



Soil tillage impact on aggregate hidrostability, carbon and nitrogen content from soil

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The aim of this paper was to quantify the impact on soil quality induced by three tillage regimes: conventional tillage with plough at depths of 20 cm (CT), tillage with chisel plough (MT) and direct drilling (NT). Soil physical properties measured were aggregate size distribution (DSAS) and stability soil (WSA), soil water retention characteristics, soil organic carbon (OC) and total N content (N_{tot}), under local climatic conditions. The experiment was conducted in the north-east of Romania at the Ezăreni experimental farm of the University of Agricultural Sciences and Veterinary Medicine Iași, during 2007-2009, in a cropping systems, viz., rape – wheat (*Brasica napus* – *Triticum aestivum*). Soil samples were collected (0-10; 10-20; 20-30 cm) from all treatments and separated into six aggregate size classes for assessing proportions of macro- (5-8; 2-5; 1-2; 0,5-1; 0,25-0,5 mm) and micro- (< 0,25 mm) aggregates by dry sieving. Tillage treatments significantly influenced water stable aggregates (WSA) and distribution of soil aggregate size (DSAS). For 0-10 cm WSA and distribution of macro-aggregates (> 0,25 mm) were observed greater for CT than in others tillage treatments. Under this depth the relative proportion of macro-aggregates was more in NT. Those two physical properties increased with increase in soil depth and also from sowing time till wheat maturity. For the depth 0-30 cm, the higher organic carbon and total N concentration were found in NT treatment. The data obtained indicate the importance of NT in improving the soil quality.