

Summary of discussions and suggestions to go forward

Conclusions from the presentations

- **Mark Brady:** soil carbon can be used as a proxy for yield and profit, and things like mineral fertilizer effectiveness
- **Inge van Oost:** Agriculture perspective: Future policy: Inclusive, Green and Smart. This means: smart growth, innovation, European Innovation Partnership for Agriculture, interdisciplinary operations

Conclusions from the presentations

- **Stefan Hotes:** Whatever scenario, area of cropland seems to go down and land use intensity will be increased, losing soil biota. Land sharing instead of land sparing?
- **Christoph Sahrbacher:** Soil degradation is slow, but ongoing. In 20 years: soil carbon and yields will decline. Set aside scenario makes yield losses lower. General set aside is not so useful, as farmers set aside low quality land. Soil conservation will become more important with increasing fertilizer costs.

Conclusions from the presentations

- **Franciska de Vries:** some soil food webs are more resilient than others; these can be achieved by management
- **Tina D'Hertefeldt:** biofuel crops as part of rotation? It takes time to build up root biomass

Conclusions from the presentations

- **Maria Tsiafouli:** land use intensification makes soil food webs less diverse, less complex, and reduces soil organism biomass; only some groups increase
- **Luca Marmo:** relax; we only have major problems: erosion, landslides, and sealing. Soils not used for everything at the same time, but perhaps for more than one thing. Prefers soil organic matter (functional) instead of carbon. Resoure and Residues issue

Conclusions from the discussions

- We are dealing with long-term processes, which are difficult when land managers change quickly, or economics drives short-term decisions and opportunism
- Carbon is running backwards, whereas it carbon sequestration is advocated to counteract climate warming
- Things are even complicated within Europe, let alone our global ecological footprint

Conclusions from the discussions

- Soilservice work in four field sites (Sweden, UK, Czech Republic, Greece) gave surprisingly similar patterns across land uses
- Current crops have been derived from early successional plant species; making soils more sustainable might require different crops
- Scales (space and time)
- Methodological comparativeness
- Historical contingency
- Storage databases (European Soil Data Centre)

Challenges for the way forward

- **Carbonomics:** quality, quantity, longevity, profitability of soil carbon and soil organic matter
- **Smartomics:** How to grow smart?
- **Creatomics:** How to create the soil that does what you want it to do?
- **Monitoromics:** How to measure effectively (and at lowest costs) soil biodiversity and functioning

To be practical:

- How bring possible innovations into practice?
- No end of pipe: do something before it starts becoming a problem (count to 100 and think stairwise instead of stepwise)
- Grasslands: too many in one name
- How to do this all-in the simplest way?
- How to get rid of being blamed not to have signed the EU-Soil Directive?

What may need to be mentioned

- Soils in the city; closing the cycles
- Soils, land use, climate, and soil-borne human pathogens, scaling up in space and time
- Can soil biodiversity loss be reversed?
- Soils and range shifts under climate warming
- How sustainable are our practices? Phosphorus is ending, can we go on liming, how to feed our engines to work for us?
- How to link soil ecology to soil 'abiotics'?

Global Soil Biodiversity Initiative

- <http://www.globalsoilbiodiversity.org/>
- Open Science meeting 30 March 2012 in London (after PUP)

Thanks to All and especially to the Swedish coordination team, the ones doing the work in Soilservice, the farmers enabling us to work on their land and the EU-ENV DGXI team for their ongoing support and feedbacks!

And to you for attending today and for great discussions. Have a safe trip back home!