



ЎУТ:

**PECULIARITIES IN GROWTH AND DEVELOPMENT OF WINTER
WHEAT IN CROP ROTATION**

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Annotation: *The soils of the Republic of Karakalpakstan are saline and have low fertility. In such conditions, it is impossible to get a high yield from agricultural crops, therefore, it is possible to increase soil fertility by crop rotation, using organic and siderate fertilizers. In the field experiment, winter wheat should be planted by planting previous crops before winter wheat, and additional 10 t/ha of manure was given after planting previous crops, previous crops + mung bean for siderate + 20 t/ha of manure was given. According to the results of the experiment, the growth and development of winter wheat was better when the predecessor crop mung bean was planted before winter wheat + mung bean for siderate + 20 t/ha of manure.*

Keywords: *Crop rotation, soil fertility, previous crops, organic fertilizer, winter wheat, siderate crop, growth and development.*

INTRODUCTION

The main goal of agricultural development in the countries of the world is to increase soil fertility, and scientific research is being conducted on this issue. In order to improve soil melioration and obtain high yield from crops, cotton and wheat are planted alternately with leguminous grains and leguminous oil crops. In developed countries, scientific research aimed at obtaining ecologically clean, high-quality yield from crops, maintaining and increasing soil fertility through scientifically based crop rotation systems is considered urgent. Currently, effective use of irrigated land, improvement of land reclamation, creation of salt-resistant crop types are of particular importance in Uzbekistan. This, in turn, is an urgent issue of conducting scientific research on increasing soil fertility and growing high yields of agricultural crops.

In Karakalpakstan, there are many problems in obtaining high yields from agricultural crops. The salinity of the soil of the region, the increase in the mineralization of the groundwater has a negative effect on the yield of crops and the fertility of the soil. Creation of new agrotechnologies for obtaining high yields from agricultural crops, development, improvement of equipment supply, increase



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of production, development of methods of use of leguminous crops in short crop rotation systems that increase soil fertility is the demand of today.

Methods of the research. Conducting field experiments, calculations, instructions and analyzes are carried out on the basis of methodological manuals "Methods of conducting field experiments", analyzes of soil and plants "Methods of agrophysical researches", "Methods of agrochemical analysis of soil and plants" and based on the methodological manual "Methodology of field experiment " by B.A.Dospehov.

Results of the research. For good growth and development of any agricultural crops, land reclamation should be satisfactory and soil fertility should be high. In order to improve land reclamation conditions, it is necessary to level them, wash them every year in good quality, and provide them with ditches so that underground water does not rise, and they should work throughout the year. To increase soil fertility, it is achieved by crop rotation, leaving more plant and root residues in the soil, and using organic and siderate fertilizers. We have been planting winter wheat after winter wheat in the control option since the start of the experiment.

In the 1st option of the experiment, winter wheat was planted in the fall of 2017 for the harvest of 2018. Before harvesting, plant stem height, spike biometric indicators and 1000 grain weight were determined.

According to the obtained data, the height of the stem was 76.1 cm, the length of the spike was 9.0 cm, the number of spikes was 11.0 pieces, the number of grains in one spike was 40.1 pieces, the weight of the grain in the spike was 1.68 g, the grain yield was 75.3% and 1000 pieces grain weight was 41.0 grams.

In the control variant, no agronomic measures affecting the growth and development of winter wheat were applied. Care was taken based on the recommendations given for the area.

In the second year (2019) of this option, when winter wheat was planted, we can see that all indicators have slightly decreased. That is, the height of the plant stem was 74.0 cm, the length of the spike was 8.5 cm, the number of spikes was 10.5, the number of grains in the spike was 38.5, the weight of the grain in the spike was 1.60 g, the grain yield was 74.5% and the weight of 1000 grains was 40.1 grams. All indicators were lower than those obtained in the first year of winter wheat. Winter wheat belongs to this group of crops that reduce soil fertility. Biometric indicators and productivity of winter wheat continue to decrease in the second and subsequent years, despite annual feeding with mineral fertilizers. That is why it is not recommended to plant winter wheat in one field for more than two years.



