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IMPORTANCE OF CHEMICAL FERTILIZERS IN PEA PRODUCTION IN IRRIGATED FIELDS

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Abstract:

In the arid regions of the Kashkadarya region, the main task is to select suitable crops that are resistant to abiotic factors and capable of physiological adaptation. In this article, an important factor in the formation of pea yields is the use of a mixture of mineral fertilizers and growth-stimulating microplants in the light gray soil conditions of the Kashkadarya region to obtain high yields from pea varieties. The photosynthetic activity of plants was assessed. Currently, in various large research centers around the world, much attention is paid to the creation of pea varieties that are resistant to extreme conditions, the study of the morpho-physiological characteristics of the created varieties, increasing their nutritional value, determining the dependence of yield, the quality of crops, cultivation methods, and improving technology elements cultivation.

Keywords: Chickpeas, obod, polvon, micro fertilizer, hydrothermal

ENTER. Currently, a number of reforms in the development of the cultivation of nutritious agricultural crops in Uzbekistan are creating the basis for providing our people with high-quality and ecologically clean and cheap food products. Currently, in various major scientific and research centers of the world, great attention is paid to creating varieties of peas resistant to extreme conditions, studying the morphophysiological characteristics of the created varieties, increasing their nutritional value, determining the dependence of the yield, crop qualities on cultivation methods, and improving the elements of cultivation technology. attention is being paid. Pea is the main leguminous crop in rainfed and irrigated agriculture of Kashkadarya region [1]. In the conditions of light gray soils based on irrigated agriculture, including the deserts with barren soil, peas are almost never grown in the Kashkadarya region. Alfalfa is grown mainly from legumes and fodder crops. It is important to deepen the research related to the biological properties of the crop, the reaction of varieties to the hydrothermal factors of the area, and the photosynthetic activity of alfalfa rotation in exchange for enriching the soil with biological nitrogen, allowing to save organic and mineral fertilizers. is one of the issues. The drier climate from year to year requires not only modern irrigation methods to meet the water demand of crops, but also the expansion of the area of crops with low water demand. A number of issues have not yet been resolved in the agrotechnology of growing peas under irrigation conditions. In this regard, as in the case of the introduction of new varieties into production, it is necessary to clarify and revise the currently used pea planting standards and planting methods.

This is largely due to the demand for peas in the foreign market. The seed diameter is 9-10 mm, the weight of 1000 seeds is 350 g. There is a great demand for export. In Uzbekistan, 6,741 tons of peas are grown per year, which corresponds to 0.206 kg per person, which certainly increases the demand for imports. Among all leguminous crops, peas are the most resistant to drought and heat, and this is due to the large amount of water bound in the leaf tissues, the xeromorphic structure, and the presence of organic acids. [5].

The use of a mixture of fertilizers and growth-promoting micronutrients is one of the ways to improve crop production technology. in increasing the productivity of varieties, micro plant nutrients not only affect the effective use of mobile forms of minerals by plants, but also increase the resistance of plants to stress, diseases and pests [7, 8,]

RESEARCH MATERIALS AND METHOD. In order to maintain and increase soil fertility in the conditions of pale gray soils, an experiment was conducted on the effect of pea planting and fertilizer rates on grain yield. The experiment was conducted at Y. Omonov field site of Karshi District, which belongs to the Southern Agricultural Scientific Research Institute. The seeds to be planted for the experiment were selected and planted in the second ten days of February. Pea is a light-loving long-day plant, its development slows down when the light days are shortened, on the contrary, it accelerates when the days are extended, and the growth period is also shortened. At the same time, the duration of the development phases of pea varieties is closely related to the biological characteristics of the

