



INFLUENCE OF ORGANIC, MINERAL FERTILIZERS AND BIOPREPARATIONS ON COTTON YIELD

Uzakbay E. Ismailov¹, Makhsetbay P. Tursinov²

¹Doctor of Agricultural Sciences, Professor,
Karakalpakstan Institute of Agriculture and Agrotechnologies, Nukus, Uzbekistan

²Master Student, Karakalpakstan Institute of Agriculture and Agrotechnologies,
Nukus, Uzbekistan

ABSTRACT

The field experiment was conducted to determine the influence of organic, mineral fertilizers and biopreparations on cotton yield in saline soil condition of the Republic of Karakalpakstan. On the basis of the information received from the experiment it was defined that the yield is high when organic fertilizer is decreased to 1,0 t/ha, mineral fertilizer 25% in feeding cotton, used in the amount of N180 P130 K90 kg/ha and from biopreparations Phytovak was applied in the amount of 2 l/ha 3 times. When organic fertilizer in the amount of 40 t/ha, mineral fertilizer – N185 P130 K90 kg/ha and biopreparation – 2 l/ha 3 times, it was provided to receive 37,3 q/ha yield.

KEYWORDS. Organic, mineral fertilizers, biopreparation “Phytovak”, productivity, yield, saline soil.

INTRODUCTION

In the decree of the President of the Republic of Uzbekistan on October 23, 2019, “About affirming the strategy of developing agriculture of the Republic of Uzbekistan planned for years 2020-2030” number PP-5853 indicated to carry out some actions in developing agriculture of our country as the following: widely conducting market economics, strengthening legal basis of relations between producer, reproducer and seller of agricultural products, applying investments and implementing the system of brainstorming, implementing resource saving technologies, providing with modern technology and applying achievements of agricultural science in industry.

Moreover, conducting scientific research works on increasing the productivity of agricultural crops by improving meliorative condition of irrigated land in agriculture and using water and resource saving modern technologies was stated in the decree of the President of the Republic of Uzbekistan on February 7, 2017, “About the strategy of actions on the further development of the Republic of Uzbekistan” number PP-4947 in the part “The important branches of developing and liberalization of economics.

In today’s situation of market economics it is expedient to shorten using expensive mineral fertilizers in agriculture, instead of it, using organic fertilizers, which are rich in microelements, that are necessary for the plant and are not harmful for the plant and soil.



Changing agricultural products into organic method step by step was mentioned in the decree of the President of the Republic of Uzbekistan on May 18, 2020, "About additional actions of providing the satisfaction of quality and safety indicators of agricultural products with international standards" number PP-5995 and in addition to this decree the conception of developing organic agriculture and organic food products in the Republic of Uzbekistan.

Today, there are some problems in feeding agricultural crops as the expensiveness of mineral fertilizers and the difficulty of carrying them from far distance. In cotton nutrition it is expedient to use organic fertilizers, which are not harmful for the plant, soil, human organism by decreasing the use of mineral fertilizer.

There are not enough scientific research works on the effectiveness of using organic and mineral fertilizers for cotton in the saline soil condition of Karakalpakstan.

METHODOLOGY OF THE RESEARCH

C-4727 type of cotton was sown in the experiment. Research works were conducted according to experiment scheme. There are 10 variants in the experiment, located in two tiers, the area of each variant is 120 m² (4,8 m x 25 m), the distance between rows is 60 cm, the number of bushes 100-120 thousand, field soil is medium salty, underground water is located in the depth of 1,5 – 2,0 m. The experiment was carried out in the central soil climate condition (Khojeli region) of the Republic of Karakalpakstan.

