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EFFICIENCY OF THE QUANTITY OF MINERAL FERTILIZERS IN CULTIVATION OF WHEAT AND REPEATED CROPS

Kh.Muydinov,

M.M.Turgunov,

K.Jurayeva,

A. Avazbekov,

M. Fayzullayeva,
Andijan Institute of Agriculture and Agrotechnologies,
Kunganyar Town, Andijan District.
E-mail: xmuydinov10@mail.ru

Annotation
Winter wheat is grown, in which mineral fertilizers are applied with a different dose, and the most effective feeding rates for repeated sowing of corn and mosh in wheat harvesting areas have been determined and scientifically substantiated. Based on the data obtained, appropriate conclusions were drawn.

Keywords. Wheat, mobile nitrogen, mobile phosphorus, exchangeable potassium.

Today, measures are being taken to improve the quantity and quality of crops in the irrigated areas of the country, along with maintaining and increasing soil fertility through the effective use of mineral fertilizers. As an example, it is worth noting the research work carried out by Professor N.Ibragimov, L.Mirzaev in Tashkent, Khorezm regions, QQR.

However, insufficient attention has been paid to the study of the effective feeding of secondary crops in irrigated soils of Andijan region in direct connection with the standards of fertilizers applied to winter wheat, their positive impact on soil agrochemical properties and crop quality. The purpose of the study is to determine the optimal standards of soil fertility and crop yields of winter wheat and secondary crops, corn and mineral fertilizers used in the system of short-term sowing in the conditions of irrigated light gray soils of Andijan region.

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The practical significance of the results of the study is to determine the scientific application of annual fertilizers in the cultivation of winter wheat, maize and sorghum, to achieve quality and abundant yields twice a year, and to make recommendations for production.

In the experiment, corn and moss were studied in 9 variants each, and the total area of one crop by crop type was 1296 m^2. In the experimental system studied in the article, the variants on the fertilizer standards set for winter wheat are conventionally called backgrounds I-II-III, each of these backgrounds is placed as variants in 3 different fertilization rates for repeated crop types. Nitrogen fertilizers in winter wheat were fed at the rates of 30, 30 and 40 kg / ha before sowing, 45, 75 and 100 kg / ha at the time of accumulation and 45, 75 and 100 kg / ha at the time of sowing, according to the experimental system in options 1, 2 and 3.

In maize, nitrogen fertilizer was applied in two equal doses, at 5-6 leaf and 10-12 leaf cycles at 60, 90 and 120 kg / ha, and in moss, all annual nitrogen fertilizers were applied in conjunction with sowing. In the experiment, the annual norms of phosphorus and potassium fertilizers were applied during the plowing period in all three crop types (Table 1).

Soil samples were taken from 0-30 and 30-50 cm layers of soil at the beginning and end of the period of application of all agricultural crops studied in the experiment, in which the amount of humus I.V.Tyurin, total amounts of nitrogen and phosphorus A.P.Gritsenko, I.M.Maltseva , the amount of nitrate nitrogen was determined by the Granvald-Lyaju method, mobile phosphorus B.P.Machigin, exchangeable potassium in a flame photometer by P.V.Pratasov methods.

After harvesting the winter wheat and repeat crops, the amount of root and stalk residues was determined by washing and drying the soil sections. Agrochemical analyzes were also performed on samples taken in all variants of the experiments to determine the amount of NPK assimilated by the plants.

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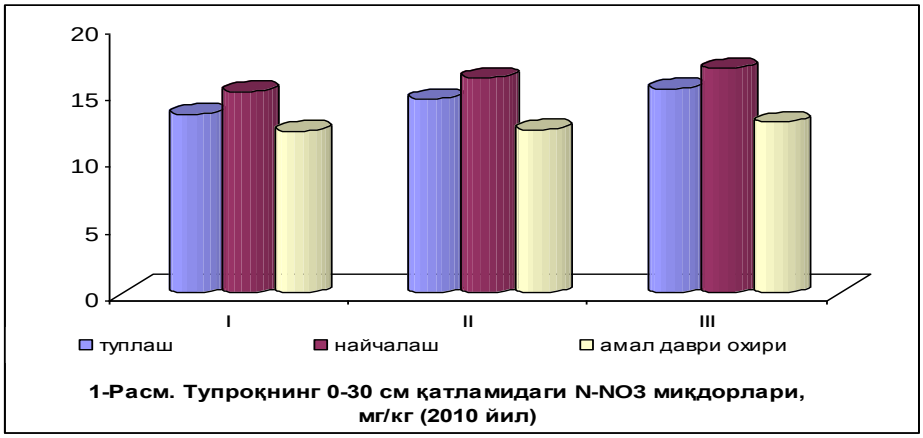
Table 1 Experimental system