varieties and weather conditions. Field experiments in 2021-2023. Southern farming ITI in Karshi district of Kashkadarya region was carried out in light gray soils. Average annual precipitation is 100 mm. and the sum of active temperatures - 3700-3800°C. In February and June, the average hydrothermal coefficient is 1.80-0.50, respectively. Spring reserves of soil moisture are 100-120 mm. "ENTOKHLOROK EXTRA 72 WP" is a biologically active polyfunctional polymer (Mankotseb 64% + Simoxanil 8%) compound with low harmful fungicidal and bactericidal effects of class II toxicity. A fungicide that protects and treats fungal diseases. Due to the presence of two different active substances in its composition, it also treats diseases with increased resistance to other fungicides. The drug does not have a harmful effect on the growth and development of plants after its use. "GUMI LUX" contains a balanced set of natural humus and fulvic acids and a chelate complex of trace elements: K, S, B, Mo, Mn, Cu, Co, Zn, Fe, Ca, Mg, Si, C. « GUMI LUX" has relatively maximum efficiency. has a stimulating effect on the development of plants and increases the resistance of plants to adverse environmental conditions. "ENTO MICRO" composition: boron-08%, copper-0.5%, iron-5%, manganese-4%, molybdenum-0.1% and zinc-7% have maximum efficiency. has a stimulating effect on the development of plants and increases the resistance of plants to adverse environmental conditions

ANALYSIS AND RESULTS. The hydrothermal coefficient (GTK) is calculated taking into account the climate regularly. GTK Selyaninov G.T. calculated using the formula [9]: K = R*10/St Here: R– sum of total rainfall in millimeters during the period with a temperature higher than +10°C, St– temperature during this period in Celsius (°C) is shown in the degree.

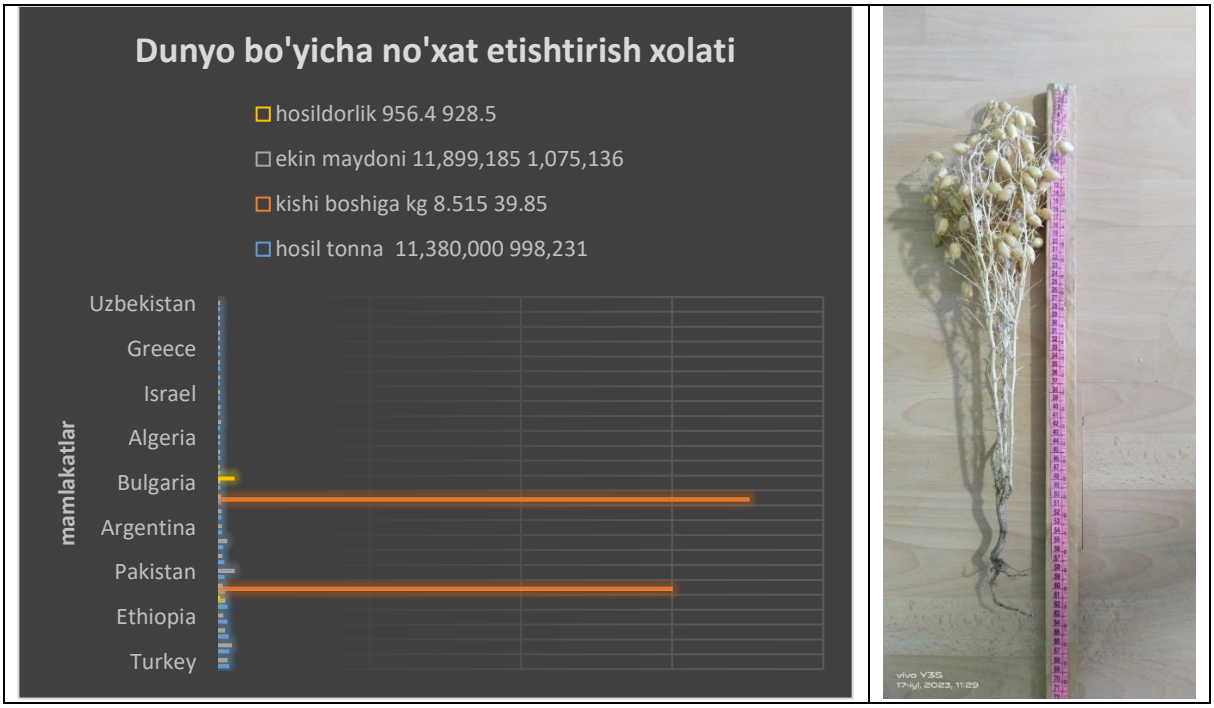
Table 1

Changes in the leaf area of peas depending on the use of growth stimulants and fertilizers, 2021-2023, thousand m2/ha

