

Carbon sequestration at national and European scale and effects of policy and socio-economic factors

Soil carbon sequestration is the net removal of carbon dioxide from the atmosphere and could make an important contribution to climate change mitigation. The key for carbon sequestration in soils is to reach a positive balance between carbon inputs and outputs. This can be achieved through improved land management towards increased soil carbon accrual through enhanced inputs of organic matter or through reducing decomposition rates of C in the soil (i.e. by adding C in more stable forms). Such measures are affected by bio-physical (e.g. soil type, climate) and technical constraints (e.g. irrigation). Thus, a differentiated analysis at national and European scale is necessary to assess the true potential of optimized land management to achieve carbon sequestration in soils when implemented on large scale.

In addition to these factors also policies like the Farm to Fork strategy of the EU could potentially have effects on soil carbon sequestration. To reduce nutrient losses from agricultural soils, a reduction in fertilization is foreseen. Likewise socio-economic effects like increasing fertilizer prices or changes in diets could affect soil carbon stocks and/or accrual. To assess potential co-benefits or trade-offs, system boundaries need to be expanded. This allows to include indirect effects on soil carbon stocks and/or accrual through e.g. changes in yields or crop types.

In this session, we welcome contributions that give insights into the topic of carbon sequestration in soils on European and national scales as well as studies that discuss carbon sequestration in soils in a broader context.

Involved projects: CarboSeq, SIMPLE

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