



Designation of less favorable areas by the regionalization of soil degradation on various spatial scales

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One of the main objectives of the EU's Common Agricultural Policy is to encourage maintaining agricultural production in less favorable areas (LFA) in order (among others) to sustain agricultural production and use natural resources, in such a way to secure both stable production and income to farmers and to protect the environment. LFA assignment has both ecological and severe economical aspects.

Delimitation of LFAs can be carried out by using biophysical diagnostic criteria on low soil productivity and poor climate conditions. Identification of low-productivity areas requires regionalization of soil functions related to food and other biomass production. This process can be carried out in different scales from national to local level, but always requires map-based pedological and further environmental information with appropriate spatial resolution.

For the regionalization of less productive areas in national scale a functional approach was used which integrates the knowledge on soil degradation processes in nationwide level. Specific soil threats were classified into ranked categories. Supposing (quasi)uniform distribution of vulnerability measure along these classes, we introduced a "standardized" value as a ratio of the class order to the maximum class order expressed in percentage. For the overall spatial characterization of degradation status, spatial information was integrated in a result map by summarizing the degradation specific "standardized" cell values. This map in one hand has been used for the delineation of soil degradation regions. On the other hand appropriate spatial aggregation of index values on geographical and administrative regions is suitable for their quantitative comparison thus they can be ranked and this feature can be used for the identification of less favorable areas.

At the more detailed, county level the Digital Kreybig Soil Information System was used as a tool of the regionalization of soil functions related to soil productivity. Concurrent spatial analysis of the suitability of soils for agricultural use and their sensitivity to physical and chemical degradation were carried out which resulted in a so-called ecotype-based characterization of land. As a spin-off, this classification was used for the designation of low productive areas suitable for hypogenous and cap fungi plantations as landuse alternative for croplands.