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DYNAMICS OF LABILE AND WATER-SOLUBLE FORMS OF HUMUS UNDER INFLUENCE OF FERTILIZER SYSTEMS AND TECHNOLOGIES OF BASIC SOIL TILLAGE IN SHORT ROTATIONAL CROP ROTATION

It was established that the systems of basic soil cultivation have an impact both on the accumulation of labile and water-soluble humus and on their redistribution by soil layers.

In corn crops, the highest values of labile humus are formed in the arable layers at the beginning of growing season in variants with application of $N_{120}P_{90}K_{90} + 40$ t manure and $N_{50}P_{40}K_{40} + 40$ t manure + by-products (straw of stubble preceding crop – winter wheat) + sideral fertilizer (post-harvest crop of radish oil).

A 25–27 cm plow in the corn sprouts phase provides higher values of labile humus in the underarable water (20–40 cm) layer (547,13–551,63) compared to 518,22–522,08 mg/100 g of the arable land horizon (0–20 cm) at an intensive and 452,40–460,71 to 434,91–441,12 mg/100 g of soil with an alternative fertilizer system.

Chiseling operations during the growing of culture on the mentioned fertilizer backgrounds in the 0–20 cm layer contribute to the formation of 559,17–465,88 and 493,11–403,91, in the layer 20–40 cm – 508,53–421,67 and 438, 47–352,88 mg/100 g soil labile humus.

The higher level of humus accumulation under beans was at the time of plowing by 14–16 cm and was 459,21–408,39 mg/100 g of labile and 12,30–10,07 mg/100 g of water-soluble humus soil under intensive at application directly under culture $N_{30}P_{70}K_{70}$ and 428,11–381,20 mg/100 g of labile and 11,42–9,34 mg/100 g of water-soluble humus soil under an alternative fertilizer system when using $P_{30}K_{30} +$ byproducts + sideral fertilizer.

The highest indices of the content of a mobile humus substance under oats were noted during the sprouts period at the discing variants of 10-12 cm when application directly under the culture of $N_{60}P_{60}K_{60}$ and

N₃₀P₃₀K₃₀ + byproducts as in the arable so and subarable layers: 477,04–413,46 and 436,69–372,91 mg/100 g soil of labile and 17,03–15,98 and 14,87–13,64 mg/100 g soil of water-soluble humus.

Replacement of without mouldboard operations on mouldboard plowing (20–22 cm) under oats causes the formation of the lowest values of moving humus forms: 438,21–383,24 and 397,88–346,81 and 14,32–13,21 and 12,13–11,07 mg/100 g of soil, according to fertilizer systems and depth of definitions.