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**EFFECTS OF MINERAL FERTILIZERS AND ACTIVE BIOSTIMULANTS
ON THE STRUCTURE AND PRODUCTIVITY OF WINTER WHEAT
VARIETY "BAKHMAL-97".**

*Kushmatov Bakhtiyor Sadullayevich¹.
Mavlanov Laziz Bakhtiyor o'g'li².
Bakhmal Scientific Experimental Station.*

Annotation. In this article, the norms of application of various mineral fertilizers and active biostimulants on the structure and productivity of soft wheat variety Bahmal-97 in the mountain region of drylands were studied. The information obtained as a result of these studies is scientifically based.

Key words. Bread wheat, spike, number of grains in spike, 1000 grain weight, grain size weight, harvest, variety, moisture, mineral fertilizer rate, biostimulant, nitrogen, phosphorus, potassium, soil fertility

Today, the area of dry farming is 1.4 billion. hectares or 85-87% of the total cultivated area. At the moment, mainly drylands are spread in Afghanistan, Iran, China, India, Pakistan and Central Asian countries.

The grain yield from dryland areas has decreased sharply by now, and one of the main reasons for this is the improper use of the crop rotation system. Also, a sharp change in weather conditions during the grain-filling period of spiky grain crops causes a decrease in the productivity of the spike, a lack of moisture in the soil, and failure to perform agrotechnical measures on time [1].

To prevent this, first of all, it is necessary to carry out autumn and spring plowing in a timely and high-quality manner, to establish the rotation system correctly, to thoroughly work the soil before planting, to correctly determine the planting dates and planting standards, to use organic and mineral fertilizers correctly and effectively, and to use modern technologies of today. use is an important agrotechnical activity.

Based on the average long-term data, if agrotechnical activities are carried out in reasonable terms, plowing and harrowing of the land in the semi-moistened hilly region of the Republic, during the period of sowing grain crops with autumn spikes, the soil will have an average of 790-800 m³/ha, and 1200- 1500 m³/ha of moisture is accumulated [2; 3.].

During the period of grain formation in the plant, the weight of 1000 grains decreases sharply as a result of high temperatures, lack of moisture in the soil, lying down of stems, damage by pests and diseases [4; 5.].

The purpose of the study. Development of agrotechnology for cultivation of soft wheat variety Bahmal-97 in conditions of dark gray soils of mountainous region of dry lands and recommendation for production.

The object of the study. Bread wheat Bahmal-97 variety, nitrogen, phosphorus, potassium from mineral fertilizers and aminoside silicon from stimulants were taken as the object of research work.

Research methods: Based on phenological observations, the International Classification of CMEA type Triticum, developed by the Russian Institute of Plant Growing, was adopted (1984 r.) [6]. Biometric measurements of agricultural crops by the State Variety Testing Commission (1989 r.) [7], field experiments were determined according to Dospheov's method [8].

Research results. In the reporting year, in the control option 1 of the experiment without fertilizers, the plant height was 90.1 cm, the productive stalks were 131.4 pieces, the coefficient of clustering was 1.2 pieces, the number of grains in the spike was 19.8 pieces, the weight of the grain in one spike was 1,2 g, the length of the spike was 9.1 cm, the weight of 1000 grains was 42.0 g, the volume weight of the grain was 810.4 g.

The remainder of the experiment was P₃₀K₃₀ (Fon) before planting, (Fon) N₃₀ susp-1, (Fon) N₄₀ susp-1, (Fon) N₅₀ susp-1, (Fon) N₃₀ susp-2, (Fon) N₄₀ susp-2, (Fon) N₅₀ susp-2 and (Fon) N₃₀ suspension-2; 1+1, (Fon) N₄₀ suspension-2; 1+1, (Fon) N₅₀ suspension-2 at planting + seedling fertilizer was used in options 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11, respectively, plant height 90,6-101,0 cm, productive stalks 156.5-226.2 grains, accumulation coefficient 1.4-1.6 grains, number of grains in a spike 23.0-28.1 grains, grain weight in one spike 1,3-1.8 g, spike length 10.0-12.3 cm, weight of 1000 grains 42.5-48.2 g, volume weight of grain 812.8-821.1 grams /liter was up to. (Table 1).

*Table 1**Yield elements of the bread wheat variety Bakhmal-97, Bakhmal SES 2022-2023 yy.*

No	Rate of mineral fertilizers and active biostimulants, kg/ha	Plant height	productive stems	Accumulation coefficient, pc	The number of grains in one	The weight of grain in one	Spike length, cm	Weight of 1000 grains, g	Grain size weight, g/l
2022 year									
1	Control (no fertilizer)	90,1	131,4	1,2	19,8	1,2	9,1	42,0	810,4
2	P30K30 (fon) before planting	94,0	164,0	1,4	23,1	1,3	10,0	43,1	812,8

