# THE INFLUENCE OF APPLICATION OF FERTILIZERS AND LIMESTONE AMELIORANTS ON THE NUTRITION REGIME OF SOD-PODZOLIC SOIL FOR SOYBEAN GROWING IN CONDITIONS OF WESTERN POLISSIA

**V.M. Poliovyi**

**S.M. Kulyk**

The results of researches of the influence of fertilization and aftereffects of various norms of limestone ameliorant on the dynamics of the nutritional regime of sod-podzolic soils in the conditions of Western Polissia of Ukraine are presented. The researches were conducted during 2013–2015 in a long-term stationary experiment based on the Institute of Agriculture of Western Polissia. It was established that the application of fertilizers and aftereffect of liming are effective agrotechnological measures that improve the nutritional regime of sod-podzolic soils.

The application of organo-mineral fertilizer system following the aftereffects of various norms of limestone ameliorant provided a significant increase in the content of mineral compounds of nitrogen in the soil to 13.7–18.3 mg/kg of soil, depending on the rate of chemical ameliorant, which was on 4.7–9.3 mg/kg of soil more in comparison with organic fertilization system, where this index was 9.0 mg/kg of soil, and was on 1.0–5.6 mg/kg of soil more than at application of $N_{40}P_{60}K_{60}$. It should be noted that in variants with close to neutral reaction of soil solution content of mineral forms of nitrogen increased to the average level, while in variants with acid reaction it was low. This indicates a decrease in the positive effect of fertilizers in these variants.

In the variant with aftereffect of 2.0 norms of lime and application of $N_{40}P_{60}K_{60}$ against the background of the use of by-products for fertilizer, the amount of phosphorus mobile compounds was the largest (236.7–258.2 mg/kg of soil).

Application of organo-mineral fertilization system and aftereffect of 0,5–1,5 norms of limestone ameliorant contributed to the increase of the amount of mobile

compounds of potassium to the middle level. The application of increased rate of mineral fertilizers ($N_{60}P_{90}K_{90}$) and aftereffect of 1.0 norm of lime provided the highest content of potassium mobile compounds at the level of 92.0–116.2 mg/kg of soil, which was on 48.7–61.3 mg/kg of soil more than in the control and 8.1–9.9 mg/kg of soil more than in the similar variant at the application of $N_{40}P_{60}K_{60}$.

**Keywords:** sod-podzolic soil, liming, dose of lime, fertilizers, mineral compounds of nitrogen, mobile compounds of phosphorus and potassium.