THE ENVIRONMENTAL IMPACT OF ARIDIZATION ON THE CULTIVATION OF WINTER WHEAT IN THE CONDITIONS OF THE LEFT-BANK FOREST-STEPPE OF UKRAINE

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Introductions. An irrational application of fertilizers to crops is one of the main causes of soil and water pollution. The urgent issues of modern agriculture are its environmental safety. The problem of pollution of the environment and agricultural products with the residues of mineral fertilizers and pesticides is quite complex and is associated with many aspects relating to various economic sectors.

Keywords: winter wheat, aridization, inoculation, pollution of environmental.

And only purposeful work in all directions is the key to solving this problem [1, 172]. Large doses of mineral fertilizers contribute to an increase in the yield of cultivated plants, although its quality does not always correspond to the established standards [2, 1269–1290]. An alternative to excessive use of synthetic nitrogen fertilizers is the use of bacterial agents that indirectly increase the soil fertility and do not harm the environment.

The intensification of production entails the degradation and inhibition of soil formation processes associated with the activity of soil microorganisms, which play a major role in the deep and complete destruction of organic substances, some primary and secondary minerals [3, 5729-5746].

Winter wheat yield is formed under the influence of a complex set of agroclimatic conditions that affect its quantity and quality. Soil conditions are significantly dependent on anthropogenic impacts, one of which is the introduction of

nitrogen fertilizers. In a climate of warming and a sharp decrease in rainfall during the warm season, the Left Bank Forest Steppe raises the issue of revising the optimal doses of nitrogen fertilizers to obtain the maximum yield of winter wheat, since the rule "the more fertilizers, the greater the crop" does not work in hot, dry summer [1, 172; 4, 12-15].

The research was conducted on the basis of the training and practical center of the Sumy National Agrarian University. The object of scientific research is winter wheat of the Voloshkova variety. Subject of research - formation of grain yield and quality depending on the method of processing seed material with microbiological preparations and the dose of ammonium nitrate fertilizers introduced.

The area of the experimental plot is 0.1 hectares. The predecessor was a pea. Harvest was harvested directly from each site separately. Two factors influencing yield were investigated: the action of a microbiological preparation - Polymiksobakterin, Microgumin, Baikal; effect of the dose of introduced nitrogen fertilizer (NH_4 NO_3). Immediately before sowing, inoculation of sowing material with microinoculations was carried out. During the growing season, observations were made of the growth and development of culture. Three days before the massive harvesting of winter wheat on the field samples of plants were selected to determine the structure of yield and yield on the variants of experiments. In determining the structure of the crop determined the overall bushiness, productive bushiness, plant height, the mass of the ear, the length of the ear. From the indicators of grain quality, we determined the mass of 1000 grains, grain size, grain size, viability.

The study revealed a significant effect on the winter wheat yield of introduced main fertilizers and microbiological drugs. The highest yield, at the level of 4.6 t/ha, was formed on the areas of fertilized NH_4NO_3 at a dose of 60 kg/ha using Microgumin, a little lower - 4.3 t/ha - on sites with the same dose of the main fertilizer and the use of Baikal, even lower in areas using Polymycobacterin - 4.0 t/ha and insignificant on control, without feeding - no higher than 3.5 t/ha.

The highest density of productive wheat stalks in conditions of the dry growing season provided the areas processed by Microgumin and Baikal at the level of 417-

423 st/m^2. The largest mass of grain from 1 spike of wheat (2.1 g) in the study conditions was obtained in sites using Microgumin. The highest content of gluten and higher vitreousness in grain was found from sites whis 60-80 kg/ hectare NH_4NO_3 and the seed material was treated with biological agents. With increased standards for ammonium nitrate in a dose of 140 kg/ha there is a deterioration of the flour and bread quality of the grain, and the yield is reduced by 5% due to the extension of the vegetation phase: the dry vegetation period leads to the fact that the grain does not have time to maturate and dries up with the whole plant at the stage of wax maturity. In areas with nitrogen fertilizer 120 kg/ha, the yield decreased compared to the highest, by 21%: Without nitrogen fertilizing, the yield was low in all experience options at the level of 2.9-3.3 t/ha.

On the basis of the conducted research of the parameters of the yield of winter wheat, depending on the dose of nitrate-ammonium fertilizers introduced and the treatment of the seed material with microbiological inoculants in the conditions of the dry spring-summer period, we can draw the following conclusions:

- the quantity and quality of the winter wheat crop is significantly influenced by the use of nitrate-ammonium fertilizers and to a small extent by the inoculation of the seed material by microbiological preparations;

- the highest grain yield was provided by areas fertilized with ammonium nitrate at a dose of 60 kg/ha NH4NO3 and microbiological preparation Microhumine - 4.7 t/ha, the smallest crop was formed in areas where nitrogen fertilizers were applied at a dose of 120 kg / ha and were not used 3.4 t/ha;

- studies have shown that in the conditions of sharp aridization of the temperate climate of the Left Bank Forest Steppe in the cultivation of winter wheat Voloshkov increase in the dose of ammonium nitrate fertilizers above the optimum does not lead to an increase in yield and improve the flour-grinding qualities of grain. Therefore, from an environmental and economic point of view, to ensure maximum and high-quality yield, moderate NH4NO3 application should be maintained within the range of 60-90 kg/ha and inoculants Microhumine and Baikal should be used.

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