Experiment option		Flowering				Pod formation				Fully cooked			
varieties	during vegetation period	2021 yil	2022 yil	2023 yil	Average	2021 yil	2022 yil	2023 yil	Average	2021 yil	2022 yil	2023 yil	Average
Fertilizer-free factor (A) ENTOXLOROK EKSTRA 72 WP													
POLVON (C)	nazorat	32,5	35,4	33,5,	33,9	26,3	29,2	25,1	26,8	20,1	19,2	25,1	21,4
	ГУМИ ЛЮКС	47,4	48,2	46,5	47,3	36,2	38,1	31,2	35,1	30,2	32,1	29,2	30,5
	ENTO MICRO	49,8	48,2	46,9	48,3	32,6	33,9	35,1	33,8	28,6	32,5	34,2	31,7
OBOD (C)	nazorat	34,2	33,4	35,2	34,2	29,3	25,8	26,2	27,1	20,6	24,2	22,8	22,5
	ГУМИ ЛЮКС	48,3	46,9	47,9	47,7	37,8	38,6	39,1	38,5	31,2	30,9	34,1	32
	ENTO MICRO	49,2	48,9	48,7	48,9	39,2	35,8	35,9	36,9	32,6	31,9	33,2	32,5
Fertilizer-induced factor N45-P90-K60 (B) ENTOXLOROK EKSTRA 72 WP													
POLVON (C)	nazorat	52,6	53,6	54,2	53,4	42,3	45,1	44,8	44	32,6	36,3	35,7	34,8
	ГУМИ ЛЮКС	72,6	72,8	74,9	73,4	58,2	51,3	54,9	54,8	47,2	46,3	45,8	45,4
	ENTO MICRO	81,2	80,9	79,6	80,5	56,9	55,9	57,2	56,6	46,2	43,8	42,9	44,3
OBOD (C)	nazorat	52,9	54,2	55,2	54,1	44,1	43,5	41,8	43,1	32,5	32,6	31,9	32,3
	ГУМИ ЛЮКС	78,3	73,9	75,4	75,8	43,6	42,9	43,9	43,4	33,6	31,9	32,8	32,7
	ENTO MICRO	75,9	76,8	74,9	75,8	42,9	45,2	41,9	43,3	34,5	33,6	31,4	33,1

The hydrothermal coefficient allows us to control how dry the climate is. For this, the following limits are defined by GTK; < 0.20 – very severe drought, 0.21-0.39 – severe drought, 0.40-0.60 – moderate drought, 0.61-0.75 – weak drought whiteness, 0.76-1.00 - lack of moisture, 1.10-1.40 - optimal moisture.

In the conditions of light gray soils, it is possible to improve the supply of nitrogen to the soil by expanding the area of peas as a legume crop in the rotation of grain and cotton. According to the results of our experiment, an additional 13-48 kg/ha of N-NO3 remained in the soil after harvesting peas. During the years 2021-2023, in the conditions of light gray soils, the "POLVON" and "OBOD" varieties of peas were treated with "GUMI LUX" and "ENTO MICRO" microfertilizer preparations, and the leaf area, photosynthetic potential, crop structure, productivity indicators were evaluated Table 1.



Picture 1. Status of pea cultivation in the world

The beginning of the phenological phases of plant development and the duration of interphase periods largely depend on abiotic factors or weather conditions, the main of which is the presence of heat and moisture. Growing conditions also have a significant effect. Taking into account literary sources, the duration of the vegetation period of the "OBOD" variety is 64-82 days, and the "POLVON" variety is 72-91 days. A leaf plays an important role in plant life. With the help of leaves, plants support transpiration and carbon nutrition, interact with the external environment, capture solar radiation, and provide the synthesis of the main part of organic matter, so the leaf surface of plants breeding is a direct way to increase their productivity. Statistical processing of the received data was carried out using the STATISTICA analytical program.

