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**INFLUENCE OF CROP ROTATIONS
AND FERTILIZER SYSTEMS
IN FORMATION OF GREY FOREST SOILS FERTILITY**

Determination of the dynamics of nutrients content in the soil under different crops showed that their number varied from application of mineral and organic fertilizers and phases of plants development. The highest content of alkaline hydrolysed nitrogen (13,68 and 11,49 mg/100 g of soil), mobile phosphorus (14,26 and 12,75 mg/100 g of soil) and exchangeable potassium (12,13 and 10,65 mg/100 g of soil) under winter wheat in arable and subarable layers was at the time of the spring vegetation restoration, after the forecrop of winter wheat in grain crop rotation on the variant of direct application under this culture of organo-mineral fertilizers. In the alternative fertilizer system (siderate, by-products of winter wheat, mineral fertilizers) in the same crop rotation in the arable and subarable layers of alkali hydrolyzed nitrogen accumulation decreased by 0,63 and 0,21, of mobile phosphorus: by 0,73 and 0,56, of exchange potassium: by 0,41 and 0,18 mg/100 g of soil.

The analysis of experimental data shows that in the control version (without fertilizers) in the period of spring vegetation restoration, the highest content of available nitrogen in wheat sowings was provided meadow clover on green mass (10,84 mg/100 g of soil). This indicator was lower after legume forecrops pea and soya – 10,73 and 10,62, and buckwheat – 10,53 and corn for grain – 10,32 mg/100 g of soil. The lowest values were observed at the repeated winter wheat crops – 10,16 mg/100 g of soil.

Maximum indices of moving forms of phosphorus content in the arable soil layer were on the variant of mineral fertilization after the buckwheat forecrops – 13,56 mg/100 g of soil. High values of exchangeable potassium (11,88 and 11,71 mg/100 g of soil) in winter wheat sowings were obtained for the same fertilizer system after soya and pea forecrops, the lowest ones after corn on green mass – 11,41 mg/100 g of soil.

An analysis of the dynamics of soil nutrient regime under spring crops, namely potato and spring barley, showed that organoleptic and mineral fertilizers contributed to better level of supply of nutrients.

Balance calculations of nutrition elements on different fertilizer systems indicate that application on 1 ha of crop rotation area of 8–10 tons of manure and mineral fertilizers at rate $N_{45-69}R_{60-77}K_{60-77}$, as well as reduction of their number by half at ploughing of siderate, by-products provide positive nitrogen balance in all crop rotation ranges from +26,0 – +43,0 kg/ha (organo-mineral system) and +19,0 – +33,0 kg/ha (alternative system).