In the experiment, mineral fertilizer was fully used in the control variant (1st var. N250 P175 K125 kg/ha), the amount of mineral fertilizer was decreased by 25% in the 2nd variant (N185 P130 K90 kg/ha), 20 and 40 t/ha of organic fertilizer without mineral fertilizer was applied in the 3rd and 4th variants, in variants 5 and 6, 20 and 40 t/ha of organic fertilizer was used together with mineral fertilizers in the amount of N185 P130 K90 kg/ha. In variants 7 and 8, 20 and 40 t/ha of organic fertilizer, mineral fertilizers in the amount of N185 P130 K90 kg/ha and additionally soil was fed 3 times in the amount of 1 l/ha. In variants 9 and 10 organic and mineral fertilizers were used in the norm of the previous variants and fed with biostimulant 3 times in the amount of 2 and 3 l/ha.

RESULTS OF THE RESEARCH AND ANALYZING THEM

The followings were determined when the influence of organic, mineral fertilizers and biostimulant on cotton yield. As can be seen from the information, the more the amount of nutritious elements in feeding cotton, the higher yield is. It gives information about that there are not enough nutritious elements in the soil, i.e. soil productivity is low.

The yield connected with the amount of nutrition used for cotton was 27,5-37,3 q/ha. It was 27,5 q/ha only in the control variant when mineral fertilizers were used in the full norm N250 P175



K125 kg/ha, and when the amount of mineral fertilizer was decreased by 25% and used in the amount of N185 P130 K90 kg/ha the yield decreased by 2,5 q/ha.

When only organic fertilizer was used in the amount of 20 and 40 t/ha (var. 3 and 4) the yield was 23,5 and 27,8 q/ha.

In the next variants mineral fertilizer was used by decreasing to 25% together with 20 and 40 t/ha of organic fertilizer in feeding cotton.

When mineral fertilizer and organic fertilizer were used in the amount of 20 t/ha, the yield was 31,6 q/ha, and when organic fertilizer was used in the amount of 40 t/ha (var. 6), the yield was 34,3 q/ha. When biostimulant was applied 3 times in the amount of 1 l/ha additionally to organic and mineral fertilizers in the same amounts as the previous variants (var. 7 and 8), the yield was 33,6 and 35,6 q/ha, i.e. 2,0-1,3 q/ha amount of additional yield was received in account of biostimulant.

When organic fertilizer was used in the amount of 40 t/ha and biostimulant 3 times in the amount of 2 and 3 l/ha, cotton yield was 37,3 and 37,1 q/ha. On the basis of the received information, when organic fertilizer was applied in the amount of 40 t/ha, mineral fertilizers N185 P130 K90 kg/ha and additionally biostimulant in the amount of 2 and 3 l/ha (in variants 9 and 10), it is expedient to use biostimulant in the amount of 2 l/ha.

CONCLUSIONS

In order to receive high yield in the condition of saline and low productive soil of the Republic of Karakalpakstan, actions of increasing soil productivity, improving meliorative condition of the land should be carried out. In present condition organic fertilizer should be applied in the amount of 40 t/ha, mineral fertilizers N185 P130 K90 kg/ha and in addition to this 2 l/ha of biostimulant 3 times in the period of vegetation. In this regime of nourishment receiving 37 q/ha cotton yield was provided.

Cotton yield connected to the regime of nourishment, q.ha

| Variants | Tiers | | | Average | Difference, ± |
|----------|-------|------|------|---------|---------------|
| | I | II | III | | |
| 1 | 28,0 | 27,5 | 27,0 | 27,5 | 00 |
| 2 | 24,0 | 24,5 | 26,5 | 25,0 | -2,5 |
| 3 | 25,0 | 23,0 | 22,5 | 23,5 | -4,0 |
| 4 | 28,5 | 27,1 | 27,8 | 27,8 | 0,3 |
| 5 | 32,0 | 33,0 | 29,0 | 31,6 | 4,1 |
| 6 | 35,0 | 33,3 | 34,0 | 34,3 | 6,8 |
| 7 | 34,0 | 32,0 | 34,8 | 33,6 | 6,1 |
| 8 | 36,0 | 35,0 | 35,8 | 35,6 | 8,1 |
| 9 | 38,3 | 37,0 | 36,6 | 37,3 | 9,8 |
| 10 | 37,5 | 36,0 | 37,8 | 37,1 | 9,6 |



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