The multifactorial experiment included: two backgrounds of mineral nutrition: control application of N45-P90-K60 fertilizers (factor A); two varieties of peas: "POLVON" and "OBOD" (factor B); "GUMI LUX", "ENTO MICRO" AND "ENTOKHLOROK EXTRA 72 WP" growth stimulator were treated with micro-fertilizer preparations (factor C). Studies have shown that all methods of tillage improved plant photosynthetic activity and increased pea yield. The maximum productivity of peas was 3.36 t/ha and 3.02 t/ha when using "GUMI LUX", "ENTO MICRO" AND "ENTOHOLOROK EXTRA 72 WP" during the growing season of "OBOD" variety.

SUMMARY.

The expansion of cultivated areas of these valuable food crops largely depends on increasing productivity, and in this regard, the main and additional feeding of the crop plays an important role. The use of growth stimulator microfertilizers along with mineral fertilizers during the vegetation period is of great importance in increasing the gross productivity of pea crops in light gray soil conditions.

The results of long-term research on the technological methods of growing peas in the steppe and semi-desert region: planting dates, planting methods, planting norms, choosing the optimal planting time, especially the lack of moisture is the main factor in growing legumes is considered The onset of plant development stages, which affect the biochemical processes occurring in plants and seeds, depends on the time of planting and soil moisture.

BIBLIOGRAPHY:

1. Alikulov G.N. The effect of predecessor chickpea on wheat productivity in the conditions of dark gray soils of Lalmicor (in the case of Kashkadarya region). Autoref. q.x.f.n. -Tashkent.: 2010. p. 20.
2. Bobokulov Z.R, Bobomurodov Z.S. Productivity Of Chickpea Varieties And The Effect Of Different Planting Times And Depths On Grain Quality Indicators. NVEO-NATURAL VOLATILES & ESSENTIAL OILS Journal| NVEO, 7524-7532
3. Bobomuradov Z.S., Bobokulov Z.R. SPECIFIC CHARACTERISTICS OF THE PEA CROP (a small tip for farmers). DEVELOPMENT ISSUES OF INNOVATIVE ECONOMY IN THE AGRICULTURAL SECTOR, 989-992

4. Bobokulov Z.R. VLIYANIYe SROKOV POSEVA NA ROST, RAZVITIYe I UROJAYNOST SORTOV OZIMOGO NUTA. - Aktualnbiye problembi sovremennoy nauki, 2018.
5. Botirov, A., & Arakawa, O. (2021). Root Growth Changes in Winter Planting of Young 'Miyabi Fuji' Apple Trees. International Journal of Horticultural Science and Technology, 8(3), 227-233. https://doi.org/10.22059/ijhst.2021.315746.428
6. Botirov, Alisher, Osamu Arakawa, and Shuhuai Zhang. "Forecasting Young Apple Tree Bud Status with a Visible/Near-Infrared Spectrometer." (2021).
7. Botirov Erkinovich, A. Promoting Young Apple Tree Growth after Planting in Water Limited Areas Non-destructive measurement for young apple trees. https://doi.org/10.15113/00015410
8. Togaymurodov, E., Islamova, R., & Botirov, A. (2016). Theoretical issues of formation of eco-agro tourism in Uzbekistan. Europaische Fachhochschule., (4), 51-53.
9. Saipov O. The effect of seed fractions and feeding on the economic efficiency of pea cultivation. // AGRO SCIENCE. - Tashkent, 2019. - No. 1 (57). - 22 p.
10. Ergashev J., Isakov K., Naholboyev J., Zorayev Sh., Nishonov J. Indicators of peas in drought years in dry areas. // AGRO SCIENCE. - Tashkent. 2016. - #1 (39). p. 16
1. https://www.atlasbig.com/en-ie/countries-by-chickpea-production