Back-ground	Crop types											
	Winter wheat			Option mode	corn			Option mode	Mung bean		
	N	P_2O_5	K_2O		N	P_2O_5	K_2O		N	P_2O_5	K_2O
I	120	80	60	1	120	80	60	10	25	80	60
				2	180	120	90	11	50	80	60
				3	240	160	120	12	75	80	60
II	180	120	90	4	120	80	60	13	25	80	60
				5	180	120	90	14	50	80	60
				6	240	160	120	15	75	80	60
III	240	160	120	7	120	80	60	16	25	80	60
				8	180	120	90	17	50	80	60
				9	240	160	120	18	75	80	60

Note: Against the background of fertilizers applied in winter wheat, the effectiveness of fertilizer standards for corn and sorghum (3 types) was determined

The scientific results obtained in the studies recorded close indicators over the years. According to the results, the amount of humus at the end of the winter wheat application period, depending on the applied fertilizer standards, is 1.006% in the first background ($N_{120}R_{80}K_{60}$ kg/ha), 1.006% in the second background ($N_{180}R_{120}K_{90}$ kg / ha) and 1.005% in the third background ($N_{240}R_{160}K_{120}$ kg/ha). %, which decreased by 0.001-0.001 and 0.002%, respectively, compared to the initial state, which is explained by the acceleration of humus decomposition, which is an organic substance in the soil, with an increase in the applied fertilizer standards, especially nitrogen standards.



1-Расм. Тупроқнинг 0-30 см қатламидаги N-NO3 миқдорлари, мг/кг (2010 йил)

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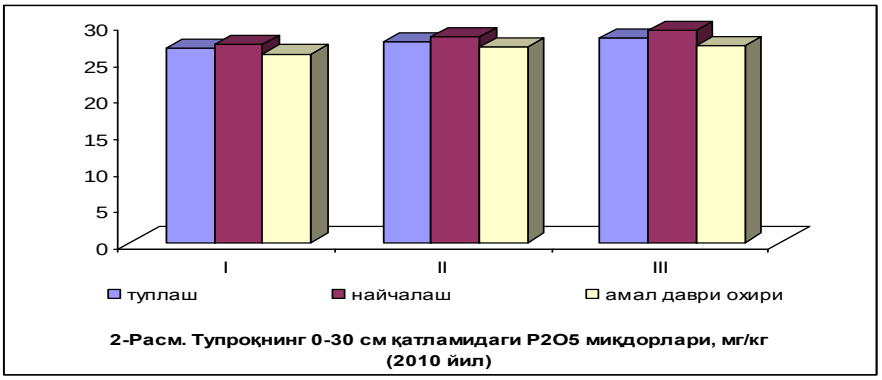
Studies have shown that 5-8% of total nitrogen humus in the soil. A similar situation was observed in the change of total phosphorus, in proportion to the fertilizer norms in the soil driving and subsoil 0.132-0.118; 0.132–0.119 and 0.131–0.117%, which is 0.001–0,000 from the initial figures; It was found to vary between 0.001–0.001 and 0.000– 0.001%.The total potassium content in the soil is 0.001-0.002 from the initial state in proportion to the layers; If a decrease of 0.001–0.001 and 0.002–0.003% was found, a relatively greater decrease could be observed when applied at $N_{240}P_{160}K_{120}$ kg / ha norms.

In the experiment, when mineral fertilizers were applied to $N_{120}P_{80}K_{60}$ kg / ha (I-background), the amount of N-NO3 in the soil layers 0-30 and 30-50 cm at the end of the application period of winter wheat was 12.1 and 10.1 mg / kg, compared to the tubing period. It was found that $N\text{-}NO_3$ increased slightly due to the increase in soil temperature during the summer months, although 0.4 and 0.3 mg / kg, respectively, despite the fact that winter wheat assimilated nitrogen during the application period. It was observed that the amount of mineral fertilizers applied $N_{120}P_{80}K_{60}$ kg / ha had a negative effect on the nitrogen balance.

