

WORK COMPLETION REPORT
UNDER AGREEMENT No. 11/2019 DATED OCTOBER 10, 2019

Subject: "RECOMMENDATIONS FOR THE APPLICATION OF AGROCHEMICALS BASED ON HUMOS SUBSTANCES " EKO-SP " MADE BY LLC "EKOR-SP" COMPANY ON WINTER WHEAT CROPS IN ROSTOV REGION"

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1. Study procedure

The recommendations are developed in 2019-2020. in the conditions of the Agricultural Enterprise "Altair" in the Aksai region. The predecessor of winter wheat is winter wheat. Winter wheat variety Zolushka. The area of the experimental plot is 20 m * 5.6 m (112 m²). The experiment replication is fourfold.

Mineral fertilizers in the form of azofoska (16-16-16) were applied in the autumn simultaneously with the sowing of winter wheat at a dose of 150 kg/ha. In February (03/19/2020), nitrogen fertilization with ammonium nitrate was carried out on thawed-frozen soil at a dose of 250 kg/ha in gross weight.

The object of study was a "EKO-SP" fertilizer, based on humic substances. The "EKOR-SP" company is a Russian developer and producer of environmentally friendly biological products based on peat extract, strains of microorganisms, groups of humic acids, low molecular weight organic acids. Production is located in the Moscow region. This is a high-tech, modern equipment capable of producing an effective product, high-quality raw materials, as well as highly qualified specialists who implement progressive market trends in production. The fertilizer is packed in canisters of various sizes, which makes it easy to use.

The enterprise produces "EKO-SP" fertilizer, based on humic substances. The product is a concentrated liquid product, that meets the highest quality requirements, both in composition and in physical and morphological parameters (dispersity). The basis of the fertilizer is an extract from lowland peat with a high concentration of humic and fulvic acids, treated structured water, a set of macro- and microelements. High production technology, filtration, ozonation, homogenization, and the use of structured treated water - were able to extract the living force of nature and transform it into the company's product line. It is a natural product with very high biological activity.

2. Productivity of winter wheat

The productivity of winter wheat grain in the control variant (fertilization system of the farm) was 3.63 t/ha (Table 5, Table 6, Figure 5, and Figure 6).

Treatment of winter wheat seeds before sowing with "EKO-SP" humus fertilizer with A and B concentrations contributed to an increase in crop productivity almost equally - by 0.20-0.22 t/ha or 5.4-6.1%.

Twofold treatment of winter wheat plants at a dose of 1 l/ha with "EKO-SP" humus fertilizer with A and B concentration against the background of seed treatment with organomineral fertilizer increased the productivity of winter wheat compared with the control variant by 0.45-0.55 t/ha or by 12.3-15% and compared to the variants, where only seed treatment was carried out at a dose of 0.5 l/t - by 0.23-0.25 t/ha or 6.2-9.6%. The difference in the effect on the productivity of winter wheat seeds of fertilizers, based on humic substances of B concentration compared with the A concentration with twofold treatment was 0.10 t/ha. But this increase is less than the LSD of the experiment.

The use of threefold treatment of winter wheat plants in the spring tillering phase, stem elongation, and earing against the background of seed treatment before sowing did not contribute to an increase in the productivity of winter wheat compared to twofold treatment. There was only a tendency to an increase in grain productivity.

Two- and threefold treatment of winter wheat plants during the growth contributed to almost the same increase in grain productivity compared to the control variant by 0.41-0.53 t/ha. The maximum was reached on the variant with the application of "EKO-SP" humus fertilizer with B concentration three times during the growth. But the increase in comparison with the analogous variant with "EKO-SP" humus fertilizer with A concentration was 0.10 t/ha, which is less than the LSD of the experiment.

3. Economic assessment of the application of fertilizers

The economic assessment of the application of fertilizers allows to conclude about the feasibility of its use in production. The economic efficiency of the application of fertilizers was determined by the following indicators: the cost of cultivation of products per 1 hectare, the cost of products per 1 hectare, the net cost of 1 ton of manufactured products (the ratio of the costs of cultivation of products per 1 hectare

to grain productivity, t/ha), conditional net income from 1 hectare (the cost of marketable products minus additional costs) and the profitability of the application of fertilizers (the ratio of conditionally net income to costs). To calculate the cost of products, the following purchase prices for 2020 were used: 13,100 rubles per 1 ton of grain of winter wheat of the 4th grade. The price of 1 liter of "EKO-SP" fertilizer is . When combined with treatments with plant protection agents, costs were not taken into account. The transportation of additional products of winter wheat grain harvest is 200 rubles for 1 ton.

The assessment of the economic efficiency of cultivation of winter wheat showed, that the level of profitability in the control variant (fertilization system of the farm) was 194%, the net cost of production of 1 kg of grain - 4.46 rubles. (Table 10).

The application of the "EKO-SP" agrochemical contributed to an increase in the level of profitability and a decrease in the net cost of winter wheat grain. The highest level of profitability was obtained when the "EKO-SP" fertilizer was used for seed treatment and spray application during the growth. Two- and threefold application of "EKO-SP" fertilizer with B concentrate increased the level of profitability compared to the control variant by 44% and 47%, respectively, while reducing the net cost by 0.48 and 0.47 rubles/kg.

RECOMMENDATIONS FOR PRODUCTION

In order to increase the grain productivity of winter wheat on ordinary medium-deep chernozem in the conditions of the Aksai district of the Rostov region, it is advisable to use "EKO-SP" fertilizer, based on humic substances, with B concentrate at a dose of 0.5 l/t of seeds and at a dose of 1 l/ha by the spray method in the phase of spring tillering, stem elongation and flowering (earring) during the growth.

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