



# EVOLUTION OF SOIL FERTILITY UNDER THE INFLUENCE OF IRRIGATION AND FERTILIZERS IN THE MOLDOVA PLATEAU EVOLUTIA FERTILITATII SOLULUI SUB INFLUENTA IRIGARII SI FERTILIZARII IN CAMPIA MOLDOVEI

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The research carried out at the Podu-Iloaiei Agricultural Research Station, during 1980-2003, concerning the effect of irrigation and fertilizers on soil physical, chemical and biological characteristics pointed out the following conclusions:

The main limiting factors in using irrigated lands are soil settling at a depth of 18-45 cm and degradation of texture and structure at soil surface, as a result of irrigation and technological flow. After 24 years of land usage under irrigation, clay and humus migration process at depth determined the increase of the content of coarse fractions in the ploughed layer and worsening of soil texture and structure. Under irrigation and mineral fertilization, although the supply with organic matter was 16-28 % higher compared to unirrigation, it could not prevent the decrease of humus content which maintained at the initial value only in case of organo-mineral fertilization.

The long-term use of high mineral fertilizer rates (N130 +100 P<sub>2</sub>O) or N70 + 70 kg/ha P<sub>2</sub>O<sub>5</sub> + 30 t/ha manure determined the increase of humus content from soil with 0.26 and 0.38 units.

Enzyme processes from soil developed in close connection with the presence of organic matter, mineral elements and crop structure from rotation. Organo-mineral fertilization had a positive influence on respiration and cellosolitic potential of soil, stimulating favorably the life level in soil. The determination of biological indicators and estimate of soil fertility allow the knowledge of multiple soil biochemical changes under the influence of pedoclimatic conditions and technological links and management of agricultural activities for soil protection and conservation.