

Striving for sustainable peatland climate mitigation

– views on organic soils in general and their role for EU legislation and policies.

Agenda 2030 and Paris Agreement in respect

- **Three pillars of the sustainability** and UN Agenda 2030, i.e. environmental, economic, social, can't be separated. Especially climate discussions on peatlands and use of organic soils for agriculture and forestry need all various aspects to be raised, not forgetting the social pillar with land tenure and property rights or regional aspects: In Finland there are municipalities with > 60% of fields located on organic soils (www.luke.fi/economydoctor) and even farms where all cultivation is based on organic soils.
- Cultivation of organic soils or use of peatlands cause major greenhouse gas emissions. The human-induced emissions need to be decreased but according to the Paris Agreement '**in a manner that does not threaten food production**'.
- Growing media with **soil-plant functions have always 1) emissions and 2) removals of the carbon dioxide** by photosynthesis of the growing plant to above and below ground biomass. Emissions should be seen net-emissions, where the removal part is recognized.
- Climate actions include 1) mitigation and **2) adaptation capacity which is remarkable on organic soils because of their excessive water retention capacity**. To adapt for both drought and rainy seasons for food security, we need diversity in soil types including organic soils. Therefore, reversible management practices that are not closing the options for food production is part of the adaptation.

Site-specific, on-farm driven solutions on voluntary basis

- There is no "one-size fits all" solution for all organic soils, but measures need to be tailored according to e.g. soil properties, regional and local hydrology. This approval should be ground for further discussion and achieving better mutual understanding
- The socio-economic conditions are crucial to application of all mitigation and adaptation measures.
- Farmers need cost-effective options to choose and adapt their conditions.

In Finland, several measures are tested for cost-efficiency:

- minimum tillage and continuous crop cover
- grass cultivation and permanent pastures
 - reorganizing parcel structure
- controlled drainage raised water table and rewetting
 - paludiculture and afforestation

More information: Regina et al. 2019: Greenhouse Gas Fluxes of Agricultural Soils in Finland.
https://link.springer.com/chapter/10.1007/978-981-13-3272-2_2
<https://www.luke.fi/en/projects/canemure>

Definitions and transparent emission factors before policy

- There are conceptual and terminological variations noticed in use of “organic soils” and “peatlands” and different traditions and classifications in various countries, but before any policy recommendations there is a need for common definitions and understanding what is considered as peatlands and organic soils and to what soil depth. Degradation of peatland depends on values, time horizon, conditions and definitions.
- Before the implementation of the current Effort Sharing Regulation (ESR) and Land Use, Land Use Change and Forestry Regulation (LULUCF), and wetland accounting post-2025, the definitions should be clear.
- IPCC Emission factors should be developed or other emission factors, which better fit to evaluate climate measures of cultivated organic soils. These should be available before restricting policy.

Traditional Finnish classification for cultivated organic soils

Organic matter content, %

20-40 mull soils

> 40 peat soils

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More information: Paasonen-Kivekäs, M. 2016 (toim.) 2. painos.
Maan vesi- ja ravinnetalous (in Finnish)

Overall conclusion

It is essential to network and cooperate with all the main parties and stakeholders active in organic soils and peatlands not only in Europe but also worldwide. The climate legislation is being currently discussed at EU level and the UN facilitative dialogue report is due to come this year. There is a need to follow carefully these milestones in climate change mitigation and adaptation processes under the United Nations in the very near future and synchronize the actions also on organic soils and peatlands accordingly. Irreversible mandatory management options for organic soils and peatlands do not follow the social pillar of sustainability. All mitigation and adaptation options should be based on voluntary measures, subsidiarity and bottom-up approach that are not contrary to the globally increasing demand for healthy food and security of supply.

Why the issue is so important for Finland and its' agri-forestry sectors?

One-third of Finland's area is peat or covered by organic soils. Cultivated organic soils (10 %) are mainly situated in the western part of the country.

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More information: Kekkonen et al. 2019.
Mapping of cultivated organic soils for targeting greenhouse gas mitigation. Carbon management.
<https://doi.org/10.1080/17583004.2018.1557990>



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