30-50	11,4
8	20 tons		0-30	21,7
			30-50	11,5
9	-	N-100, P-90, K-60	0-30	19,3
			30-50	10,7
10	10 tons		0-30	21,1
			30-50	11,2
11	15 tons		0-30	21,8
			30-50	11,6
12	20 tons		0-30	21,8
			30-50	11,8

In 9 variants of soybean cultivation at the expense of mineral fertilizers N100, P90, K60 kg only, it decreased by 0.1 mg/kg in the 0-30 cm layer of the soil, and by 0.4 mg/kg in the 30-50 cm layer of the soil. it was found that it increased. 1.7 in 10 options where 10 tons of organominerals were used in addition to mineral fertilizers; 0.9 mg/kg, 2.4 in 11 options where 15 tons of organominerals were used in addition to mineral fertilizers; 1.3 mg/kg, 2.4 in 12 options where 20 tons of organominerals were used in addition to mineral fertilizers; It was found that it increased by 1.5 mg/kg.

In the studies of 2022-2023, in option 1, where mineral and organominerals are not applied to the soybean crop, the amount of nitrate nitrogen in the 0-30 and 30-50 cm layers of the soil is 2.0 compared to the beginning of the season; 0.8 in the 0-30 cm layer of the soil in 5 variants of soybean cultivation at the rate of 0.2 mg/kg, at the expense of N60, P90, K60 kg of mineral fertilizers; 0.1 mg/kg in the 0-30 cm layer of the soil was observed in 9 variants of soybean cultivation at the expense of N100, P90, K60 kg of mineral fertilizers. This situation can be attributed to the activity of the budding bacteria in the roots of the soybean plant. In our scientific research, no bacterial preparations were used to promote the development of soybean nodules. As a result of the non-development of soybean nodule bacteria, it was observed that the amount of mobile nitrogen in the soil decreased due to the fact that the nitrogen demand of the plant was met at the expense of the applied mineral fertilizers, but the increase in the rate of mineral fertilizers it was found that the amount of mobile nitrogen in the soil almost did not change (options 5-9).

Relatively higher indicators were used in options 6, 7, 8, in which N60, P90, K60 kg of mineral fertilizers were used in addition to the norms of organomineral fertilizers, and N100, P90, K60 kg of mineral fertilizers. 10, 11, 12 options were used.

The increase in the amount of mobile nitrogen in the 30-50 cm layers of the soil is explained by the fact that nitrates moved to the lower layer under the influence of water..

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