ECOLOGICAL-AGROCHEMICAL TECHNIQUES FOR INCREASING CROP ROTATION PRODUCTIVITY UNDER CONDITIONS NON-BLACK EARTH ZONE OF RUSSIA

T. V. ZUBKOVA [1], D. V. VINOGRADOV [2]

[1] *BuninYelets State University, Yelets, Russia*
[2] *Ryazan State Agrotechnological University Named after P. A. Kostychev, Ryazan, Russia*
ZubkovaTanua@yandex.ru

Introduction. With the intensification of agriculture, the anthropogenic load on the soil is increasing, changing its fertility and, in this regard, the most important task of agriculture is to comply with a scientifically sound agroecological system for the use of fertilizers, plant protection tools in order to increase soil fertility and obtain optimal yields with high quality products without pollutants. The object of the study was the soil of a universal grain-and-grains four-floor crop rotation. The purpose of the work was to develop, substantiate agrochemical and agroecological measures to increase crop rotation productivity and calculate the fertilizer system in the conditions of the Non-Black Earth Zone, using the example of the Ryazan region.

Materials and methods. Research was carried out on dark gray forest soils in the conditions of an agrotechnological experimental station in the Ryazan region. As part of the preparatory work on the justification of measures in the field universal grain-and-grains four-field crop rotation, the balance of humus was calculated according to the Tyurin's method. A scientifically based plan for the use of fertilizers was drawn up taking into account the norms, timing and methods of application of fertilizers, the biological characteristics of cultivated crops, types and forms of fertilizers.

Results and discussion. In the conditions of the agro-technological experimental station of the FSBEI HE RSATU of the Ryazan Region, a complex of agrochemical and agroecological measures aimed at preserving and improving soil fertility is recommended. Soils of the studied crop rotation have a slightly acidic reaction of the soil environment pH - 5.4; Ng - 1.5-4 mg-eq ./100 g. To reduce the acidity of the arable soil layer, it is recommended to add limestone flour in the norm of 9.7 t/ha = 10 t/ha. The balance of humus in the crop rotation under study was negative - 6.3 tons/ha, to cover the shortage of humus according to the calculation, it is necessary to add 7 tons/ha of bedding manure. Organic fertilizers in the form of manure are planned to be introduced 2 times for the rotation of crop rotation in pure vapors for winter wheat.

Conclusion. The developed agrochemical and agroecological measures will ensure an increase in the reserves of humus and nutrients in the soil, eliminate the adverse reaction of the soil environment and eventually obtain the planned high crop yields.