$N_{180}P_{120}K_{90}$ kg / ha used in winter wheat at the norms (background II) at the end of the validity period increased by 2.1-0.9 mg / kg compared to I-background values (12.1-10.1 mg / kg). This is due to the fact that the applied nitrogen fertilizer is applied at a higher rate than 60 kg / ha. At $N_{240}P_{160}K_{120}$ kg / ha (background III), at the end of the winter wheat application period, the amount of $N\text{-}NO_3$ in the soil driving layer was 20.2 mg / kg, 4.1 against background I and 2 against background II. Was higher than 0 mg / kg.



2-Расм. Тупроқнинг 0-30 см қатламидаги P2O5 миқдорлари, мг/кг (2010 йил)

At the end of the application period, the amount of mobile phosphorus in the driving layer of the soil is 27.0 mg / kg, and in the 30-50 cm layer - 14.2 mg. / kg (Fig. 2).

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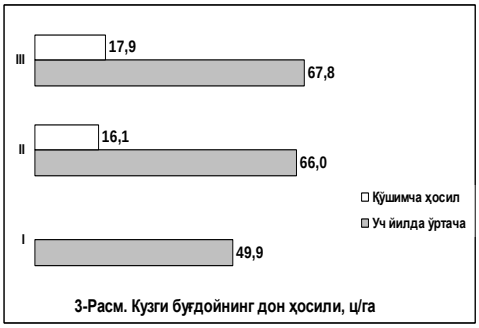
These values increased by 1.2-0.2 mg / kg compared to the normally used variant $N_{120}P_{80}K_{60}$ kg / ha, by 0.6 mg / kg in the drive layer compared to the first variant normally used $N_{180}P_{120}K_{90}$ kg / ha, and by 0, A decrease of 6 mg / kg was observed.
Given that potassium is mainly obtained from soil reserves by plants, the ratio of potassium to nitrogen in fertilizers was applied at a ratio of 1: 0.5. These norms are certainly not sufficient for winter wheat, but there are data in the literature on the decrease in plant uptake if potassium in the soil increases relative to nitrogen.



3-Расм. Кузги буғдойнинг дон ҳосили, ц/га

Depending on the mineral fertilizer standards, the winter wheat crop showed a specific yield on the background, with an average of 49.9 ts / ha in 3 years on the I-background applied to $N_{120}P_{80}K_{60}$ kg / ha in winter wheat (Figure 3). Yield results obtained from background II applied to $N_{180}P_{120}K_{90}$ kg / ha were found to be satisfactory compared to background I. This indicates that the average grain yield in the three years was 66.0 ts / ha, while the additional yield was 16.1 ts / ha compared to the I-background. In the study, $N_{240}P_{160}K_{120}$ kg / ha used an average yield of 67.8 ts / ha of winter wheat in three years on the III background, which is 17.9 ts / ha on the I background and 1.8 ts / ha on the II background. ts / ha can be seen. From this it can be concluded that the amount of additional $N_{60}P_{40}K_{30}$ kg / ha of mineral fertilizers compared to the II background only slightly increased the yield.
It was observed that relatively good nutritional conditions in the care of winter wheat and secondary corn are created when mineral fertilizers are applied in the norms of $N_{180}P_{120}K_{90}$ kg / ha in both winter wheat and repeated crop corn (background II, option 5). In this variant, the amount of $N\text{-}NO_3$ in the soil driving layer (after corn) was 19.1 mg / kg, R_2O_5-29.0 mg / kg and K_2O-166 mg / kg, respectively, 0.9 mg / kg from the initial state. was high and K_2O was 4.0 mg / kg low.

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Thus, with N-NO_3, it can be observed that the amount of exchangeable potassium decreases while the amounts of mobile phosphorus remain the same as in the samples taken in the fall.

According to the results of the study, in the conditions of light gray soils of Andijan region, it was observed in the field experiments that when applied with mineral fertilizers in winter wheat $N_{120}P_{80}K_{60}$ kg / ha in secondary crops $N_{240}P_{160}K_{120}$ kg / ha, in the month $N_{50}P_{80}K_{60}$ kg / ha $N_{25}P_{80}K_{60}$ kg / ha and $N_{240}P_{160}K_{120}$ kg / ha in winter wheat and $N_{120}P_{80}K_{60}$ kg / ha in maize and $N_{25}P_{80}K_{60}$ kg / ha in winter wheat.

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