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**EFFECT OF MINERAL FERTILIZER APPLICATION ON SEEDLING DENSITY
OF CHICKPEA CROP**

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Abstract: The article presents data on the effect of mineral fertilizer application on seedling density in growing chickpea crops in rainfed areas, changes in the number of seedlings during the ontogenesis of chickpea, as well as data on the growing season.

Keywords: Rainfed areas, chickpea, mineral fertilizers, seedling density, growing season.

Relevance. Today, ensuring food security for the world's population by overcoming the consequences of global climate warming and soil degradation, as well as meeting the need for proteins, amino acids essential for human life, vitamins and carbohydrates, is one of the most pressing problems. Currently, more than 60% of the world population's need for protein and amino acids is met by legume crops (mainly chickpea). Based on the minimum amount of protein necessary for the healthy life of the world's population, 172 million tonnes of protein are needed annually to fully provide for the current eight billion people.

To address these problems, soil erosion-protective, resource-saving minimum tillage (Mini-till) and no-tillage (No-till) technologies are currently being applied on 200 million hectares worldwide. The global area under chickpea cultivation amounts to 21.0 million hectares, with a gross harvest of 15–18 million tonnes.

The Decree of the President of the Republic of Uzbekistan No. PF-5853 dated October 23, 2019, "On approving the Strategy for the Development of Agriculture of the Republic of Uzbekistan for 2020–2030," and Decree No. PF-60 dated January 28, 2022, "On the Development Strategy of New Uzbekistan for 2022–2026," set tasks to at least double the income of farmers and peasant households through modernization of technologies ensuring the effectiveness of reforms in the agricultural sector, and to bring the annual growth rate of agriculture to five percent.

Research objective. The aim of the study is to develop an integrated resource-saving agrotechnology for producing high yields of chickpea under global climate change conditions in the semi-humid plain and hilly dryland zone of the republic, and to comparatively study the effect of mineral fertilizers on the growth, development and productivity of the chickpea plant.

Research methods. Observations, calculations and analyses in field and laboratory experiments were carried out according to the All-Union Research Institute of Plant Growing (Leningrad, 1980) Rhoda CICER L. (Chickpea) classifier; experiment placement was conducted according to the "Methods of conducting field experiments" (UzPITI, 2007) and methodological guidelines recommended by the Research Institute of Dryland Farming (2004); biometric analyses were performed according to the method of the State Variety Testing Commission of Agricultural Crops (1989); soil moisture was determined by drying at 105°C for 6 hours using a

thermostat; and statistical analysis of experimental results was carried out according to the method of B.A. Dospekhov.

Discussion and results. In the soil and climatic conditions of the dryland regions of the republic, chickpea yields best when sown in early spring, namely in February and March. In years with good rainfall, when sown early, chickpea crops are affected by ascochyta blight disease. Wide-row sowing method gives good results for chickpea cultivation. [97; p. 589].

According to a number of conducted experiments, the field germination of chickpea seeds varies from 50 to 80% depending on the biological characteristics of the variety, ecological and agrotechnical factors. [145; pp. 28-32].

Effect of mineral and organic fertilizers on the number of chickpea stems per plant in (Gallaaral-2026)

№	Variations	Number of plants and weeds per 1.0 m ² permanent plot (units)				Total	Average
		1	2	3	4		
Germination stage							
1	Control (without fertilizer)	2	2	2	2	8	22
2	NPK foliar feeding	3	2	2	2	8	22
3	Barg orqali NPK+biopreparat	2	2	3	2	9	22
4	Ildiz orqali N-30	2	2	2	2	9	22
5	Ildiz va barg orqali N-30+NPK	2	2	3	2	8	22
6	Ildiz va barg orqali N-30+NPK+biopreparat	2	2	2	3	8	22
Flowering stage							
1	Nazorat (o'g'itsiz)	7	1	5	1	6	15
2	Barg orqali NPK	1	2	9	2	7	20
3	Barg orqali NPK+biopreparat	2	2	0	2	8	21

4	Ildiz orqali N-30	9	1	2	9	1	1	7	20
5	Ildiz va barg orqali N-30+NPK	2	2	2	0	2	2	8	21
6	Ildiz va barg orqali N-30+NPK+biopreparat	2	2	2	1	2	2	8	22

As known from experiments, the optimal number of chickpea plants per unit area (m^2/ha) in dryland fields, as with other agricultural crops, is one of the most important indicators determining the final yield. The number of chickpea plants per unit area, i.e., the feeding area, depends on the sowing rate, timing, soil and climatic conditions on one hand, and varies widely depending on the level of cultivation agrotechnology on the other. Among the agrotechnological measures that strongly affect the feeding area of chickpea plants in these fields, the amount of mineral fertilizers applied is of great importance.

In the first year of our research, during the germination stage of chickpea, plant emergence in all variants was uniform, with 22 plants per m^2 . By the flowering stage, the number of surviving plants varied among variants: 15 plants per m^2 in the unfertilized control, 20 plants per m^2 with foliar NPK suspension, 21 plants per m^2 with NPK and bioproduct suspension, and the highest number of 22 plants per m^2 was observed in the variant with N30 root application combined with NPK and bioproduct suspension.

Conclusion. When mineral fertilizers were applied to chickpea plants, the preservation of the number of plant stems per 1 m^2 was observed.

References

1. Доспехов Б.А. Методика полевого опыта. М.:Агропромиздат, 1985. с. 415.
2. Мустонов С., Умурзакова У. Азотофиксирующие бактерии и их формирование в период роста и развития нута в Узбекистане.// Инновационные исследование и разработки для научного обеспечения производства и хранения экологически безопасной сельскохозяйственной и пищевой продукции: сборник материалов Международной научной-практической конференции. –Краснодар, 2019 г., с. 589.
3. Федюшкин А.В., Паско С.В. Эффективность возделывания нута на черноземе обыкновенном в зависимости от способа посева и фона минерального питания // Достижения науки и техники АПК, г 2020. Т. 34. № 5 с. 28-32.