



Investigation on the influence of crop rotation and fertilization on wheat yield, soil erosion and fertility in Moldova plain

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Investigations, set up in 1968, were carried out on a cambic chernozem with a slope of 14 %. They have shown the influence of different crop rotations and fertilization on soil erosion and fertility.

Applying high mineral fertilizer rates (N140 P100) has resulted, after 39 years of experiencing, in getting average yield increases (in comparison with unfertilized control) of 1657 kg/ha in wheat continuous cropping, 1736 kg/ha in wheat - maize rotation and 2085 kg/ha in peas - wheat - maize - sunflower + reserve field cultivated with legumes and perennial grasses. On slope lands from the Moldavian plain, maintaining a good supply in mobile phosphorus for field crops (37 - 72 mg/kg) was done in case of the annual application of a rate of N100P80, and a very good supply in mobile phosphorus (69 - 78) and mobile potassium (over 200 mg/kg) was found at a rate of N60 P40 + 30 t/ha manure, applied in 3 or 4 - year crop rotations with legumes and perennial grasses. After 39 years of using different rotations, the humus content from soil, in case of high fertilizer rates (N140 P100), was between 2.93 % in wheat-maize rotation and 3.38 % in peas - wheat - maize - sunflower + reserve field cultivated with legumes and perennial grasses.

The mean annual losses of nitrogen, phosphorus and potassium, once with runoff water and eroded soil on 14 % slope fields were of 19.9 kg/ha in maize continuous cropping, 11.9 kg/ha in wheat - maize rotation and 8.1 kg/ha in crop rotation peas - wheat - maize - sunflower + 2 reserve fields cultivated with perennial grasses and legumes.