

Annotation

Hospodarenko G., Lysiatskyi O.

Recycling of biogenic elements in the soil under different green manures and their fertilization

Today in the absence of possibility to use traditional forms of organic fertilizers particular importance belongs to growing green manures in crop rotations, which allows accumulating biogenic resources for reproduction of soil fertility. The task of the research was to study the effect of types and doses of mineral fertilizers on accumulation of fertilizer elements in phytomass and foot end of green manures. For sideration white clover with seeding rate of 20 kg/ha, white mustard – 20, oil radish – 20, spring vetch – 150 and buckwheat – 150 kg/ha were used in following fertilizer variants: no fertilizers – control; N_{40} ; $P_{40}K_{40}$; $N_{40}K_{40}$; $N_{40}P_{40}$; $N_{40}P_{40}K_{40}$; $N_{80}P_{40}K_{40}$. The influence of different types and doses of mineral fertilizers on accumulation of fertilizer elements in biomass of green manures and their use with mineral fertilizers in podzolic chernozem of the Right-Bank Forest-Steppe are determined. It is shown that green manures depending on the level of mineral nutrition of one hectare accumulate 145–397 kg of nitrogen, 40–114 – P_2O_5 , 112–270 – K_2O and 67–355 kg of CaO. Adding single and double dose of nitrogen fertilizers on the background of $P_{40}K_{40}$ contributes to additive accumulated elements – accordingly on 32–48 and 36–47 % in comparison with the control, by the ratio of $N : P_2O_5 : K_2O$ for buckwheat 1 : 0.5 : 1.3; white mustard and oil radish – 1.0 : 0.3 : 1.0; white clover and spring vetch – 1.0 : 0.2 : 0.5. Utilization coefficient of fertilizer elements by green manures from fertilizers varies depending on types and doses of their applying. Application of phosphate and potash fertilizers contributes to coefficients of using nitrogen. At the same time increasing the dose of nitrogen fertilizers to 80 kg/ha on the background of $P_{40}K_{40}$ reduces it compared to the dose of 40 kg/ha to 49–95 % depending on the crop. Utilization coefficient of phosphorus and potassium in the variant $N_{40}P_{40}K_{40}$ accordingly ranges from 28 % (oil radish and vetch) to 58 % (buckwheat) and from 43 % (spring vetch) to 70 % (white mustard).

Key words: green-manured fallows, white clover, white mustard, oil radish, spring vetch, buckwheat, fertilizers, accumulation of fertilizer elements, utilization coefficient of fertilizers.