



PHOSPHORUS FERTILIZERS AND MORPHOLOGICAL INDICATORS OF CORN

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ABSTRACT

The increase in corn yield is directly related to mineral fertilizers, including phosphorus. Increasing the rates of phosphorus fertilizers in the absence of phosphorus soils leads to an increase in the amount of feed due to an increase in feed units. An increase in the phosphorus norm to 100 kg/ha P₂O₅ ensured an increase in the indicated norms of indicators by 6.4-8.5 and 3.3-3.0%, respectively, when applying 140 kg/ha P₂O₅ - by 10.6-12.1 and 5.4-5.2%, and when applying 180 kg/ha P₂O₅ - by 12.8-16.1 and 6.5-6.3%.

Key words

corn, fertilizer, phosphorus, orthophosphate, crop, yield.

Introduction: Irrigated lands in the Republic of Uzbekistan, occupying only 11% of the total territory, provide more than 90% of agricultural products. From one hectare of irrigated arable land in the republic, on average, 8-10 times more production is obtained than from a hectare of rain-fed land. However, the potential capabilities of the irrigated hectare are far from being fully used, and the use of unreasonable doses of mineral fertilizers in recent years and the actual disregard for crop rotations have led to a decrease in soil fertility and, naturally, a decrease in the effectiveness of the fertilizers used.

Literature review

The problem of increasing the fertility of eroded soils is inextricably linked with their replenishment with organic matter, the scientifically based use of mineral fertilizers, and the introduction of intensive, energy- and water-saving, environmentally friendly technologies for cultivating agricultural crops [2,3].

After the winter wheat repeated sowing of beet crops will have a positive effect on the size of the soil and serve to increase its productivity. Although this crop, which has been studied in practice, yields relatively good results, it is important to select the optimal sowing standards for all repeated crops.

Studies to study the effect of phosphorus fertilizers on the productivity of various agricultural crops were carried out in various soil and climatic conditions.

Corn absorbs few nutrients in the first month after sowing. However, their lack at this time, especially phosphorus, subsequently negatively affects plant growth and ear formation. The critical period in corn nutrition with phosphorus occurs 10-15 days after emergence. Therefore, the application of phosphorus fertilizers during sowing contributes to a significant increase in yield [1,4].

In the conditions of gray-meadow soils of the Andijan region, planting sugar beet seeds as a re-crop, moistening the seeds up to 80-100%, encapsulating the seeds using a mixture of 75% vermicompost+ 25% soil and applying mineral fertilizers N200P150K200 allows you to get the maximum yield of 370.2 centner/ha of root crops.

Research Methodology

All observation, analysis and calculations were adopted at UzPITI "Methods of conducting field experiments" [1; p. 147], "Методы агрохимических, агрофизических и микробиологических исследований в полевых хлопковых районах" [3; 187-b.], "Методика полевых опытов с хлопчатником" [4; p. 233] was carried out on the basis of methods. Experimental data of B.A. Dospekhov [2; p. 352] "Методика полевого опыта" was analyzed mathematically based on the method.

Table 1

The influence of rates and forms of phosphorus fertilizers on the morphological parameters of corn hybrid Korasuv -350AMB

Experience Options	plant height, cm	height of attachment of cobs, sm	diameter of the stem at the 2nd internode, sm
Control - no fertilizers	120	71	1,7
N ₂₄₀ K ₁₀₀ - Background	247	126	2,5
Background + P ₉₀ ammophos	261	131	2,8
Background + P ₉₀ polyammophos	263	132	2,8
Background + P ₉₀ suprephos	258	129	2,6
Background + P ₁₂₀ аммофос	271	134	3,2
Background + P ₁₂₀ polyammophos	273	135	3,2
Background + P ₁₂₀ suprephos	268	132	3,2
Background + P ₁₅₀ ammophos	273	137	3,4
Background + P ₁₅₀ polyammophos	273	139	3,4
Background + P ₁₅₀ suprephos	271	135	3,3

Analysis and results

The course of growth processes, being an integral reflection of the nature and direction of metabolism, plays a decisive role in the productivity of corn. As a complex endogenous process, the formation of morphological parameters of corn is directly related to the age state of the plants. The rates and forms of phosphorus

fertilizers significantly affect the morphological parameters of corn hybrid Korasuv-350AMV (Table 1).

Of the morphological indicators of corn, plant height, height of attachment of cobs and stem diameter are of greatest practical importance. Research has shown that the above morphological indicators are closely related to phosphorus fertilizers. The addition of nitrogen (240 kg) and potassium (100 kg) compared to the control variant significantly affected the height of the plants. At the same time, the height of the plants, as expected, increased by 127 cm. The rates and forms of phosphorus fertilizers slightly increased the height of the plants compared to the background.

The highest plant height was observed with the Fon + P150 option (271-273 cm), while the forms of phosphorus fertilizers - ammophos, polyammophos and suprephos had virtually no effect on the height of the plants.

The height of attachment of cobs in the control variant was 71 cm, against the background (N₂₄₀K₁₀₀) - 16 cm, when applying Background + P90 - 129-132 cm, Background + P120 - 132-135 cm, Background + P150 - 135-139 cm. A pattern was established. changes in morphological parameters with the rates of phosphorus fertilizers.

Analysis of the data obtained on washed-off soils showed that the greatest plant growth, height of attachment of ears and diameter of the stem were noted on the option N₂₄₀K₁₀₀ (background) + phosphorus fertilizers (ammophos, polyammophos and suprephos) at a rate of 150 kg per hectare of dry soil. Moreover, these indicators, respectively, amounted to 225-228 cm; 17-130 cm and 2.9-3.1 cm. The indicated morphological parameters of corn in the Fon + phosphorus fertilizer option at a rate of 120 kg per hectare were, respectively, 223-226 cm, 125-127 cm and 2.7-29 cm that the difference with the option Background + 150 kg phosphorus fertilizers has no practical significance.

For individual morphological indicators, regression equations were derived that characterize the relationship between the forms and rates of phosphorus fertilizers and plant heights, heights of cob attachment, and corn stalk diameter. On this basis, the correlation coefficients were established: $r = + 0.77 - + 1.00$.

Conclusion/Recommendations

It should be noted that the data obtained in all studied variants were slightly higher. It is natural that the soil conditions for the growth and development of corn are somewhat worse and this has a significantly negative effect on the formation of morphological characteristics of the corn hybrid Korasuv-350AMV. However, the application of phosphorus fertilizers against the background of nitrogen and potassium (N₂₄₀K₁₀₀) somewhat improves the conditions for the growth and development of corn.



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