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When we experimentally compared the growth and development of winter wheat when continuously planted (var. 1) with its growth and development when it was planted in a short crop rotation system, it became clear.

Winter wheat was planted for the third time in 2020 in the control option. The height of the plant was 73.0 cm, the length of the spike was 8.3 cm, the number of spikes was 10.0, the number of grains in the spike was 38.0, the weight of the grain in the spike was 1.55 g, the grain yield was 74.0% and the weight of 1000 grains was 39.35 g. Biometric indicators of plant height and spike of winter wheat in the control option were lower than those in the options of crop rotation (var. 2-9).

Before winter wheat, mung bean, sesame and soybean are sown for grain as predecessor crops, and then winter wheat was planted in 2-4 variants, plant stem height was 80.7-81.5 cm, spike length was 9.1-9.3 cm, grain weight in spike was 1.68-1.70 g, grain yield was 75.8-76.4% and 1000 grain weight was 41.8-42.5 g, it was found to be higher than the control option.

Before winter wheat, previous crops were planted for grain, additional 10 t/ha of fertilizer was applied to it, and then winter wheat was planted in 5-7 variants, plant stem height was 86.4-87.8 cm, spike length was 9.7-10.1 cm, number of spikes was 12.6-13.1 grains, the number of grains in the spike was 43.5-44.1 grains, the grain yield was 77.0-77.5% and the weight of 1000 grains was 42.8-43.0 grams, this was higher than control option and compared to the indicators of options 2-4 when winter wheat was planted after the predecessor crops were planted for grain.

When mung bean was planted from the previous crops for grain, an additional 20 t/m of fertilizer was applied to it, and when winter wheat was planted (var. 8), the height of the plant stem was 89.5 cm, the length of the spike was 10.1 cm, the number of spikes was 13.5 pieces, the number of grains in the spike was 45.2 pieces, the weight of the grain in the spike was 1.82 g, the grain yield was 78.0% and the weight of 1000 pieces of grain was 44.5 grams, it was higher than the indicators of the options 5-7 when 10 t/m of manure was applied after previous crops, and then winter wheat was planted.

In option 9, where mung bean was planted for grain from previous crops, then mung bean was planted for siderate, an additional 20 t/ha of fertilizer was applied, and then winter wheat was planted, plant stem height was 92.5 cm, spike length was 10.5 cm, number of spikes was 13.8 pieces, the number of grains in the spike was 46.1, the weight of the grain in the spike was 1.82 g, the grain yield was 79.1% and the weight of 1000 grains was 45.0 grams, which is higher than all other options.



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Compared to the control option, the higher biometric parameters of the plant stem height and the spike can be estimated as the effect of the crop rotation, the predecessor crops included in the crop rotation, and the applied organic fertilizer of 10 and 20 t/ha. Crop rotation is necessary to ensure good growth and development of winter wheat in the saline soils of the Republic of Karakalpakstan. In this case, using the system of cotton: previous crop: grain: grain, in the first year, one year of cotton was applied to the first field, and next year, mung bean, sesame, and soybean were planted as previous crops in the spring before autumn wheat, and then 20 t/ha of manure should be applied. In this way, soil fertility increases, favorable conditions for winter wheat are created.

REFERENCES:

1. Ismailov U.E. Importance of crop rotation in cotton growing//Nukus "Karakalpakstan". - 1989. - 46 p.
2. Lykov A.M. Reproduction of soil organic matter in modern farming systems // Journal "Agriculture" 1988. - No. 9 - P. 20-22.
3. Lee V.N. Fertility of irrigated lands in Uzbekistan. - Tashkent. FAN 1989 - 144 p.
4. Namozov F.B., Iminov A.A. Effects of crop rotating cotton, winter wheat, and intercropping on soil fertility. // Journal "Agroilm" - Tashkent. 2016 - #4 (42) - p. 21-22.
5. Nazarov M., Gaybullaev M. Legumes and soil fertility. // Journal "Agroilm". - Tashkent. - 2017 No. 4 (48) -p. 83-84.