

Soil quality: a critical review and a look into the future

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Soils are complex systems with physical, chemical and biological properties which depend on pedo-climatic conditions as well as previous and current land use. Soil status and use potential is frequently assessed from plot to national scales, using either visual examination or laboratory analysis of samples. However, the choice of relevant soil attributes and interpretation of measurements are not straightforward. In this presentation, we review soil quality and related concepts, in terms of definition, assessment approaches, and indicator selection and interpretation. We identify the most frequently used soil quality indicators under agricultural land use. We also consider novel indicators as evaluated using 10 European long-term field experiments. Explicit evaluation of soil quality with respect to specific soil threats, soil functions and ecosystem services is rare, and few approaches provide clear interpretation schemes of measured indicator values. This limits their adoption by land managers as well as policy. The development of a soil quality assessment procedure that is scientifically sound and supports management and policy decisions that account for the multi-functionality of soil requires the involvement of the pertinent actors, stakeholders and end-users. Several interactive tools that are currently being developed will be shown and can be tested during the field trip of the conference.