



Soil functioning indicators (INFOSOL): a methodological approach for developing and assessing dynamic soil functions within the soil protection strategy context

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Soils are subjected to multiple pressures which cause their degradation and endangers their ecological, economical, social and cultural functioning. This justifies the development of sustainable soil protection strategies and policies. In this context, numerous indicators are currently available allowing to measure the physical, chemical and biological properties of soil. Yet, only few approaches are available that allow assessing the dynamic soil functions in an integrated way. The INFOSOL project aims to develop and evaluate indicators for two specific environmental functions of soils: the support function for plant development, and the water flux regulation function. The methodological approach followed in this project encompasses 4 steps: (i) the definition of the relevant reference physical properties of the soil (basic indicators) allowing to assess the physical qualities relative to the two environmental functions mentioned above; (ii) the evaluation of the impact of different land cultivation strategies on the identified soil functions, with a special interest in the space-time evolution of the properties that determine soil functioning; (iii) the definition of a set of synthetic indicators relative to those functions; and (iv) the comparison of dynamic soil functioning indicators with the basic indicators. We illustrate the approach for assessing the dynamic soil functions for two different soils (silt and sandy-loam), two soil tillage strategies (plowing versus reduced tillage), two degrees of compaction and two crops (sugar beet and flax).