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Agroecological assessment of soil structure

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Abstract

The formation of the soil structure is determined by the soil formation factors, by the soil-forming processes, but at the same time, the structure formed in the soil affects the physico-chemical and microbiological processes in the soil profile and in the catheter, and determines the fertility of soils.

In the studies carried out, the chemical composition of the fractions of a lumpy structure of different sizes is distinguished. In the chernozems, 10-3 mm fractions contained (in the extract CH_3COOHN_4) less than Ca – 23.9±2.1 ($\cdot 10^3$) mg/l , Mg – 9.5±0.2 ($\cdot 10^3$); K – 102.2±3.3, and the fractions of 2-0.25 mm, respectively, Ca – 29.9±1.9 ($\cdot 10^3$); Mg – 10.8±0.7 ($\cdot 10^3$); K – 120.9±3.6.

The outer and inner layers of prismatic structural separations of sod-podzolic soil differed in the content of water-soluble forms of calcium and magnesium. In poorly cultivated soil, Mg, Ca, respectively, in the outer layer 3.2; 2.6 mg/l; in the inner layer 4.2; 3.5 mg/l. In well-cultivated soil in the outer layer, Mg is 8.6, Ca is 7.6; K – 1.2 mg/l; in the inner case, respectively, 3.9; 3.8 and 0.9 mg/l. The planes and edges of the structural units differed in biological activity.

The introduction of stubble residues of plants and organic fertilizers led to an increase in the coefficient of soil structure. When 3 g of crop residues per 100 g of soils were introduced into the sod-podzolic soil, the aggregate content of more than 3 mm increased from 0.11% to 9.39%. The introduction of organic-mineral compost in the field to chernozems led to an increase in the structural coefficient from 2.5 to 3.0.

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