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INFLUENCE OF CROP ROTATION ON THE GROWTH AND DEVELOPMENT OF WINTER WHEAT

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Annotation. *Soils of the Republic of Karakalpakstan are salty and low in fertility. In such soils, the meliorative condition of soils should be improved and soil fertility should be increased for receiving high yield from agricultural crops.*

Field experiment was carried out in order to determine the influence of crops, which are included in the system of short-term crop rotation (1:2). In this, legumes (mung bean, sesame, soybean) were included in the system of short-term crop rotation as past crops, and it affected positively when it was sown in the following method: cotton: past crop mung bean for grain + mung bean for siderate + 20 t/ha manure then winter wheat: winter wheat.

Keywords: *crop rotation, winter wheat, growth, development, productivity, fertility, saline soils.*

Аннотация. *Почвы Республики Каракалпакстан засоленные и малоплодородные. На таких почвах необходимо улучшить мелиоративное состояние почв и повысить их плодородие для получения высокой урожайности сельскохозяйственных культур.*

Полевой опыт был проведен с целью определения влияния культур, входящих в систему короткоротационного севооборота (1:2). При этом бобовые культуры (маш, кунжут, соя) были включены в систему короткоротационного севооборота в качестве прошедших культур, что положительно сказалось при посеве по следующей схеме: хлопок: прошедший посев маш на зерно + маш на сидерат + 20 т/га навоза, затем озимая пшеница: озимая пшеница.

Ключевые слова: *севооборот, озимая пшеница, рост, развитие, урожайность, плодородие, засоленные почвы.*

Introduction. In order to improve the reclamation condition of the saline soils of the Republic of Karakalpakstan, it is necessary to level the land, apply organic fertilizers, wash the salt, and provide it with collectors.

To increase soil fertility, it is necessary to rotate crops, use organic and siderate fertilizers, and ensure that more plant residues are left in the soil.

A field experiment was conducted to determine the predecessor, intercrops and organic fertilizers planted before winter wheat.

Methods of the research. 1st variant of the experiment, continuous sowing winter wheat, 2-4th variants, sowing mung bean, sesame and soybean for grain before sowing winter wheat, 5-7th variants, sowing mung bean, sesame, soybean for grain, before winter wheat and additionally 10 t/ha manure was used and then

winter wheat was sown, 8th variant, mung bean was sown for grain before winter wheat and additionally manure added in the amount of 20 t/ha, 9th variant, mung bean was sown for grain, then it was sown for siderate and additionally 20 t/ha manure was used, then winter wheat was sown.

Results of the research and their analysis. In order to determine the influence of previous crops on the growth and development of winter wheat, the biometric indicators of the spike were determined at the end of the growing season. The previous crops were planted in the spring of 2019, and after harvesting them, winter wheat was planted in the autumn.

When we experimentally compared the growth and development of winter wheat when it was planted continuously (var. 1) with the growth and development of it when it was planted in a short-crop rotation system, the following 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 39.5 g. In the control variant, the plant height and biometric parameters of the spike of winter wheat were lower than those in the rotation variants (var. 2-9).

Before winter wheat, mung bean, sesame and soybean were sown for grain as predecessor crops, and then winter wheat was planted in 2-4 options, plant stem height was 80.7-81.5 cm, spike length was 9.1-9.3 cm, grain weight per spike was 1 ,60-1.70 g, grain yield was 75.8-76.4% and 1000 grain weight was 41.8-42.5 g, which 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 options, plant stem height 86.4-87.8 cm, spike length 9.7-10.1 cm, number of spikes 12.6-13.1, the number of grains in the spike was 43.5-44.1, the grain yield was 77.0-77.5% and the weight of 1000 grains was 42.8-43.0 grams, this was the control variant and it was higher compared to options 2-4, when winter wheat was planted after predecessor crops were planted for grain.

After sowing mung bean for grain from previous crops and adding fertilizer in the amount of 20 t/ha (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, the number of grains in the spike was 45.2, grain weight per spike was 1.82 g, grain yield was 78.0% and 1000 grain weight was 44.5 grams, after this previous crop, 10 t/m of fertilizer was

applied, and then winter wheat was planted in options 5-7, and it was higher compared to the indicators.

From the previous crops, mung bean was planted for grain, then mung bean was planted for siderate, additional 20 t/ha of manure was applied to it, and then winter wheat was planted in 9 variants, plant stem height was 92.5 cm, spike length was 10.5 cm, number of spikes was 13.8, the number of grains in the spike was 46.1, the weight of the grain in the spike was 45.0 grams, which is higher than all other options.

Compared to the control option, the height of the plant stem and the biometric parameters of the spike were higher in the rotation options, of course, it can be estimated that this rotation is the effect of the predecessor crops included in the rotation and the applied organic fertilizer in the amount of 10 and 20 t/ha.

Higher indicators in options 2-4, where previous crops were sown for grain and then winter wheat were planted, are positive effect of previous crops, indicators in options (var. 5-7) when previous crops were sown for grain, 10 t/ha of manure were applied to it, and then winter wheat was planted is higher compared to the indicators in options (var. 2-4) when only the preceding crops are planted for grain and then winter wheat, it is the effect of the preceding crops and 10 t/ha of manure, the preceding crops are planted for mush grain and 20 t/ha of manure is applied to it, then winter wheat and winter wheat after the predecessor crops to be higher than 5-7 options, this is the effect of predecessor crops and 20 t/ha of manure, we estimate that the indicators of the 9th option, where as a predecessor crop, mung bean is planted for grain, then mung bean is planted as a siderate, and it is fertilized at the rate of 20 t/ha, were higher than the indicators of all options as a positive effect of the previous crop planted for grain + mung bean for siderate + 20 t/ha of manure.

When we analyze the effect of planting winter wheat continuously by incorporating winter wheat into the crop rotation system, previous crops planted before winter wheat and applying organic fertilizers at 10 and 20 t/ha on winter wheat growth and development, we can see that it provides positive results compared to continuous winter wheat planting.

Conclusion. 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, in the first year, cotton is planted in the first field for a year, and before winter wheat in the following year, mung bean, sesame, soybean are planted as predecessor crops in the spring, and then 20 t/ha of manure should be applied. In this way, soil fertility increases, favorable conditions for winter wheat are created.

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