

EVALUATION OF THE CONSERVATIVE AGRICULTURE BENEFITS ON SOIL PROPERTIES AND HARVESTS IN CROP ROTATION WITH LEGUMES

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Abstract

The experimental results regarding the changes in the properties of degraded arable ordinary chernozem from southern zone of Moldova and agricultural crops harvests in 5-field crop rotation with incorporation into the soil of one and two harvests of vetch green mass as organic fertilizer are presented. The results carried out in 2015-2019 showed that the introduction in the first agricultural year by disking into the soil of two green mass of vetch, led to restoration of the physico-chemical properties of the arable layer 0-20 cm and increased crop productions. The bulk density of 0-20 cm soil layer from unfavorable state became very favorable, the resistance to penetration from high and very high, became extremely low and low, which contributed to the easy penetration into soil of plant roots. The soil structure became agronomical favorable. The hydrostability of soil aggregates not soil layers 0-10 and 0-20 cm did not change, that is explained by the texture peculiarities of ordinary chernozem (loamy-dusty with high fine sand content). The porosity values correlate with the bulk density are favorable for a normal regime of soil aeration. The humus content increased by 0.16-0.26% in five years. The money value of the 4-year harvest increase was 18 080 MDL or 1090\$. The results conducted in 2015-2019 confirmed that the preventive restoration of the quality state of the degraded arable soils is absolutely necessary to be carried out until the implementation or in the process of using the conservative agriculture system, based on No-till or Minimum-till technologies.

Key words: benefits, conservative agriculture, crop rotation, legumes, soil properties
