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The Effect of Planting Period, Seed and Mineral Fertilizers on Harvest Elements and Yield of Trikale "Sardor" Variety

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Annotation. In this article, the effect of planting time, seed and mineral fertilizer rates on yield elements and grain yield of triticale "Sardor" variety in the conditions of dry typical gray soils of Jizzakh region is studied.

Key words. Triticale, corn, the number of grains in one spike, weight of one spike, spike length, weight of 1000 grains, planting period, rate of mineral fertilizers. productivity.

Introduction. Advances in science and efficient and effective use of advanced technical tools in obtaining high yields from agricultural crops adapted to each soil and climatic condition are the guarantee of increasing grain yield. In order to obtain a high and high-quality abundant harvest of triticale crops, it is important to use the appropriate planting time, seed rates, and the optimal rate of feeding with mineral fertilizers.
Triticale is a common new food and fodder crop in Uzbekistan. It is a high-yielding grain crop resistant to disease and pests, lodging and other unfavorable weather conditions of the outdoor environment. This crop is a hybrid of wheat and rye, which combines the qualities of wheat and rye as well as other valuable traits and characteristics.
Triticale crops maximize grain yield when planted at optimal times [1]. Also, planting dates have a significant effect on the rate of seed germination, the formation of the seed root system, the speed of development phases, the accumulation of sugar in the nodules and leaves, resistance to winter, diseases and pests, and grain yield. [2].
Optimum periods of autumn grain sowing in dry fields of Jizzakh region are different: It is the first ten days of November in the lowland regions of the plain, in the second half of October in the mountainous regions, and in the foothills and mountainous regions it is the first ten days of October [3]. One of the agrotechnical factors that has a significant impact on productivity is the rate of seeding [4]. Planting rate of triticale plant is the same as that of wheat, 3.5-4.5 million units per million units can be planted, and 4.5-5.5 million units can be planted in fertile and moist enough conditions [5].

The purpose of the study: To study the effect of planting time, seed and mineral fertilizers on the growth, development and productivity of triticale plant created for semi-moistened plains and hilly regions and development of agrotechnology of cultivation.

Research methods and conditions: Field experiments were conducted at the central experimental site of the Gallaorol scientific-experimental station of the Scientific-Research Institute of Grain and Legume Crops, Gallaorol District. The soils of the experimental field are typical gray soils. The experiment consisted of 30 options, planted in two tiers in 4 returns, in autumn (1-10.11) and spring (20-28.02) periods. Placement of field experiments and mathematical analysis According to B. A. Dospekhov (1985) [6].

Research results: According to the data obtained from the experiment in 2019, the sowing rate in the autumn term (1-10.11) is 2.5 million pieces of germinating seeds. In the control (without fertilizer) option 1, the spike length is 8,6 cm, the number of grains in one spike is 21,7 grains, the number of grains in one spike is the weight of 1,2 g, the weight of 1000 grains is 39,8 g, mineral fertilizers P30 K30 Fon, Fon+N30, Fon+N40, Fon+N50 used in standards 2, 3, 4, and 5 respectively, spike length 10,1-11,3 cm, the number of grains in one ear is 22,3-24,7 pieces, the grain weight of one spike was 1,2-1,3 g, the weight of 1000 grains was 40,4-43,6

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g. Sowing rate is 3.0 million fertile seeds, control (without fertilizer) planted in the 6th option, spike length is 9,0 cm, number of grains in one spike is 23,3, grain weight in one spike is 1,1 g, 1000 grains weight is 38,6 g, mineral fertilizers P30 K30 Fon, Fon+N30, Fon+N40, Fon+N50 were used in the standards 7, 8, 9 and 10, respectively, the length of the spike is 11,1-12,8 cm, the number of grains in one spike is 23,6-24,1 units, the grain weight of one spike was 1,2 g, and the weight of 1000 grains was 42,3-45,6 g. The sowing rate is 3.5 million fertile seeds. In the 11 th variant of the control (without fertilizer), the length of the spike is 9,6 cm, the number of grains in one spike is 20,2, the weight of grains in one spike is 1,0 g, the weight of 1000 grains is 39,6 g of mineral fertilizers P30 K30 Fon, Fon+N30, Fon+N40, Fon+N50 were used in the 12, 13, 14 and 15 options, respectively, the length of the spike is 10,3-11,4 cm, the number of grains in one spike is 21,2-21,8 units, it was determined that the grain weight of one spike was 1,1 g, and the weight of 1000 grains was 41,2-42,3 g.

