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INNOVATIVE ASPECTS OF THE ELEMENTS OF THE LENTIL MINERAL NUTRITION SYSTEM IN THE RIGHT BANK FOREST STEPPE

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In modern socio-economic conditions, one of the main problems of the agrarian sector of the economy of Ukraine remains a significant increase and stabilization of the production of grain legumes, which are the main source of balanced amino acid composition and environmentally friendly protein content [2].

The problem of animal protein consumption remains relevant, because the level of nutrition affects people's life expectancy, their health and working capacity. At the national level, the protein deficit is 225,000 tons. Leguminous crops are the main ones in solving the problem of increasing the production of vegetable protein. Searches are underway to increase the productivity of rare leguminous crops, such as chickpeas, lentils, and beans [1]. The areas of these crops have grown significantly in recent years. Cultivation of leguminous crops helps to increase soil fertility, improve the balance of soil nitrogen due to its biological fixation, and helps to strengthen the financial condition of commodity producers.

Lentils (*Lens culinaris* Medik) is a valuable leguminous crop, the area of which is sown in the world is 3.7 million hectares, and the gross harvest is 1.3 million tons [3]. It is characterizing by a high protein content - 21-36%, second only to soy, and

contains such essential amino acids as lysine, arginine, and inositol, which improve the elasticity of blood vessels and prevent aging of the body.

From the analysis of data from literary sources on issues of intensification of lentil cultivation technology in Ukraine. It was establishing that the agro-climatic conditions of its cultivation and the conditions of mineral nutrition are of great importance; theoretical, methodological and applied aspects of crop formation depending on the level of fertilization are summarizing; the value of biological nitrogen in modern growing technologies is showing.

The theoretical justification of the chosen direction of research is given. Urgent, insufficiently developed issues on optimization of the lentil fertilization system have been identifying. Lentils, like all legumes, accumulate nitrogen in the soil, which is important in the conditions of the constant increase in the price of energy resources. It believes that the introduction of lentils in crop rotation makes it possible to reduce the dose of nitrogen mineral fertilizers by 30–40% [4]. Therefore, along with increasing the yield and quality of seeds in the lentil growing technology system, due attention should be paid to increasing the coefficient of symbiotic nitrogen fixation.

In the Right Bank Forest-Steppe, a tendency to increase the cultivated area of lentils was nodding, which requires clarification of the components of its fertilization system due to the optimal combination of doses of mineral fertilizers and bacterial preparations of nitrogen-fixing microorganisms.

It is advisable to study the effectiveness of the influence of different types and doses of mineral fertilizers on the yield of lentil seeds and its quality. At the same time, it is necessary to clarify the indicators of the removal of the main nutrients with the crop and to establish their optimal amounts for the formation of a unit of the crop, depending on the fertilizer and the efficiency of the plant's nitrogen-fixing apparatus. The effectiveness of using trace elements and sulfur for lentils remains unexplored.

Field experiments on the study of these issues are being establishing at the experimental field of the Uman National University of Horticulture, located in conditions of unstable moisture in the Right Bank Forest Steppe of Ukraine. The soil

of the experimental plots is chernozem gilded heavy loam with a low nitrogen content of alkaline hydrolyzed compounds (according to Kornfield's method) and medium mobile compounds of phosphorus and potassium (according to Chirykov's method).

It has been establishing that lentils respond best to the level of supply of plants with nitrogen, followed by phosphorus and sulfur. The reaction of lentils to the application of potash fertilizers in 2021 was not detecting. The efficiency of symbiotic nitrogen fixation depended on the nitrogen application dose of mineral fertilizers.

Therefore, the study of the growth and development of lentils in the conditions of the Right Bank Forest Steppe, its fertilization system in connection with the expansion of its sowing areas and increase in productivity is relevant. Therefore, the research is aiming at substantiating and developing optimal lentil fertilization systems due to specifying the doses and terms of application of mineral fertilizers and bacterial preparations.

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