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**EFFECTIVENESS OF COMBINED APPLICATION OF FUNGICIDES
AND NITROGEN FERTILIZERS IN THE PROTECTION OF WINTER
WHEAT AGAINST DISEASES IN THE CONDITIONS OF NORTHERN
FOREST-STEPPE**

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Statement of the problem. Getting stabling and high quality yields of crops, is currently one of agriculture. The increase in grain production and improving its quality belongs to the winter wheat. However, the main factors limiting the realization of potential productivity of winter wheat, there are diseases, which can reach 15–32 %, and in years with yield losses flashes – 50 % or more. Yield losses from septoriosus leaf blotch can be up to – 30–40 %, and losses from brown leaf rust lesion up to 40 % be 3–4 c/ha, and more 40 % – exceed 10 c/ha. This is primarily due to first of all simplification of the production technology, the weakening of the work on the creation of resistant varieties, insufficient processing of pesticides. Among dangerous fungal diseases wheat, able to reduce the harvest of wheat leaf blotch, brown leaf rust.

A significant improvement in performance and reduction of the lesion of winter wheat from disease can be the optimization of mineral nutrition through integrated use of mineral fertilizers and chemical means of protection plants. Foliar feeding of plants with nitrogen or applying it in excessive amount may extend the period of their vegetation. Thus in agroecose longer supports the conditions for the development of the sick, in particular Septoria. However, there are reports about the decrease in the intensity of infection of plants by Septoria for raising the rate of nitrogen feeding. Therefore, it is quite important to choose the right dose of mineral fertilizers and their combination with the application of fungicides that have a positive impact on improving technical efficiency of fungicides and increased yield of winter wheat.

Exposition of basic material. The combined use of nitrogen fertilizers and fungicides significantly increases the resistance of plants of winter wheat to brown leaf rust and Septoria. So, depending on the variations of the experiment, the damage crop diseases at stage 6 decreased from 27 to 19 %, and at stage 9 of organogenesis from 48 to 26 %. Reduced plant damage by fungal diseases positively influenced the growth and development of winter wheat plants. Thus, the application of optimal doses of nitrogen fertilizers and fungicides increases the productivity of stems from 380 to 426 pieces, the height of plants increases from 85 to 106 centimeters. At the same time, the number of ears in the ear increases

from 11 to 16 pieces, and the number of grains in the ear increases from 25 to 36, which resulted in an increase in the mass of grain from the ear of 0,78 to 0,92 grams and a mass of 1000 grains of 38 to 46 grams.

Improvement of the elements of the crop structure contributes to increasing the productivity of winter wheat.

The results of our research showed that the combined use of nitrogen fertilizers and systemic fungicides, in our conditions, increases the yield of winter wheat grain from 0,5 to 1,3 tons per hectare compared with the control variant.

Application of system fungicides Alto Super 330 EC, (0,5 l/ha) and Rex Duo, EC, (0,4 l/ha) with optimal doses of mineral fertilizers with extra foliar nutrition N₃₀ at the 4th stage of organogenesis, received net income of 10940 and 11600 thousand UAH per hectare, respectively.

Conclusions.

1. The most harmful diseases of winter wheat are brown leaf rust and septoriosiis, which with a slight degree of damage (5–10 %) reduce the weight of grain by 15,4 and 17,3 % respectively, and with strong (26–50 %) – by 40,3 and 42,3 % compared to healthy plants.

2. Complex application at stage 4 of organogenesis of nitrogen fertilizers and systemic fungicides Alto Super 330 EC, (0,5 l/ha) and Rex Duo, EC, (0,4 l/ha) reduces plant infestation by brown leaf rust and septoriosiis at 4th stage of organogenesis by 5 % and 7 % respectively. At 9th stage – reduction of damage by rust rust by 15–21 %, septophoresis – by 13–14 % compared with the control variant. This increased the yield by 1,1 and 1,3 tons per hectare.

3. Compatible application of mineral fertilizers N₃₀ kg/ha and systemic fungicides Alto Super 330 EC, (0,5 l/ha) and Rex Duo, EC, (0,4 l/ha) at the 4th stage of organogenesis it is possible to obtain a net profit of 10940–11600 thousand hryvnia per hectare, at a cost recovery of 3 times, which is economically advantageous.

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