

The Effect of Mineral Fertilizers on The Formation of The Sugar Beet Crop of Repeated Sowing

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ABSTRACT

To increase the efficiency of the use of irrigated land, it is advisable to grow sugar beet as a re-crop after harvesting winter wheat. Encapsulation of the seed material of sugar beet seeds sown as a re-crop gives good results. To get a higher yield, it is necessary to set the norms of mineral fertilizers N200P150K200 kg / ha. Sugar beet grows well during the growing season and provides a biological yield of up to 370 c / ha per root.

In order to effectively use irrigated lands, it is considered advisable to grow high-yielding crops after the winter harvest. The soil and climatic conditions of our republic allow us to grow sugar beet as a repeat crop. In our field experiments, we observed the growth and development of sugar beet.

Most scientific studies in irrigated areas show that sugar beet grows slowly at the first stage of development (before the appearance of the fourth pair of leaves) and absorbs a small amount of nutrients. must be filled in. At the end of the growing season (when the roots accumulate sugar), sugar beet requires less nitrogen, and a high need for phosphorus-potassium nutrients requires the addition of phosphorus and potassium before plowing [1, pp. 104-105].

E.I. Zaslavsky and V.V. Ustyantsev] summarizing the results of field experiments conducted at VNIISP, and noted that sugar beet should be fed 2-3 times. In this case, it is recommended to carry out the first feeding before weeding, the second after weeding and the third, if any, before the distance between the rows is blocked by leaves [3, pp. 24-35].

According to the research of A.I.Oleksiyuk, in the initial period of vegetation sugar beet requires more nitrogen and phosphorus fertilizers, that is, these elements play an important role in the formation of the plant organism. Potassium is necessary at all times and initially affects the growth of root crops, and in the latter has a positive effect on increasing the sugar content [4, pp. 48-52].

Based on the above data, we also tried to study the influence of sowing methods and various norms of mineral fertilizers on the development of root crops during the use of sugar beet. To do this, we chose a place for the experiment and analyzed the field from an agrochemical point of view. We planned to sow sugar beets in different places every year because they absorb a lot of nutrients from the soil. However, the experiment was conducted in such a way that the supply of nutrients on the selected plots of land was close to each other. Growing sugar beet as a repeat crop creates difficulties in its germination. This is because germination requires 180% moisture from the weight of sugar beet seeds. Given the difficulty of doing this in the summer, we made sure that its seeds were soaked with water up to 100% humidity and encapsulated. To do this, we used vermicompost and soil in different proportions (50% vermicompost and 50% soil; 75% vermicompost and 25% soil, as well as 100% vermicompost and 0% soil).

The experiments were carried out according to the method of B. D. Dospikhov [2]. Our experience consists of 12 options, which are arranged in one tier. The total area of each variant was 240 m², the plot area was 100 m², and the total area of the experiment was 11520 m². In the field experiment, the average thickness of seedlings in accordance with the options varied depending on the planting methods. During the growing season, we observed the growth of root crops in length and diameter. We presented this information in Table 1. According to the table, planting methods had a significant impact on the number of plants in the field. The number of plants per hectare in 1.2 and 3 variants planted in the usual way is 57.1, 57.8 and 58.9 thousand, respectively, but in 4, 5 and 6 variants encapsulated in 50% vermicompost and 50% soil, there were 77.2, 77.4 and 78.7 thousand rast/ha, respectively. At the same time, as the amount of vermicompost in the capsule increased, the amount of soil also decreased. In 7-,8- 9 - variants, where the proportion of biogas

Table 1
Formation of sugar beet root crops, c/ha, 2017 – 2019 y.

Variants	Composition of capsules	Norm min. fertilizer, kg/ha	Plant density, thousand pieces/ha according to the scheme 60x15x1		Parameters of root crops, cm						Yield, c/ha
			Theoretical	Real	august		september		october		
					length	diameter	length	diameter	length	diameter	
1		N ₀ P ₀ K ₀	11	57,1	5	0,5	21	6	24	11	189,3

2	Without capsules	N ₁₅₀ P ₁₀₀ K ₁₅₀	57,8	6	0,6	26	9	31	15	254,2
3		N ₂₀₀ P ₁₅₀ K ₂₀₀	58,9	7	0,7	38	13	35	17	287,9
4	50%	N ₀ P ₀ K ₀	77,2	5	0,5	20	6	23	11	194,7
5	vermicom post and 50% soil	N ₁₅₀ P ₁₀₀ K ₁₅₀	77,4	7	0,8	38	14	40	18	311,4
6		N ₂₀₀ P ₁₅₀ K ₂₀₀	78,7	7	0,7	38	15	44	18	318,7
7	75%	N ₀ P ₀ K ₀	81,8	5	0,6	20	6	25	12	199,8
8	vermicom post and 25% soil	N ₁₅₀ P ₁₀₀ K ₁₅₀	82,1	7	0,6	39	11	42	16	330,0
9		N ₂₀₀ P ₁₅₀ K ₂₀₀	82,4	6	0,7	41	11	43	18	370,2
10	100%	N ₀ P ₀ K ₀	85,4	5	0,6	25	10	30	11	207,9
11	vermicom post	N ₁₅₀ P ₁₀₀ K ₁₅₀	85,3	7	0,6	39	11	43	15	347,7
12		N ₂₀₀ P ₁₅₀ K ₂₀₀	86,8	6	0,7	37	9	45	13	343,0

In the control variant (without mineral fertilizers), the root diameter of one plant in August was 0.5 cm. In the 2nd variant, where the rate of mineral fertilizers is equal to N150P100K150 kg/ ha, this indicator was 0.6 cm. In the third variant, where the norms of mineral fertilizers were set at N200P150K200 kg/ha, the root diameter corresponded to 0.7 cm. The same pattern was observed in variants in which sugar beet seeds were planted in capsules and mineral fertilizers were used. At the same time, an increase in the norms of mineral fertilizers (from N150P100K150 kg/ha to N200P150K200 kg/ha) provided more length and diameter of root crops. In the following months of our inspections, a similar pattern was observed. In September observations, the root diameter of one plant was 9.0; 14.0; 11.0; 11.0 cm in variants with the norm of N150P100K150 kg/ha, whereas in variants N200P150K200 kg/ha it was 13.0; 15.0;

In October, these indicators amounted to 15.0; 18.0; 16.0; 15.0 cm in variants with the norm of mineral fertilizers N150P100K150 kg /ha, whereas in variants with the introduction of mineral fertilizers N200P150K200 kg /ha, it was 17.0; 18.0; 16.0 and 15.0 cm. Based on the results of our research, it can be concluded that in the conditions of irrigated gray-meadow soils of the Andijan region, when growing sugar beet of repeated culture, encapsulation of sugar beet families with biohumus in different combinations with the soil allows to obtain the optimal density of sugar beet plants as repeated crops. And the establishment of optimal norms for the application of mineral fertilizers to ensure high yields of sugar beet as a repeated crop after winter wheat. We received the highest yield in the 9th variant of our experience (encapsulation of families of 75% vermicompost + 25% of soil and the annual rate of mineral fertilizers N200P150K200 kg/ha in) - 370 kg/ha.

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