In the spring term of the experiment on the same indicators (20-28.02) when studied, the planting rate was 2.5 million viable seeds, in the 16 th variant of control (without fertilizer), the length of the ear was 8,5 cm, the number of grains in one ear was 21,3, the weight of the grain in one ear was 1,1 g. The weight of 1000 grains is 32,8 g, mineral fertilizers P30 K30 Fon, Fon+N30, Fon+N40, Fon+N50 were used in the norms 17, 18, 19 and 20 respectively, the ear length is 9,1-9,6 cm, one the number of grains in the ear is 22,3-24,4 pieces, the grain weight of one spike was 1,1-1,2 g, and the weight of 1000 grains was 34,8-37,6 g.

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Table-1
Triticale crop elements, 2020

Planting period			Autumn term (1-10.11)				Spring term (20-28.02)			
			2020 year				2020 year			
№	Planting norm, mln/ha	The norm of mineral fertilizers, kg/ha	Spike length, sm	Number of grain per spike, gr	Average single spikeweight,gr	weight of 1000 grains	Spike length, sm	Number of grain per spike, gr	Average single spikeweight,gr	weight of 1000 grains
1	2,5	Control (without fertilizer)	8,6	21,7	1,2	39,8	8,5	21,3	1,1	32,8
2		P_{30} K_{30} Фон	11,3	22,9	1,2	41,4	9,1	22,3	1,1	35,2
3		Фон+N_{30}	11,2	24,7	1,3	43,6	9,6	24,4	1,2	37,6
4		Фон+N_{40}	10,3	22,3	1,2	40,4	9,6	24,2	1,1	35,0
5		Фон+N_{50}	10,1	23,5	1,3	42,4	9,4	22,7	1,1	34,8
6	3,0	Control (without fertilizer)	9,0	23,3	1,1	38,6	8,8	20,7	0,9	33,8
7		P_{30} K_{30} Фон	11,7	23,8	1,2	42,7	9,5	23,2	1,0	35,4
8		Фон+N_{30}	12,8	24,1	1,2	45,6	9,7	24,3	1,0	36,6
9		Фон+N_{40}	11,1	23,6	1,2	42,3	9,2	23,1	1,0	33,6
10		Фон+N_{50}	11,4	23,4	1,2	42,5	9,1	22,5	0,9	31,8
11	3,5	Control (without fertilizer)	9,6	20,2	1,0	39,6	8,7	19,7	0,8	33,4
12		P_{30} K_{30} Фон	10,3	21,2	1,1	41,2	9,4	22,6	0,9	35,4
13		Фон+N_{30}	11,2	21,7	1,1	41,4	9,9	24,9	0,9	38,3
14		Фон+N_{40}	11,4	21,8	1,1	42,3	9,2	22,1	0,9	35,6
15		Фон+N_{50}	10,9	21,4	1,1	41,9	9,1	21,6	0,8	34,2

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Sowing rate is 3.0 million fertile seeds, control (without fertilizer) planted in option 21, spike length is 8,8 cm, number of grains in one spike is 20,7 grains, grain weight in one spike is 0,9 g, 1000 grains weight is 33,8 g of mineral fertilizers P30 K30 Fon, Fon+N30, on+N40, Fon+N50 were used in the norms 22, 23, 24 and 25, respectively, the spike length is 9,1-9,7 cm, the number of grains in one spike is 22,5-24,3 piece, the grain weight of one spike was 0,9-1,0 g, and the weight of 1000 grains was 31,8-36,6 g. The sowing rate is 3.5 million fertile seeds. In the control (without fertilizer) option 26, the length of the spike is 8,7 cm, the number of grains in one spike is 19,7, the weight of grains in one spike is 0,8 g, the weight of 1000 grains is 33,4 g, mineral fertilizers P30 K30 Fon, Fon+N30, Fon+N40, Fon+N50 were used in the standards 27, 28, 29 and 30 respectively, the spike length is 9,1-9,9 cm, the number of grains in one spike is 21,6-24,9 grain, the grain weight of one spike was 0,8-0,9 g, and the weight of 1000 grains was 34,2-38,3 g. (Table 1).

