

EFFICIENCY OF FERTILIZING IN SUNFLOWER CULTIVATION TECHNOLOGY

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Abstract. An important place among the factors that ensure a high yield of sunflower is occupied by plant nutrition conditions throughout the growing season and technological measures aimed at realizing the genetic potential of sunflower in some regions of Ukraine. It to Deeply study the potential of domestic hybrids under different growing conditions is necessary to identify their competitiveness and promotion, which will increase the quality and yield of the crop as a whole.

Introduction and application in the production of new complex microfertilizers on the background of basic fertilizers, which can increase the efficiency of plant nutrients of mineral fertilizers and soil, is one of the ways to increase crop yields and quality of agricultural products.

Despite the importance of sunflower as one of the traditional crops of Ukraine, the technology of its cultivation in the Steppe zone today has many unsolved problems. Among the technical measures aimed at increasing the yield of sunflower, an important place is occupied by the choice of optimal rates of fertilizer application and micronutrient fertilization in critical periods of crop development.

The purpose of the research was to establish the influence of fertilizers and selection of high-yielding hybrids (NK Diamantis, SI Kupava, NK Neoma) for specific soil and climatic conditions through the formation of their productivity.

Field research was conducted during 2018–2019 on typical low-humus chernozems. As a result of research, it was found that the use of twice foliar fertilization on the background of the main fertilizer Ecoline Bor, Nertus Bor, Bast Bor in phase 4 and 8 leaves of 1 L/ha stimulated the formation of leaf surface, contributed to the accumulation of dry matter and high yields sunflower hybrids.

The space of the accounting area is 50 m² for four times of repeatedness. The placement of sites is systematic. Seeding rate is 50 thousand tons of similar seeds/ha. Fertilizers N₂₇P₄₂K₈₁S₂₁ and N₃₆P₅₆K₁₀₈S₂₈ added into the pre-plant cultivation, N₂₃ in the form of urea brought in during sowing. The top-dressing was carried out two times with Ecoline Bohr, Nertus Bor, Bast Bor at phase 5-6 leaf and in 14 days after the first top-dressing in 1l/ha.

The leafy surface intended by the technique of A. O. Nichiporovich, the harvest - by the regional method, statistical data processing carried out by using SAS 9.4.

Maximum indicators of the leaf surface area were formed in the flowering phase of sunflower plants, which under the influence of fertilizer variants changed in the following range: in plants of the hybrid NK Diamantis from 37.6 to 48.7 thousand m²/ha, SI Kupava was 41.1 - 52.39 thousand m²/ha, NK Neoma - 36.5-47.6 thousand m²/ha.

Using in the background of these fertilizers in non-root mood the substances with microelements increased the indicators of FP in the hybrid NK Diamantis to 1.25 – 1.43, SI Kupava – 1.41 – 1.68, NK Neome – 1.34 – 1.58 m²/ha*days.

By the calculations of the CSF, we received the result, which in dynamics was in direct dependence on the area of the leaf surface of the corresponding hybrids and variants of fertilizers. Because of the calculations, we received indicators that for the application of fertilizers caused an increase in CSF with a similar trend between the indicators obtained by the definition of FP.

The main criterion of assessment the impact of fertilizing on the process of photosynthesis and, consequently, the formation of productivity, is the value of crop yield. The use of fertilizers had a positive impact on the formation of yields of

sunflower hybrids. Thus, on variants without the use of nourishment yield indicators ranged in the hybrid NK Diamantis from 2.42 to 2.76 t/ha, SI Kupařava from 2.71 to 3.12 t/ha, NK Neomah from 2.59 to 2.89 t/ha.

Because of correlation analysis, we established a close correlation between the area of the leaf surface of sunflower hybrids in the flowering phase and yield. This coefficient ranged depending on the variant of edict from 0.923 to 0.978.

The analysis of yield indicators by years of research shows that more favorable weather conditions during the growing season have developed in 2018.

Based on the researches we found that the use twice in feeding at the initial stages of growth and development of sunflower hybrids of drugs Ecoline Bor, Ertus Bor, Bast Bor intensified further formation of the leaf surface, contributed to the growth of indicators of photosynthetic potential and net performance of photosynthesis and ensured increased yield. The highest efficiency obtained by adding of $N_{36}P_{56}K_{108}S_{28} + N_{23}$ and the non-root feeding Eco line Bor in the plants of the hybrid SI Kupařava, which ensured the formation of the leaf surface area for 52.39 thousand tons. m²/ha, CSF – 1.98 g/m² per day and yield at the level of 3.46 t/ha.

Key words: sunflower, fertilizers, micronutrients, boron, hybrids, Ecoline Bor, Nertus Bor, Bast Bor, leaf surface area, dry matter, yield.