



Considerations over the distribution of the organic matter in the soil cover of Transylvania Plain (Romania)

Horia Cacovean, Titus Man, and Teodor Rusu

Pedological and Agrochemical Office, Soil Science, Cluj Napoca, Romania (turda75@yahoo.com, +4064443467)

Considerations over the distribution of the organic matter in the soil cover of Transylvania Plain (Romania)

Horea Cacovean*, Titus Man**, Teodor Rusu***

*OSPA-Cluj- 1Faglui street, Cluj Napoca, RO-40048, Romania- turda75@yahoo.com

** Faculty of Geographie, University of Babes-Bolyai, 5-7 Clinicilor street, Cluj Napoca, RO-400006, Romania

*** Faculty of Agriculture, USAMV, 3-5 Calea Manastur street, Cluj Napoca, RO-400372, Romania

Soil degradation has become a major concern in the Transylvania Plain. Erosion, landslides, salinization, gleysation, and loss of humus are the main forms of soil deterioration in that region. This factsheet deals with the role of organic matter in soil productivity and the effects of various management practices and abandonment of the lands on soil organic matter. Soils in Transylvania Plain are analyzed concerning the amount of humus they contain. The influence of soil texture, climatic variables, and soil management on the qualitative soil humus content was studied in the top 20 cm of different managed loess soils of more than 100 profiles along a climosequence in that region. Taken together, soil, landform, land use and vegetation data suggest: (1) summit positions are relatively stable with immobilizing humus environments; (2) the content of humus increase progressively down steep at the contact with the floodplains; 3) without the influx of organic materials, erodible backslopes may become humus depleted as it happen the poor inputs of grassland and forest litter are mixed with surface soil horizon; 4) influx of mixed sediment and organic materials from backslopes maintains concentrations of humus on footslopes and toeslopes. This influence was more pronounced in the heavy clayey soils, suggesting that the accumulation of humus was enhanced by organo-mineral interactions. Entrenchment of drainage ways can circumvent these translocation processes. The results underscore the importance of functional connectivity between upland hillslopes and alluvial soils.