Influence of some agrophytotehnical parameters on the wheat and maize yields and soil fertility in the Moldavian Plain

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The investigations conducted during 1998 – 2007 have followed the influence of different soil tillage systems on crop yield and soil chemical and physical characteristics. Experiments were set up in split –split plots on a typical Cambic Chernozem of clay-loam texture, mean humus content (3.3 %), weakly acid reaction and mean supply in mineral elements. The paper presented the results of investigations concerning the influence of long-term fertilization on some chemical characteristics of Cambic Chernozem from the Moldavian Plain and on the wheat and maize yields. On slope lands, the high rate fertilization of maize crop (N140P100) has determined, in the latest ten years, an average yield increase of 103% (3373 kg/ha), against the control, and applying a rate of N70P70+40 t/ha manure resulted in getting a very close yield increase (99%, 3258 kg/ha). The total carbon content in Cambic Chernozem from the Moldavian Plain has registered significant increases at higher rates than N140P100 and in case of organo-mineral fertilization. The annual fertilization of wheat and maize, at the rate of 70 kg N + 70 kg P2O5/ha + 6 t/ha stalks of wheat, has determined, compared to the unfertilized variant, the increase in the content of organic carbon from soil by 14.5% (2.4 g organic C/kg) on weakly eroded soils, and by 29.5% (4.2 g organic C/kg) on highly eroded soils. During the long-term fertilizing of wheat and maize with high rates of mineral fertilizers (N140P100), on highly eroded lands, the total content of carbon has increased by 16.9% (2.4 g organic C/kg soil), against the unfertilized control.