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## ENERGY EVALUATION OF THE EFFECTIVENESS OF LIQUID ORGANIC-MINERAL FERTILIZERS IN GROWING SPRING BARLEY

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**Formulation of the problem.** At today's level of agricultural production, energy consumption for equipment, fertilizers, irrigation water, much higher than the standards, is significantly increased. Therefore, the rational use of non-renewable and renewable energy is considered as the most important condition for increasing the production of crop production. All this dictates the need for a comprehensive calculation of energy costs.

The purpose of our study is to determine the energy efficiency of new types of fertilizers at different times and how to apply them.

**Statement of the main material.** The studies on the use of liquid organo-mineral fertilizers were conducted during 2014-2016 on the basis of the temporary field experiment of the experimental farm «Grakovsky» National Scientific Center «Institute for soil science and agrochemistry research named after O. N. Sokolovsky». The soil – chernozem is a typical with humus content – 5,4–5,5%, total nitrogen – 0,26–0,29%, light hydrolyzed nitrogen – 175,5–187,4 mg/kg, mobile phosphorus compounds – 82,0–92,1 mg/kg, potassium – 101,5–126,7 mg/kg, pH 6,7–7,1.

In the experiment, for the creation of optimal agrofones, carbamide-ammonium nitrate (CAN-32) and liquid OMF on its basis were used, where the share of humate was 5 % and 15 % of the volume of CAN. The fertilizers were applied for presowing cultivation at a dose of 40 kg/ha of active ingredient nitrogen, and also on a leaf at a dose of 6 kg/ha. The culture that was grown is the spring barley of the variety of «Parnassus». For the growth of barley, the energetic costs associated with the use of liquid OMF were the highest and amounted to 22,12–23,45 GJ/ha. The accumulated energy content in the spring barley crop was at the level of 77,64–89,18 GJ/ha. The maximum values of the energy coefficient  $K_{ee} \geq 3,5$  were obtained in variants treated with plants by liquid OMF and increased from 3.51 units. in the version Background 2+ (OMF-1) to 3,80 units. in the version Background 3+ (OMF-2).

**Conclusions.** An energy saving factor in the technology of growing barley has been integrated application of liquid OMF, which in efficiency is not inferior to the mineral fertilizer system.

Production costs have had a corresponding impact on the total energy costs, which the highest values were acquired in variants with the integrated introduction of liquid OMF, but due to higher yields, the energy intensity of the crop on variants The coefficient of energy efficiency was at the level of 3,51-3,80 units, which is 0,20 and 0,49 units exceeded the corresponding indicator, calculated for the variant with the smallest grain yield in the experiment.

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