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Research Article

THE EFFECT OF THE PLANTING OF CORN TYPES AND THE APPLICATION OF CULTURAL FERTILIZERS

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ABSTRACT

The purpose of the research is to determine the seed viability of the cultivars grown in the conditions of Karakalpakstan, the impact of planting periods on the productivity of the varieties of tall corn grown in the conditions of the application of fertilizers, in order to determine the seed viability of the varieties in laboratory conditions.

KEYWORDS

Whole corn, mineral fertilizers, seed, grain, productivity, temperature, options.

INTRODUCTION

Relevance and necessity of the research topic. Today, there is a high growth in grain processing plants in the world. Flour production enterprises are one of the leading branches of food production.

In the strategy of actions for the further development of the Republic of Uzbekistan, it is important to "...develop production sectors, modernize and diversify the industry, apply energy-saving methods of material consumption in practice, ensure the nutritional security of food products, prepare competitive and exportable products that replace import" tasks are defined.

Research methods: placement of experiments in field and laboratory conditions, calculations and observations "Methods of conducting field

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experiments", analysis of soil and plants "Methods of agrochemical analyzes of soils and plants", "Methods of agrophysical research" based on methodological manuals, grain quality from indicators of protein content according to the Keldal method, by incineration in the field (degreasing), statistical analysis of the obtained results based on the Microsoft Excel program and B.A. Dospehov's methodical manual "Field experiment methodology" and economic efficiency based on the N.A. Baranov method implemented[1,2].

The results of the research: in the conditions of the alluvial soils of the saline meadow of Karakalpakstan and in the research work conducted in the plant science laboratory of the Institute of Agriculture and Agrotechnology of Karakalpakstan, when phenological observations of sorghum varieties were carried out, the rate of sowing its seeds and It was determined that it changed depending on the rate of fertilizers. Planting rate and mineral fertilizer rates used in the experiment affected the growth of Corn varieties. Jo'hari cultivars are slow growing in their first year of life and have been adapted to both flowering and grain yield. Stem height 1.06; 1.07; 1.08; Measured on 1.09 dates.

When sowing Jo'hari seeds at the rate of 20 kg per hectare and applying fertilizer at three different rates (N50P70K60, N100P140K80 and N150P200K120 kg/ha), the height of the first year's sweet potato is 36.5-42.8 at 1.06 cm, 1.07 75.2-83.2 cm 1.08 95.2-125.5 cm 1.09 130.5-195.2 cm.

The height of the stem is 36.5-42.8 in comparison with the variant of the first standard of fertilizer used in the middle standard of fertilizer; cm from 130.5-195.2; cm was found to be higher. During the period of operation, the rate of growth of corn does not go at the same rate. Average growth per day when 20 kg/ha seed was planted was 0.39-0.33 cm in the first month, 2.5-2.8 cm in the second month and 3.17-4.2 cm in the third month . It should be pointed out that the optimal growth of sweet potato was observed in the first year when the seed sowing rate was 25 kg per hectare and mineral fertilizer was used at the rate of N100P140K80 kg/ha. (Table 1).

Table 1

Effect of sowing and mineral fertilizers on the growth dynamics of the corn's plant, cm (2021)

T/r	Variants		Stem height, cm			
	planting standard kg/ha	rate of mineral fertilizers, kg/ha	1.06	1.07	1.08	1.09
1	20	$N_{50}P_{70}K_{60}$	36,5	75,2	95,2	130,5
2		$N_{100}P_{140}K_{80}$	42,8	83,2	125,5	195,2
3		$N_{150}P_{200}K_{120}$	40,1	80,5	110,5	170,5
4	25	$N_{50}P_{70}K_{60}$	40,3	80,3	110,2	140,5

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5		$N_{100}P_{140}K_{80}$	43,1	90,5	140,5	210,5
6		$N_{150}P_{200}K_{120}$	44,6	85,5	124,6	190,3
7	30	$N_{50}P_{70}K_{60}$	31,9	70,5	87,5	110,6
8		$N_{100}P_{140}K_{80}$	36,1	80,5	120,5	170,5
9		$N_{150}P_{200}K_{120}$	30,4	78,6	105,5	150,4
		Daily growth, cm				
1	20	$N_{50}P_{70}K_{60}$	1,21	2,20	3,17	4,35
2		$N_{100}P_{140}K_{80}$	1,42	2,77	4,18	6,50
3		$N_{150}P_{200}K_{120}$	1,33	2,68	3,68	5,67
4	25	$N_{50}P_{70}K_{60}$	1,34	2,67	3,67	4,68
5		$N_{100}P_{140}K_{80}$	1,43	3,01	4,68	7,01
6		$N_{150}P_{200}K_{120}$	1,48	2,85	4,15	6,34
7	30	$N_{50}P_{70}K_{60}$	1,10	2,35	2,91	3,68
1		$N_{100}P_{140}K_{80}$	1,20	2,68	4,01	5,68
2		$N_{150}P_{200}K_{120}$	1,00	2,62	3,51	5,01

