

PRODUCTIVITY OF SEED POTATOES WITH LOCAL APPLICATION OF PHOSPHORUS AND POTASSIUM FERTILIZERS

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Abstract. Ukraine is a leader in potato production, among the top three producer countries and ranks second in the world in terms of per capita potato consumption, second only to Belarus. It produces 139 kg per year per capita, with a world average of about 33 kg/person/year. According to UCAB, in recent years the area under potatoes has increased by 2.7% to 1325 thousand hectares. However, the average yield for the last three years was 15.8 t/ha. In some advanced farms of Ukraine the yield reaches 30–40 t/ha due to the introduction of scientific developments in production. However, in general, the potential for economic productivity of potatoes in Ukraine now remains completely untapped.

Potato plants are demanding to the presence of nutrients in the soil. Soil nutrients must be available for plants and in sufficient quantity. It causes by the biological characteristics of potatoes. The effectiveness of mineral fertilizers depends on the methods and quality of their application. The traditional method of fertilization involves fertilizers broadcasting on the soil surface with their tillage. As a result of uneven placement of fertilizer granules in the soil layer, the transition of nutrients into unavailable form to plants, which causes the uneven plants development and maturation of tubers. Therefore, one of the ways to improve the potatoes nutrition and reduce nutrient losses and obtain high stable crop yields is the local application of mineral fertilizers in the area of the root system location. Local application of phosphorus determines it better availability throughout the growing season, which provides accelerated growth and development of roots and shoots, as well as the formation of the optimal number of tubers. Local placement of potassium

improves its availability and provides enhanced synthesis and transport of carbohydrates in plants, increases the absorption of moisture and nutrients by the roots, strengthens their resistance to disease and improves the quality of tubers.

The aim of our researching was to investigate the effectiveness of the phosphorus and potassium application in different methods and phosphorus and potassium rates and to establish its impact in the productivity of seed potatoes.

The research was located in the field experiment of the Department of Agrochemistry and Quality of Crop Products named by O.I. Dushechkina NULES of Ukraine on the territory of LLC "Biotech LTD" (Boryspil district, Kyiv region) during 2019–2020. Early-maturing variety Tiras was selected for research. The planting area was 495m² of the accounting area was 312m². The experiment was repeated 4 times. The placement of options was systematic.

As a result of research it was established that local application of phosphorus and potassium fertilizers provided such a level of yield of Tiras potatoes, which was not inferior to the variant with the fertilizers broadcasting. Yield growth in variants with local application ranged from 0.6 t/ha to 2.9 t/ha, depending on the rates. The application of local fertilizer with the rate of P₆₀K₁₃₅ caused the highest yield of seed potatoes among the options (33.4 t/ha), as well as the highest yield of seed fraction. It was 31.6 t/ha.

Key words: potatoes, phosphorus, potassium, local application, fertilizers, yield.