



THE GROWTH AND DEVELOPMENT OF SUMMER WHEAT IN THE CONDITION OF ORGANIC AGRICULTURE

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ABSTRACT

The field experiment was conducted in order to determine the influence of organic agriculture on the growth and development of summer wheat in the condition of Karakalpakstan. According to the information of the experiment good results were achieved when only organic fertilizer was used in the amount of 60 t/ha without any mineral fertilizers and in addition to this the biostimulant phytovak was applied three times in order to feed the summer wheat and after gathering the yield of wheat sowing mung bean for siderate and plowing in autumn.

KEYWORDS. *Summer wheat, mineral, organic and siderate fertilizers, biostimulants, saline soil, productivity, yield, organic agriculture, ecological free product*

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.

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.

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.

Determining the optimal amount of organic fertilizer in the growth and development of summer wheat is an actual problem. Defining the effectiveness of using organic fertilizer in the growth and development of summer wheat in saline soil condition of Karakalpakstan.



METHODOLOGY OF THE RESEARCH

The field method was chosen as the methodology. Local type of summer wheat was selected for investigating in the experiment. There are 9 variants in the experiment, 1st variant is control, only mineral fertilizer N100 P70 K50 kg/ha was used, in 2nd, 3rd, 4th and 5th variants organic fertilizer was used in the amount of 30, 40, 50 and 60 t/ha without mineral fertilizers. In 6th, 7th, 8th and 9th variants phytovak biostimulant was used three times for the above mentioned fertilizers and in these variants after collecting wheat mung bean was sown as siderate fertilizer and plowed in autumn.

RESULTS OF THE RESEARCH AND ANALYZING THEM

When we determined the influence of using mineral and organic fertilizers in different norms together with biostimulants on the height of wheat stem and biometric indicators of wheat germ before gathering the product the following were obvious.

The height of wheat stem was average from 61,5 cm to 84,2 cm. In this the lowest indicator was observed when summer wheat was fed with only mineral fertilizer in the amount of N100 P70 K50 kg/ha (var. 1). In other variants when mineral fertilizers was used in the amount of 30, 40, 50 and 60 t/ha as a result of improving the feeding regime the indicators of growth and development was high. As can be seen from the table biometric indicators of wheat germ are higher when the amount of organic fertilizer was increased. When organic fertilizer was used in the amount of 30 t/ha the length of wheat germ was 7,0 cm, the number of grains in wheat germ - 34,0 pieces, weight of grains in wheat germ - 1,25 g and weight of 1000 grains - 35,0 g, and when 60 t/ha fertilizer was applied it was 8,0 cm, 38,0 pieces, 1,36 g and 37,5 g. As can be seen from this the requirement of the plant for nutrition is satisfactory when a huge amount of organic fertilizer is applied.

When additional to these organic fertilizers plants were fed with biostimulants 13 times, the height of the plant increased by 4-6 cm, the length of wheat germ - 0,1-0,3 cm, the number of grains in wheat germ - 1,0-1,5 pieces and weight of 1000 grains - 0,5-1,0 g. Therefore, it is expedient to feed summer wheat with 60 t/ha of organic fertilizer and biopreparations three times from the leaves in order to produce in organic agriculture in soil condition of the Republic of Karakalpakstan.



The Height of Summer Wheat Stem and Biometric Indicators of Wheat Germ

| Variants | in 2021 | | | | | in 2022 | | | | |
|----------|------------------------|------------------------------|---------------------------------------|-----------------------------------|--------------------------|------------------------|------------------------------|---------------------------------------|-----------------------------------|--------------------------|
| | The height of stem, cm | The length of wheat germ, cm | Number of grains in wheat germ, piece | Weight of grains in wheat germ, g | Weight of 1000 grains, g | The height of stem, cm | The length of wheat germ, cm | Number of grains in wheat germ, piece | Weight of grains in wheat germ, g | Weight of 1000 grains, g |
| 1 | 61,5 | 6,5 | 31,5 | 1,21 | 33,5 | 64,0 | 6,6 | 32,0 | 1,21 | 33,6 |
| 2 | 66,3 | 7,0 | 34,0 | 1,25 | 35,0 | 38,0 | 7,2 | 35,5 | 1,29 | 35,6 |
| 3 | 71,0 | 7,5 | 36,0 | 1,39 | 37,0 | 73,5 | 7,8 | 37,5 | 1,33 | 38,0 |
| 4 | 75,0 | 7,8 | 37,0 | 1,35 | 37,5 | 78,5 | 8,1 | 38,0 | 1,39 | 39,0 |
| 5 | 78,0 | 8,0 | 38,0 | 1,36 | 38,5 | 81,5 | 8,3 | 39,5 | 1,42 | 40,0 |
| 6 | 70,1 | 7,3 | 35,0 | 1,30 | 36,0 | 71,5 | 7,5 | 36,5 | 1,32 | 37,5 |
| 7 | 76,5 | 7,6 | 37,0 | 1,35 | 37,5 | 76,0 | 7,9 | 38,5 | 1,39 | 39,5 |
| 8 | 79,6 | 7,9 | 38,0 | 1,40 | 38,0 | 81,5 | 8,3 | 39,5 | 1,45 | 39,5 |
| 9 | 84,2 | 8,1 | 39,5 | 1,45 | 39,5 | 84,6 | 8,4 | 41,5 | 1,50 | 41,0 |

In 2022 the growth and biometric indicators of wheat germ of summer. The reason is that in 2021 after gathering summer wheat mung bean was sown for siderate and plowed in winter in all variants apart from the variant 1. This is an additional source of nutrition for used organic fertilizer and biostimulant.

The height of plant stem was 64,0-84,6 cm, the length of wheat germ -7,2-8,4 cm, number of grains in wheat germ - 35,5-41,5 pieces, weight of grains in wheat germ 35,6-41,0 g and this was higher than the indicators in 2021.

CONCLUSION

In order to produce ecological free product of summer wheat in the condition of the Republic of Karakalpakstan it is necessary to feed it with 60 t/ha of organic fertilizer, in addition to this 3 times with the phytovak stimulant 3 times in the amount of 0,8 l, sowing mung bean for siderate after gathering the yield in the first year, this creates comfortable condition for the growth and development of summer wheat in the second year.

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