The effect of sowing and mineral fertilizers on the growth dynamics of the Corn plant, the growth of Corn in the second year is presented in Table 2. When fertilizers are applied to the corn plant at the rate of N50P70K60 kg/ha in the first option, the plant height is 56.3 cm in 1.06, 86.2 cm in 1.07, 115.6 cm in 1.08, 1.09 It was 140.5 cm. In the second option, i.e., in the second option, where fertilizer was applied at the rate of N100P140K80 kg/ha, the plant height was 70.4; 90.6; 130.5; It was 210.6 cm. Fertilizer rate of N150P200K120 kg/ha, in the third option used, when it reached 1.08 months of corn, it was observed that it lays down differently during the fertilization period. It can be explained that the reason for this is the use of nitrogen fertilizer at a high rate (Table 2).

Table 4.2.2

The effect of planting and fertilizing rates on the growth of corn in the second year, cm (2022)

T/r	Variants		Stem height, cm			
	planting standard kg/ha	rate of mineral fertilizers, kg/ha	1.06	1.07	1.08	1.09
1	20	$N_{50}P_{70}K_{60}$	56,3	86,2	115,6	140,5
2		$N_{100}P_{140}K_{80}$	70,4	90,6	130,5	210,6
3		$N_{150}P_{200}K_{120}$	60,7	80,2	110,6	120,4
4	25	$N_{50}P_{70}K_{60}$	58,2	92,5	122,4	165,6
5		$N_{100}P_{140}K_{80}$	65,6	110,8	150,6	230,5
6		$N_{150}P_{200}K_{120}$	60,4	95,2	130,8	140,2

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7	30	$N_{50}P_{70}K_{60}$	52,1	80,5	100,2	120,5
8		$N_{100}P_{140}K_{80}$	60,7	86,7	120,2	160,2
9		$N_{150}P_{200}K_{120}$	60,1	72,6	100,5	115,6
Daily growth, cm						
1	20	$N_{50}P_{70}K_{60}$	1,87	2,87	3,85	4,68
2		$N_{100}P_{140}K_{80}$	2,34	3,02	4,35	7,02
3		$N_{150}P_{200}K_{120}$	2,02	2,67	3,68	4,01
4	25	$N_{50}P_{70}K_{60}$	1,94	3,08	4,08	5,52
5		$N_{100}P_{140}K_{80}$	2,18	3,69	5,02	7,68
6		$N_{150}P_{200}K_{120}$	2,01	3,17	4,36	4,67
7	30	$N_{50}P_{70}K_{60}$	1,73	2,68	3,34	4,01
8		$N_{100}P_{140}K_{80}$	2,02	2,89	4,00	5,34
9		$N_{150}P_{200}K_{120}$	2,00	2,42	3,35	3,85

In the fifth option, when growing corn, 25 kg/ha of N100P140K80 kg/ha were fertilized, the height of the plants measured on 1.06 was 65.6 cm, 1.07 was 110.8 cm, 1.08 was 150.6 cm and 1.09 was 230.5 cm, and it was observed that the height of the stem was low in the remaining options. The reason is that the thickness of the seedling is very high, and it was observed that the plant lay down. During the second year of operation, daily growth is 1.94-2.18 cm in the sixth month, 3.08-3.69 cm in the seventh month, 4.08-5.02 cm in the eighth month, and 5.52-7 in the ninth month. It was 68 cm.

The height of the stem is 4.9 compared to the first rate of fertilizer in the medium fertilizer rate used; 6.3; It was found to be 4.8 cm higher.

The growth rate of sorghum during the period of operation is not uniform. The average growth per day when 20 kg/ha of seed is planted is 1.87-2.34 cm in the sixth month, 2.87-3.02 cm in the seventh month, 3 in the eighth month. .85-4.35 and in the ninth month it was 4.68-7.02 cm.

It was determined that the number of leaves and seeds depends on the rate of mineral fertilizers, and the number of leaves is up to 8-17 pieces (on one stem) and the number of seeds is up to 950-1850 grains.

The number of seeds was 1010 pieces on 1.09 in the first option, where the standard amount of fertilizers N50P70K60 was applied at 20 kg/ha, in the second option it was 1310 pieces, and in the third option it was 950 pieces. The standard planting rate of 25 kg/ha of N100P140K80 mineral fertilizers was 1210 units in the fourth option, 1850 units in the fifth option, and 1100 units in the sixth option. Planting norm N150P200K120 in the amount of fertilizers norm was 1000 units in the seventh option, 1200 units in the eighth option and 1050 units in the ninth option (Fig. 1).

