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**ASSESSMENT OF THE EFFECT OF ORGANIC NUTRIENTS ON THE YIELD
OF ALEKSEICH WHEAT VARIETY GROWN ON MODERATELY SALINE
MEADOW-ALLUVIAL SOILS**

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Abstract. This study investigated the effects of organic fertilizers, mineral fertilizers, and organic nutrient supplements on spike length, grain number per spike, grain weight, and yield of the Alekseich wheat variety under conditions of moderately saline meadow-alluvial soils.

In recent years, wheat has been cultivated on approximately 221 million hectares worldwide, and through the application of modern intensive technologies, global wheat production has reached about 770 million tons. According to experts, the world population is projected to exceed 9.1 billion by 2050. By that time, global nitrogen consumption is expected to increase 2.7 times and phosphorus consumption 2.4 times compared to current levels, which may intensify environmental stress. Under such conditions, the role of organic fertilizers in improving soil fertility and achieving high-quality and abundant yields becomes particularly important.

Numerous scientific studies conducted both in Uzbekistan and abroad have shown that the combined application of mineral and organic fertilizers enhances soil fertility, stimulates the activity of soil microorganisms, and consequently increases crop productivity. According to the findings of T. Toshkhojayev in the gray soils of the Tashkent region [3], S. Aripov in irrigated gray soils [1], and N. Ernazarov in the light gray soils of the Kashkadarya region [2], the combined use of mineral and organic fertilizers resulted in additional high-quality wheat yields. However, no scientific research has been conducted on the application of mineral fertilizers together with organic fertilizers and organic nutrient supplements for wheat cultivation under the conditions of moderately saline meadow-alluvial soils of the Republic of Karakalpakstan. Therefore, there is a need to carry out scientific investigations in this field.

Soil and plant samples were analyzed in the Ecology and Soil Analysis Laboratory of Karakalpak State University. In the experiment, each treatment plot covered 20 m², while one replication occupied 140 m². The total experimental area was 380 m². All treatments were arranged in a single tier. The research was conducted following the methodologies described in "Methods of Conducting Field Experiments" (Uzbek Research Institute of Cotton Growing, Tashkent, 2007) and B.A. Dospekhov's "Methodology of Field Experiments" (1985). The results obtained under the conditions of moderately saline meadow-alluvial soils



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demonstrated that the combined application of mineral fertilizers with organic fertilizers contributed to improved soil fertility and led to an increase in wheat yield.

1-Table

Yield of the Alexeich wheat variety

T/p	Options	Indicators per spike			A single ear		Number of spikes per 1 m ² , units	Yield per 1 m ² , g	Harvest t c/ha
		Length, cm	Number of grains, pcs	Grain weight, g	Grain weight, g	Shell weight, g			
1	N150P105 K85	7,1	30,2	1,7	1,2	0,5	317,4	380,8	38,0
2	NPK + 15 t/ha lessons	7,3	30,5	1,8	1,3	0,5	324,6	421,9	42,1
3	NPK + 15 t/ha of salt + 1 liter of bactamine	7,5	30,8	1,9	1,4	0,5	329,1	460,7	46,0
4	NPK + 15 t/ha of salt + 1.5 l of bactamine	7,8	31,3	1,9	1,4	0,5	331,4	463,9	46,3
5	NPK + 15 t/ha dosage + 2 l of bactamine	8,1	31,6	2,0	1,5	0,5	339,6	509,4	50,9
6	NPK + 15 t/ha of salt + 2.5 l of bactamine	8,0	32,1	2,0	1,5	0,5	339,1	508,6	50,8
7	NPK + 15 t/ha lessons + 3 l of bactamine	8,3	32,6	2,1	1,5	0,6	338,7	508,0	50,8

Organic fertilizers were applied in combination with phosphorus and potassium fertilizers during autumn plowing, while organic fertilizers were applied during the wheat growth period, i.e., before irrigation.

According to the data in Table 1, compared to the first variant with mineral fertilizers, the variants used in combination with organic fertilizers differ in their influence on the number of bolls per spike, length, and spike weight. In the 5th variant of our experiment, the highest indicator was observed: the application of N150P105K85 + 15 t/ha of bactamine + 2 l influenced the length, number, and weight of grains per spike; the yield

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was 50.9 c/ha, and an additional 12.9 c/ha yield was achieved compared to the variant using mineral fertilizers.

In conclusion, high wheat yields in the meadow-alluvial soils of the Republic of Karakalpakstan were obtained with the application of N150P105K85 + 15 t/ha of bactamine + 2 l.

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