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Evaluating Soil functions based on modeling under the impact of land use

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While the change of soil functions under different management is important in the evaluation of long term strategies in agriculture, they are often difficult to be quantified. The obstacles are measurement problems on one hand, and on the other hand predictions for new management strategies and changing climate scenarios require estimates for yet unknown conditions. Comprehensive modeling of soil processes provides a road to both: Soil properties and processes that are per se difficult to measure can be included in a model to derive suitable indicators for soil unions. In this way, also, predictions in the future for different climate scenarios and management strategies are possible.

In this presentation we give definitions for a limited set of indicators to quantify the most important soil functions in terms of both the current soil state and the soils' potential to fulfill these functions. This includes the production of biomass, storage of carbon, storage and filtering of ground water, nutrient cycling, and habitat for biodiversity.

The quantitative evaluation of soil functions byel based indicators and their dynamics facilitates further socio-economic assessment and the development tools for governance.