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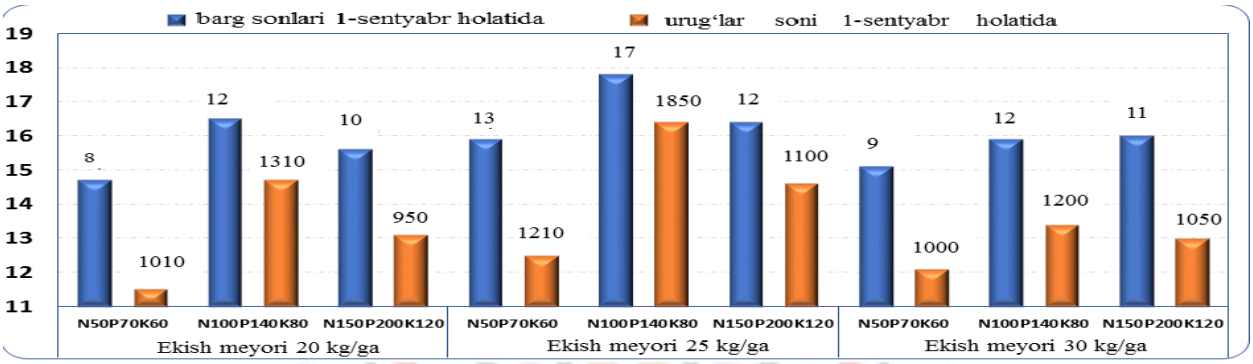

Figure 7. Effect of planting and fertilization rates on the number of leaves and seed development of the second-year corn

So, in the research field, the number of leaves and seeds in the field of sorghum depending on the norm of mineral fertilizers showed the best performance in the 5th option with the norm of N100P140K80 fertilizers.

In the 2nd year of the experimental field where the research was carried out, the number of leaves and seeds in the sorghum crop depending on the rate of mineral fertilizers was observed on 1.09.

According to the obtained data, 25 kg/ha of N50P70K60 fertilizers were used in the 1st option, 10 leaves and 1210 seeds per hectare were obtained, in the second option, when N100P140K80 kg/ha was used, 14 leaves and 1320 seeds were obtained, N150P200K120 kg/ha. The number of harvested leaves was 12 and the number of seeds was 1250 (Fig. 2).

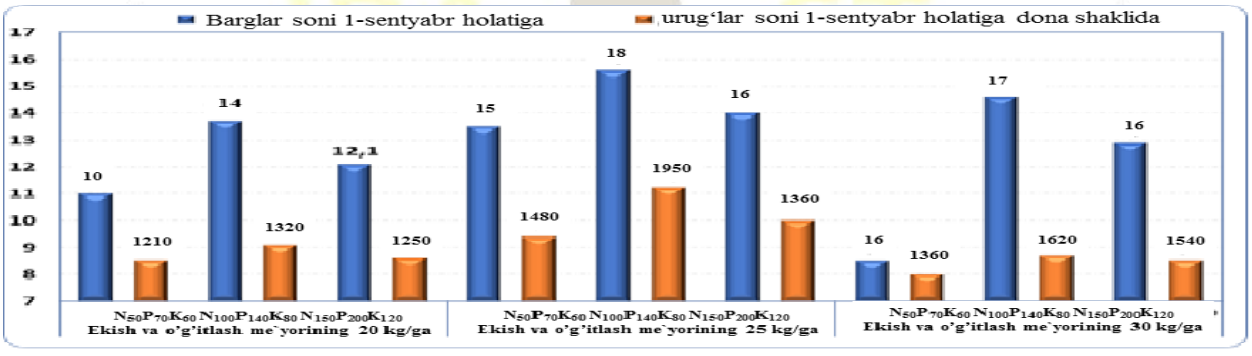

Figure 2. Effect of planting and fertilization rates on the number of leaves and seed development of the second-year corn

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It was found that the number of leaves increased to 16-17 and the number of seeds increased from 1360 to 1620.

So, in the experimental field where the research was carried out, the number of leaves and seeds in the field of corn between the first and second year was significantly different than the results obtained depending on the rate of mineral fertilizers. The reason is that a certain amount of NPK of the first year was preserved in the soil composition for the next year, and thus the productivity of the second year showed a slightly higher performance.

Of course, comparing the yield of the first and second year according to the options, it was found that the level of yield increased with the addition of 25 kg/ha of seeds and N100P140K80 of fertilizers.

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