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THE INFLUENCE OF FEEDING METHODS AND STANDARDS ON THE STRUCTURE OF THE HARVEST OF MUNG BEAN

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Abstract:

The article describes the influence of mineral fertilizers and stimulators on the yield structure of the mung bean varieties "Durdona" and "Barqaror" in light gray soils of Kashkadarya region. In the conditions of light gray soils of Kashkadarya region, it was noted that the moderate use of mineral fertilizer $N_{20}P_{45}K_{30}$ and the use of humigel biostimulant at 1.0-1.5 l/ha in the cultivation of the mung bean varieties "Durdona" and "Barqaror" ensure the improvement of crop structure.

Keywords: mung bean, variety, Durdona, Stable, mineral fertilizer, stimulant, Gumigel, plant height, number of branches, legume, grain.

THE LEVEL OF STUDY OF THE TOPIC. The mung bean [Vigna radiata (L.) Wilczek] is an important legume crop that is used in annual rotations on increasingly arid soils in many areas. The mung bean is an important crop of global economic importance and is considered the best nutritionally. In addition, it has a known function of detoxification, increasing appetite and lowering blood pressure, cancer and other health effects [3, 5].
The mung bean can fix nitrogen through a symbiosis with the bacterium Rhizobium [1]. It is an excellent and simple source of protein for humans, ensuring food safety in the process. Ripe and raw seeds are full of vitamins, minerals, antioxidants, including flavonoids (Quercetin-3-O-glucoside) and phenolic compounds. They also contain a lot of carbohydrates, proteins, fibers and carbohydrates [4]. Despite being an economically important crop, total production of the mung bean is low due to abiotic and biotic stresses [2].

THE PURPOSE OF THE STUDY. Development of agrotechnology for the mung bean cultivation in conditions of irrigated light gray soils of the southern region of the republic.

RESEARCH METHODS. Researches were conducted at the central experimental farm of the Southern Agricultural Research Institute. In the field experiments, various mineral fertilizers and stimulants were used in the cultivation of "Durdona" and "Barqaror" varieties of the mung bean. The amount of total NPK and mobile NPK in soil, plants and grains, mass of 1000 grains was determined in the laboratories of the Southern Agricultural Research Institute.
Soil samples for analysis were taken according to the methods of "Methods of agrochemical, agrophysical and microbiological research and irrigated agricultural areas" (1963). Amount of humus according to the method of I.V. Tyurin (GOST-26213); nitrate nitrogen-ion selective method, GOST-13496-10; total nitrogen, phosphorus and potassium in one sample I.M. Maltseva, L.P. Gritsenko's method; mobile phosphorus in 1% ammonium carbonate solution by the method of B.P. Machigin; by the method of P.V. Protasov in an alternating potassium flame photocalorimeter; water-soluble salts and dry residue were determined by the generally accepted method, GOST-26423-85, using a potentiometer in pH aqueous absorption. In field conditions, the density of the soil is determined by the Kachinsky method using a 500 cm3 cylinder; specific mass by pycnometric method; soil porosity in the calculation method; water permeability of the soil was performed by the Kaczynski method. Field and laboratory experiments were carried out on the basis of the methodological manual of the All-Russian Research Institute of Plant Science (1985). Phenological observations and biometric analyzes were carried out according to the methodological manual of the State Commission for Testing Agricultural Crops (1989). The study of plant growth and development was carried out by counting the field fertility of seeds: during germination and before harvesting, in 0.5 m2 areas, where continuous observation is carried out, in 3 places located diagonally across the paddy field.

RESEARCH RESULTS. According to the results of the research, it was found that the biometric indicators of the mung bean changed significantly under the influence of the biostimulants used in our study. In particular, the Durdona variety of the mung bean in the control variant without mineral fertilizers and biostimulants had a plant height of 28 cm, a yield branch of 3.6 pieces, an average number of pods of 9 pieces and the number of grains in a pod was 4 pieces. as a result, compared to the control option, the plant height was 23 cm, the yield was 3.4 pieces, the average number of pods was 14 pieces, and the number of grains in a pod was 4 pieces more (Table 1).

Table 1
Effect of feeding methods and norms on the yield structure of the mung bean

O/n	Varietal name	Mineral fertilizer rate	Feeding rate by the leaf	Height of the plant, cm	Branch of the harvest , piece	The average number of pods per 1 plant, piece	The number of grains in a pod, piece
1	Дурдона	Control (without fertilizer)	-	28	3,6	9,0	4,0
2			Humigel 0,5 l/ha	30	4,0	10,0	5,0
3			Humigel 1,0 l/ha	32	4,0	11,0	5,0
4			Humigel 1,5 l/ha	33	4,8	13,0	5,4
5		N_{20} P_{45} K_{30}	-	33	5,0	14,0	5,2
6			Humigel 0,5 l/ha	36	6,0	17,0	6,0
7			Humigel 1,0 l/ha	37	6,4	18,0	6,6
8			Humigel 1,5 l/ha	41	7,0	21,0	7,0
9		N_{40} P_{90} K_{60}	-	40	6,0	21,0	6,8
10			Humigel 0,5 l/ha	43	6,8	20,0	7,0
11			Humigel 1,0 l/ha	48	7,3	22,0	7,4
12			Humigel 1,5 l/ha	51	7,0	23,0	8,0
13	Барқарор	Control (without fertilizer)	-	31	3,0	7,0	4,0
14			Humigel 0,5 l/ha	31	4,0	9,0	4,0
15			Humigel 1,0 l/ha	32	4,0	11,0	5,0
16			Humigel 1,5 l/ha	33	4,5	12,0	5,4
17		N_{20} P_{45} K_{30}	-	35	5,0	14,0	5,2
18			Humigel 0,5 l/ha	37	6,0	16,0	6,0
19			Humigel 1,0 l/ha	40	6,2	17,0	6,6
20			Humigel 1,5 l/ha	41	6,7	17,0	7,0
21		N_{40} P_{90} K_{60}	-	43	6,0	19,0	6,8
22			Humigel 0,5 l/ha	47	6,8	20,0	7,0
23			Humigel 1,0 l/ha	54	6,8	21,0	7,4
24			Humigel 1,5 l/ha	56	7,0	21,0	8,0

In the stable variety of the mung bean, in the control version without biostimulants, the plant height was 31 cm, the yield branch was 3 pieces, the average number of pods was 7 pieces, and the number of grains in the pod was 4 pieces. , the harvest branch was 3.4 pieces, the average number of pods was 14 pieces, and the number of grains in a pod was 4 pieces more (Fig. 1). In the control variant $N_{20}P_{45}K_{30}$, the plant height was 35 cm, the yield branch was 5 pieces, the average number of pods was 14 pieces, and the number of grains per pod was 5.2 pieces.
In the studies, in the case of $N_{20}P_{45}K_{30}$, compared to the control version, plant height was 4-5 cm, the number of harvested branches was 1.4-2.0 units, the average number of pods was 5-7 units, and the number of grains per pod increased by 1.2 units. the plant height is 12 cm, the number of harvested branches is 2.4-3.0 units, the average number of pods is 12 units, the number of grains per pod has increased by 1.8 units.
In conclusion, it can be said that moderate use of mineral fertilizer $N_{20}P_{45}K_{30}$ and use of gumigel biostimulant at 1.0-1.5 l/ha in the cultivation of "Durdona" and "Barqaror" varieties of the mung bean in the conditions of light gray soils of Kashkadarya region ensures the improvement of the crop structure.

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