According to the 2020 data of the experiment, in the autumn term (1-10.11) when we studied grain yield, the planting rate was 18.6 t/ha in the control (without fertilizer) option 1 planted at the expense of 2.5 million viable seeds, mineral fertilizers P30 K30 (Fon), (Fon) N30, (Fon) in options 2, 3, 4, and 5 used in N40, (Fon) N50 standards averaged 21.9-26.8 ts/ha. Sowing rate was 20.6 t/ha in the control (without fertilizer) option 6 planted at the expense of 3.0 million viable seeds, mineral fertilizers were applied in the rates of P30 K30 (Fon), (Fon) N30, (Fon) N40, (Fon) N50 in options 7, 8, 9, and 10, the average was 24.6-28.2 ts/ha. Sowing rate was 18,6 t/ha in the control (without fertilizer) option 11, planted at the expense of 3.5 million viable seeds, mineral fertilizers were applied in the rates of P30 K30 (Fon), (Fon) N30, (Fon) N40, (Fon) N50 12, 13, 14, and 15 options were found to be 21,5-26,8 ts/ha on average.

Triticale grain yield, 2020

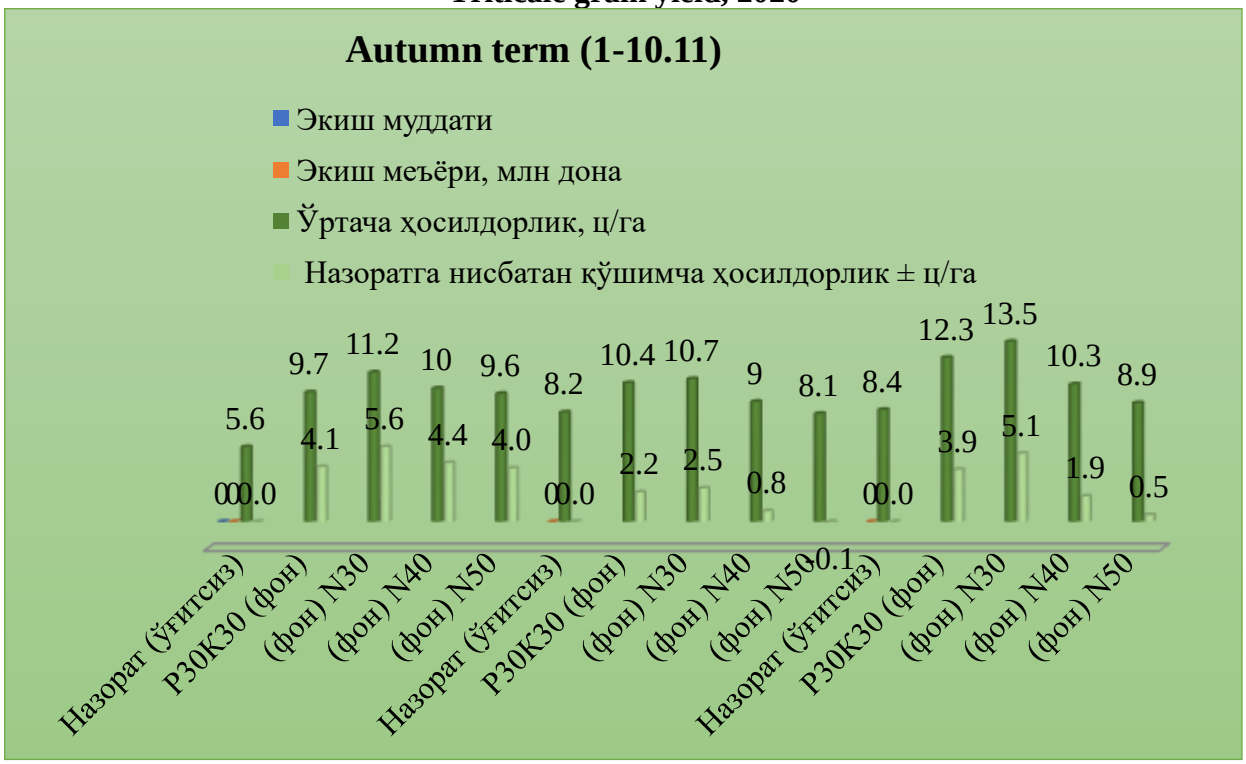

Figure 1

When studying this indicator in the spring term of the experiment (20-28.02), the planting rate was on average 5.6 t/ha in the 16th variant of the control (without fertilizer) planted at the expense of 2.5 million pieces of germinating seeds, mineral fertilizers P30 K30 (Fon), (Fon) N30, (Fon) N40, (Fon) N50 in options 17, 18, 19, and 20 used in the norms