3	(fon) N30 suspension - 1	93,8	156,5	1,4	23,0	1,3	10,2	43,4	819,1
4	(fon) N40 suspension - 1	94,2	160,3	1,4	23,8	1,5	10,3	43,8	817,4
5	(fon) N50 suspension - 1	93,0	176,6	1,4	24,3	1,5	10,5	42,9	817,4
6	(fon) N30 suspension - 2	93,8	163,9	1,5	24,5	1,7	11,5	42,5	818,8
7	(fon) N40 suspension - 2	95,5	183,7	1,5	25,7	1,7	11,5	46,1	814,9
8	(fon) N50 suspension - 2	90,6	179,5	1,5	25,8	1,7	11,3	46,7	815,8
9	(fon) N30 suspension - 2; 1+1	99,2	174,7	1,5	26,7	1,8	12,1	46,3	818,9
10	(fon) N40 suspension - 2; 1+1	99,8	181,1	1,6	26,4	1,8	11,8	47,5	819,8
11	(fon) N50 suspension - 2; 1+1	101,0	226,2	1,6	28,1	1,8	12,3	48,2	821,1
2023 year									
1	Control (no fertilizer)	85,1	131,2	1,0	19,8	0,7	9,1	35,8	799,4
2	P30K30 (fon) before planting	91,0	152,7	1,1	23,1	0,8	10,0	35,9	802,8
3	(fon) N30 suspension - 1	92,8	161,1	1,1	23,0	0,9	10,1	37,1	815,1
4	(fon) N40 suspension - 1	91,2	149,8	1,1	23,8	0,9	10,1	38,1	811,4
5	(fon) N50 suspension - 1	93,0	142,3	1,1	24,3	0,9	10,3	38,4	815,4
6	(fon) N30 suspension - 2	93,5	155,6	1,1	24,5	1,0	10,5	38,8	800,8
7	(fon) N40 suspension - 2	92,5	181,7	1,1	25,7	1,0	10,5	38,5	809,2
8	(fon) N50 suspension - 2	90,6	196,3	1,1	25,8	1,0	10,3	38,5	812,8
9	(fon) N30 suspension - 2; 1+1	95,2	175,5	1,1	26,7	1,1	11,1	39,2	810,5
10	(fon) N40 suspension - 2; 1+1	94,8	169,7	1,1	26,4	1,1	11,0	4,01	812,8

1	(fon) N50 suspension -	94,0	188,3	1,1	28,1	1,1	11,3	4,03	819,1
1	2; 1+1								

According to the obtained results, in the 11th variant of the experiment (background) N50 suspension-2 was used at the time of planting + seedling fertilizer and control without fertilizer compared to option 1, the height of the plant is 10.9 cm, the productive stalks are 94.8 pieces, the coefficient of clustering is 0.4 pieces, the number of grains in the spike is 8.3 pieces, the weight of the grain in one spike is 0.6 g, the length of the spike is 3.2 cm, the weight of 1000 grains was 6.2 g, the volume weight of grain was 10.7 g/l. In the 2023 year of our study, similar patterns were observed.

The productivity of grain crops mainly depends on the genetic characteristics of the variety and the conditions of its cultivation. Environmental conditions are an important factor in increasing the productivity of any grain crops [9]. Loss of grain in grain crops and decrease in the weight of 1000 grains, in turn, cause low productivity [10].

When analyzed by grain yield, the yield of winter wheat Baxmal-97 variety in the 1st variant of the experiment without fertilizer, the average grain yield was 8.1 centners, the remaining P₃₀K₃₀ (fon) before planting, (fon) N₃₀ susp-1, (fon) N₄₀ susp-1, (fon) N₅₀ susp-1, (fon) N₃₀ susp-2, (fon) N₄₀ susp-2, (fon) N₅₀ susp-2 and (fon) N₃₀ suspension-2; 1+1, (fon d) N₄₀ suspension-2; 1+1, (fon) N₅₀ suspension-2; 1+1 applied fertilizer 2, in options 3, 4, 5, 6, 7, 8, 9, 10 and 11, grain yield was 9.1-16.0 centners per hectare (Table-2).

Table-2

*Grain yield of the Bakhmal-97 variety
Bakhmal SES 2022-2023 yy.*

№	Rate of mineral fertilizers and active biostimulants, kg/ha	Урожайность зерна, ц/га		Average yield, s/ha	Difference with control	
		2022 y	2023 y		±s/ha	%
1	Control (no fertilizer)	9,1	7,1	8,1	-	-
2	P30K30 (fon) before planting	10,1	8,2	9,1	1,0	112,3
3	(fon) N30 suspension -1	11,4	9,4	10,4	2,3	128,3
4	(fon) N40 suspension -1	11,4	9,6	10,5	2,4	129,6
5	(fon) N50 suspension -1	11,8	10,8	11,3	3,2	139,5
6	(fon) N30 suspension -2	12,1	11,6	11,8	3,7	145,6
7	(fon) N40 suspension -2	13,4	12,2	12,8	4,7	158,0
8	(fon) N50 suspension -2	13,8	12,8	13,3	5,2	164,1

9	(fon) N30 suspension -2; 1+1	14,0	13,0	13,5	5,4	166,6
10	(fon) N40 suspension -2; 1+1	14,4	13,4	13,9	5,8	171,6
11	(fon) N50 suspension -2; 1+1	16,7	15,4	16,0	7,9	197,5

As can be seen from the obtained results, the control of the experiment without fertilizer in option 1, the average grain yield was 8.1 s/ha compared to the control, and in option 11, where the background + N₅₀ suspension-2; fertilizer was used 1+1 the highest was 16.0 centners per hectare, an additional 7.9 centners were harvested.

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