



The modification of physical properties of a cambic chernozem under conventional and conservative tillage

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The experiment carried out during 2006-2007, was located in the East part of Romania, (47°07' N, 27°30' E), on a cambic chernozem with a clayloamy texture and 2.7 % humus content. Each set of plots received the following treatments annually: conventional tillage: ploughed at 20 and 30 cm and unconventional tillage: disk harrow, chisel + rotary harrow, paraplow. Bulk density (BD) had the lowest values at the seeding time on 0-10 cm depth (1.12-1.20 g/cm³). The highest values have been provided by plough at 20 cm, paraplow and disk harrow variants on 20-30 cm layer. The disk harrow variant resulted in the highest values of penetration resistance (PR) on all analyzed layers (1.14 at the surface to 2.45 MPa at 40-50 cm), which would limit the ability of crop roots to expand into deep zones of moisture availability. As regards the water stable aggregates (WSA) at the sowing time, we had the biggest average value at the chisel + rotary harrow variant (77.08%) and the smallest one at disk harrow treatment (69.44%).