

INFLUENCE OF CONSERVATION TILLAGE ON THE MAIN SOIL PHYSICAL PROPERTIES OF WINTER PEA CROP IN CONDITIONS OF EZARENI FARM, IAȘI, ROMANIA

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Abstract

The aim of this study is to investigate the effects of different tillage on the main soil physical properties in the conditions of Ezareni Farm, Iasi, Romania. The study was conducted at the Ezareni Farm within the Didactic Station of the University of Life Sciences „Ion Ionescu de la Brad" Iasi. The study was carried out on a cambic chernozem soil type. Two tillage systems, the conservative or no- tillage (NT) and the conventional one (CT), have been evaluated. The soil bulk density, the soil moisture and water stable aggregates were determined for each tillage system. The bulk density was determined measuring both the soil weight and volume at sampling. These soil samples were taken from four different layers: 0-10, 10-20, 20-30 and 30-40 cm. Regarding the water stability of soil aggregates, the soil samples were also taken at different depths and the soil moisture content was evaluated. Soil samples were taken down to a depth of 90 cm. Sampling was carried out in three replicates for each depth. The no-till system had a highly significant effect on the bulk density of the soil, particularly at a depth of 10-20 cm (NT2), with 1.50 g/cm³ being the highest value obtained. The same effect was observed for soil aggregate stability under the same treatment and at the same depth, where the highest value was 90.16%. Regarding to soil moisture, it took the second year of study to obtain a significant effect.

Key words: No-tillage, soil physical properties, winter pea, Ezareni