

EFFECT OF MINERAL FERTILIZERS ON CORN YIELD

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Аннотация: Пшеницы оставляет много органической массы, она влияет на рост и развитие кукурузы. В конечном итоге повышает урожайность зерна и силосные массы.

Annotasion: When corn is sown as repeated plant, it causes to have abundant harvest by the help of wheat remains it provides with high productivity of unitizing watered crops.

Ключовые слова: кукуруза, повторные культуры, органическая масса, урожайность, рост, развитие, минеральные удобрения

Key words; corn, repeated plants, productivity, growing developing, mineral Fertilizers

In our republic, irrigated lands constitute the majority of cultivated land. Effective use of these lands is required to meet the needs of the population, industry, and livestock for products. Therefore, in our republic, great importance is attached to planting repeated crops in areas freed from wheat. In particular, our scientists are conducting a lot of scientific work to study the agrotechnology of repeated crops.

In the experiments conducted by Kh.U. Azimov [1.2], issues such as sowing dates, fertilization, and irrigation of repeatedly sown corn were studied. The main factor in growing repeated crops is a sufficiently high temperature. However, the heat requirements of corn varieties and hybrids are different: for the cultivation of early-ripening varieties and hybrids, a temperature of 1758-1830 °C, for mid-ripening varieties and hybrids - 2163-2208 °C, and for late-ripening varieties - 2657-2954 °C is required. When selecting a crop variety or hybrid for repeated sowing, the sum of the total temperatures and the duration of the first frost exposure should be taken into account first.

We also conducted scientific research to study the optimal rates of mineral fertilizers for repeatedly sown corn.

For this, we first studied the stubble residues left by predecessor crops and the amount of nutrients in the soil. Although very little plant residues remain in the soil after repeated crops,

they mainly provide the next plant with the necessary nutrients, and importantly, microbiological decomposition occurs quickly in them, and in most cases, humus formation surpasses organic fertilizers (Vorobev [5]).

Despite the fact that corn (*Zea Mays*), sown as a repeated crop, absorbs a large amount of nutrients from the soil during the growing season, the grain and green stalks of this plant are considered the most nutritious. Therefore, this crop is currently being planted on 250-300 thousand hectares in our Republic.

Based on the above data, in the experiments, taking into account the high fertilizer requirements of maize for grain, the fertilizer rates were set at N-200, P₂O₅-170, K₂O-100 kg/ha.

A.P.Iminov [3] in the conditions of typical sierozem soils, when sowing corn as a repeated crop for grain, applying N-120, P₂O₅-90, K₂O-60 kg/ha, obtained an average yield of 40.9 c/ha of grain and 313.2 c/ha of green mass over three years.

First of all, we want to emphasize one circumstance: in our research, since repeated crops were sown after winter wheat, we determined the degree of their germination during the research years.

It was established that the remnants of stubble and roots left by winter wheat did not negatively affect the germination of repeated crop seeds. Corn was sown on June 18 and 20 in accordance with the research years. In 2018, after 4 days of sowing, seed germination was 40.2%, and after 6 and 8 days, this indicator was 68.4 and 96.7% (Table 1).

Table 1.

Corn germination rate and actual plant density

Years	Number of germinated plants, %			Actual plant density, thousand/ha	
	2.VII	4.VII	6.VII	At the beginning of the period	End of validity period
2018	40,2	68,4	96,7	61,2	59,1
	22.VI	24.VI	26.VI		
2019	39,6	65,2	95,8	63,1	60,2
	24. VI	26. VI	28. VI		

2020	36,3	61,7	92,3	62,1	59,8
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Similar data were obtained in the 2nd and 3rd years of the experiments, where the indicators were 39.6-36.3%; 65.2-61.7 and 95.8-92.3%.

When sowing corn for grain production, the plant density at the beginning of the growing season was 61.2; 63.1 and 62.1 thousand ha⁻¹, and at the end of the growing season these indicators were 59.1; 60.2 and 59.8 thousand/ha. It should be noted that the plant density varied by 1-2 thousand/ha between variants and by repetitions.

According to the data on the growth and development of corn under the conditions of 2018, the plant height during the development period was 10.7; 80.4; 140.5 cm, at the end of the growing season 165.3 cm, the number of leaves was 3.0; 8.2; 12.1 and 15.8 pcs., and the number of cobs in the milk-wax and full ripeness periods was equal to 1.0 pcs. Under the conditions of this year, the number of grains per cob was 458.2 units, grain weight was 82.4 g, and the weight of 1000 grains was 170.3 g.

Similar data were recorded in subsequent years of research (2018-2020). However, between the years of research, 2018, due to favorable weather conditions, the growth and development of all crops, including corn, were relatively good.

Among the important indicators for us, the number of grains per cob averaged 467 pieces over 3 years, the weight of grains per cob was 84.4 g, and the weight of 1000 grains was 170.4 g.

When studying the grain and stem yield of corn grown as a repeated crop during the research years, under the conditions of 2018, the grain yield in 4 replications was 36.7; 34.5; 33.7 and 36.5 c/ha, the yield averaged 35.3 c/ha, and the stem yield averaged 285.4 c/ha.

Under the conditions of 2019, these indicators were 40.7; 41.7; 43.5 and 40.5 c/ha, respectively - 41.6 and 328.4 c/ha, and in 2020 39.0% 36.0; 37.2; 39.2 c/ha averaged 37.8 and 308.2 c/ha.

On average, over three years, the frequency was 38.8; 37.4; 38.1 and 38.4 c/ha, on average over 3 years - 38.2 c/ha of grain and 307.3 c/ha of stems.

Therefore, the most important measure for providing the population with food and livestock with fodder is growing more yields from irrigated lands by planting repeated crops, and secondly, due to the fact that alfalfa-cotton crop rotation has practically disappeared from the farming system, conditions require the creation of a short-ratio crop rotation system by planting repeated crops (mung bean, beans, soybeans, and other crops that accumulate humus and nitrogen in the soil). Our farmers have been growing these crops for a long time, but they are high and a scientific agricultural technology for obtaining a high-quality harvest was not developed. We conducted scientific work in accordance with this.

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