

**ANALYSIS OF THE INFLUENCE OF MACROELEMENTS ON THE GROWTH AND DEVELOPMENT OF COTTON**

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**Abstract**

Raw cotton is one of the main resources of our republic. Macronutrients play an important role in plant life. Nitrogen, phosphorus and potassium are among the main macronutrients and play an important role in obtaining abundant and high-quality crop yields. The effect of nitrogen and phosphorus fertilizers on the cotton yield is well studied, but little attention is paid to potash fertilizers. For this reason, the main goal is to study the effect of potash fertilizers on cotton productivity.

**Keywords:** macronutrients, mineral fertilizers, cotton growth, crop quality improvement.

**Introduction**

Raw cotton is one of the main resources of our republic. At present, 25% of raw cotton is processed in our republic. The remaining 75% is sold abroad as raw materials. The bulk of our country's foreign exchange earnings come from the sale of cotton fiber abroad. Therefore, to date, increasing the yield of cotton and the quality of the fiber is one of the main tasks that must be performed by scientists.

During the period of advanced scientific and technological development, the need of the population for the quantity and quality of agricultural products increases. To solve this problem, it is necessary to create the necessary conditions for good growth and high yields



of plants based on the constant improvement of agricultural knowledge, the organization and development of scientific research at a high level.

In subsequent years, in order to achieve grain independence in our republic, the sown areas for cotton were partially reduced and the sown areas for grain were expanded. Because of this, crop rotations of cotton and alfalfa have been sharply reduced, and in some areas such crop rotations were not introduced at all, and in such conditions soil fertility depends on the application of mineral and organic fertilizers. Especially recently it is important to use more nitrogen and phosphorus fertilizers. But potash fertilizers for cotton are rarely used. This results in reduced productivity and fiber quality. The effect is better when nitrogen and phosphorus fertilizers are applied together with potash fertilizers.

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Potassium accumulates in strongly growing parts of plants. It plays a key role in water metabolism, osmotic pressure in the cell, and the flow of synthetic processes from leaf tissues to generative organs. The leaf accumulates a large amount of carbohydrates, which prevents the passage of photosynthesis. This situation leads to a discrepancy between the quality indicators of cotton fiber and the standard, that is, to a deterioration in quality indicators.

Thus, taking into account the above, the results of field experiments were analyzed to study the effect of macronutrients, including potash fertilizers, on the growth, development, productivity and quality of cotton fiber.

Research methods. Cotton is one of the plants that require a lot of potassium, and to obtain 30-35 centners from 1 ha, 80-120 kg of potassium is required. Potassium increases the hydrophilicity of cells and the ability to retain water. Potassium deficiency disrupts nitrogen, phosphorus and carbohydrate metabolism in cotton. A large amount of carbohydrates accumulate in the leaves, the process of their entry to flowers and pods is disturbed (slowed down), the mass of pods decreases, and the quality of fiber deteriorates. Since the use of potash fertilizers decreases from year to year, their amount in the soil also decreases.

Results of the study and their discussion. Research The growth and development of cotton depends on many factors, in particular, the biological characteristics of the variety, the temperature and humidity of the soil and air, the level of nutrition, the infestation of plants with diseases and pests, the timing and norms of cultivation. landing depends. So, at the end of the growing season, i.e. 25.08. the average height of the girl was 83.4 cm in the control variant, 88.6 cm in the second variant, 91.7 cm in the third variant and 92.3 cm in the fourth variant.

Nitrogen plays a key role in plant nutrition, including cotton, with mineral fertilizers. According to Sh. Yusupov (2011) of foreign and republican scientists, scientific research was carried out on plant growth, nitrogen nutrition of plants, micronutrient nutrition, the



highest yield in experiments conducted on typical gray soils. Obtained from the variety Tashkent-1 of the stem variety in the variant with the mutual ratio of fertilizers (NRF) 1:1:0.5.

According to Olaivan Singvilay (2011), in experiments conducted on typical sierozems of the Tashkent region, cotton of the Namangan-77 variety had a higher yield (40.9 q/ha), the rate of potash fertilizers for dogs is determined at its - 60 kg/ha .

A.E. Avliyokulov, M. Tadzhiyev, G. Gurbanov and K. Tadzhiyev (2012) found that in experiments carried out on barren meadow soils of the Surkhan-Sherabad oasis, potassium fertilizer from the promising variety "Denov" into the soil 100 High yield was obtained when applying at the rate of kg/ha.

According to B.T. Khofizova (2010), in experiments carried out on light-colored icy soils of the Kyzyrik-Dara massif of the Surkhandarya region, the highest and highest quality yield (40.6 c/ha) was found in the Bukhara-6 cotton variety with potassium that a good result was obtained at a fertilizer rate of 125 kg/ha. information is provided.

So, under the influence of potassium, cell division (mitosis) is accelerated, the permeability of the cytoplasm increases, the water properties of the cell increase, and the osmotic pressure increases, which ensures the growth of the stem and the formation of a vegetative mass. at the optimum level.

The result of phenological observations is given in Table 3.1.1. According to the table, the seeds fully germinate in 7-8 days. This was mainly caused by high temperature and soil moisture.

The results of observations show that the differences between the variants at the beginning and the passage of development phases were reliably observed in the flowering phase.

The difference between the control variant and variant 4 (BACKGROUND + K120) was 7 days.

At the end of the growing season, i.e. in the opening phase of shovels, the difference between the control variant and options 2 and 3 was 4-6 days, and the difference between option and variant 1 was 9 days. 1 Table

Table 1 Cotton growth dynamics, (cm)

T.r	Option	25/05	05/06	15/06	25/086	05/07	15/07	25/07	05/08	15/08	25/08
1.	N <sub>150</sub> ,R <sub>100</sub>	16,8	22,4	30,8	35,5	42,6	48,8	56,7	63,6	75,8	83,4
2.	N <sub>150</sub> ,R <sub>100</sub> + K <sub>40</sub>	16,7	23,2	29,7	35,6	42,7	49,8	58,8	64,7	78,9	88,6
3.	N <sub>150</sub> ,R <sub>100</sub> +K <sub>80</sub>	16,6	22,1	28,8	36,5	42,8	49,6	59,5	65,6	79,6	91,7
4.	N <sub>150</sub> ,R <sub>100</sub> +K <sub>120</sub>	16,5	20,9	27,7	35,7	42,5	50,7	60,8	69,3	81,8	92,3



The difference between the options began to be felt from 15 July. Prior to this period, the height of the plants was almost the same, and from July 15, with an increase in the amount of potassium, the difference between the variants increased significantly.

Conclusion: In our republic, macronutrients are the main nutrient for plants. But during the flowering and budding phase, the need for potassium in cotton increases greatly. With a lack of potassium in these phases, growth slows down, the stem becomes thinner, and the dry weight decreases. The vegetative mass is formed insufficiently. Because organic substances accumulate in the leaf and do not enter other organs. Development phases are also delayed.

With optimal feeding of cotton with potash fertilizers against the background of nitrogen and phosphorus fertilizers, the yield will increase. Thus, increased productivity provides economic efficiency. Potash fertilizer in combination with nitrogen and phosphorus fertilizers at the optimal rate (80-120 kg/ha) provides high yields. The biosynthesis of plastic substances in plants and their entry from the leaf into other organs ensures the timely flow of plant growth and development. The biosynthesis and metabolism of carbohydrates are improved with the optimal introduction of potassium fertilizers. As a result, the intensity and productivity of photosynthesis increases. This ensures economic stability through the development of the agricultural sector.

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