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Research on the evolution of the main soil chemical features as influenced by cropping system and soil erosion

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The experiments carried out at the Podu-Iloaiei Agricultural Research Station, during 1986-2007, had the following objectives: study of water runoff and soil losses by erosion, in different crops; annual rate of erosion processes under the influence of anti-erosion protection of different crops; influence of water runoff and soil erosion on organic matter and mineral element losses from soil. The investigations concerning the potential erosion, conditioned by geomorphologic, soil and climatic factors, have shown that in the NE region of Romania, the mean soil losses by erosion were of 18.5 t ha year−1. The investigations concerning the effective erosion, based on direct determinations, have shown that in the NE region, the effective erosion had a mean value of 4.5 t ha year−1.The mean annual soil losses, caused by erosion, registered during 1986 – 2007, were of 0.286 t ha−1 in perennial grasses, on the second growth year, 4.617 t ha−1 in beans, 9.268 t ha−1 in maize and 9.794 t ha in sunflower. The analysis of results has shown that the erosion process, by decreasing soil fertility, has determined the differentiation of mean wheat yields, according to slope and erosion, from 3632 (100 %) to 2916 kg ha−1 (80.3 %). The mean annual yield losses caused by erosion, registered in wheat in the last 10 years, were of 716 kg ha−1 (19.7 %).