averaged 9.7-11.9 ts/ha. Sowing rate was 8.2 t/ha in the control (without fertilizer) option 21, planted with 3.0 million viable seeds, mineral fertilizers P30 K30 (Fon), (Fon) N30, (Fon) N40, (Fon) N50 were applied. 22, 23, 24, and 25 variants averaged 8.1-10.7 ts/ha. Sowing rate was 8.4 t/ha in the control (without fertilizer) option 26 planted at the expense of 3.5 million viable seeds, mineral fertilizers were applied in the rates of P30 K30 (Fon), (Fon) N30, (Fon) N40, (Fon) N50 it was determined in the experiment that in options 27, 28, 29, and 30 the average was 8.9-13.5 ts/ha.

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Triticale grain yield, 2020

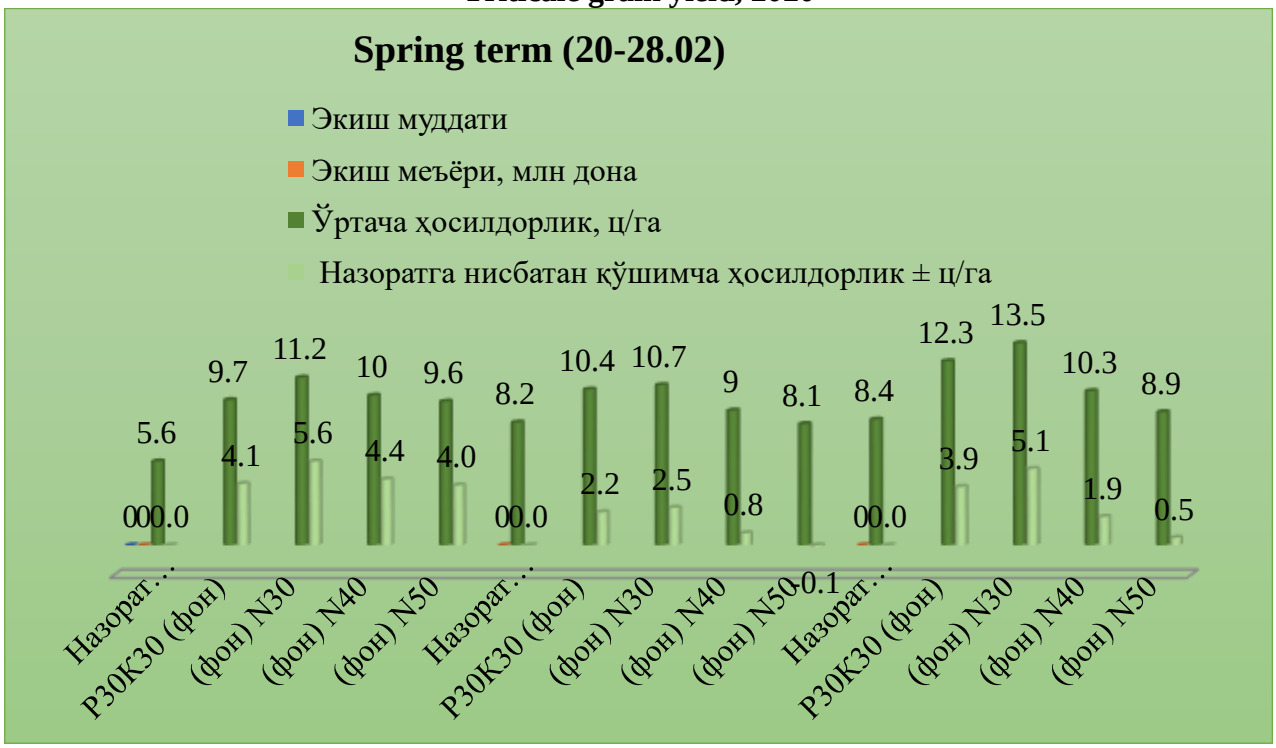

Figure 2

Conclusion. When we studied the yield of triticale "Sardor" in the autumn period in the conditions of dry, typical gray soils of Jizzakh region, the highest indicator was at the rate of planting 3.0 million seeds, mineral fertilizers (Fon) N30 in the 8th option, 28.2 t/ha, control (without fertilizer) 7.6 t/ha compared to the option, and in the spring period, the planting rate is 3.5 million pieces of germinating seeds, mineral fertilizers (Fon) N30 were used in the 28 th option 13.5 t/ha, compared to the control (without fertilizer) option 5.1 t / was found to be higher in the experiment.

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