

KOHLNSTOFFSPEICHERUNG IN ÖSTERREICHISCHEN BÖDEN MÖGLICHKEITEN, GRENZEN UND BEWIRTSCHAFTUNGSSTRATEGIEN CARBON SEQUESTRATION IN AUSTRIAN SOILS – POSSIBILITIES, LIMITS AND MANAGEMENT OPTIONS

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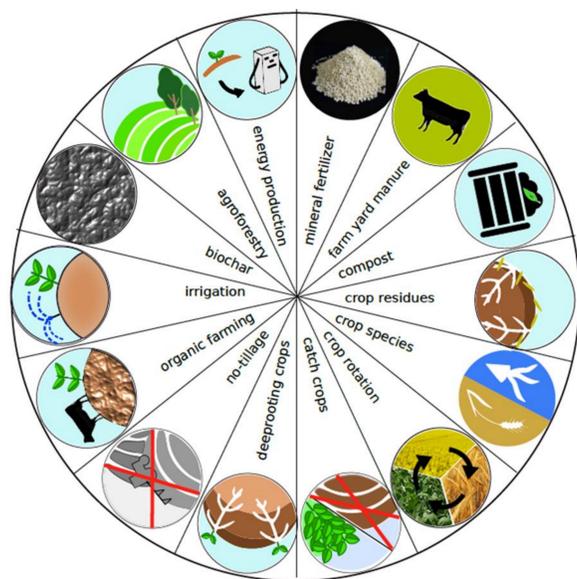
BACKGROUND AND OBJECTIVES

Soils and climate change are closely interlinked. Soil is the largest terrestrial carbon pool and contains two to three times as much carbon as the atmosphere. The 4-per-mille initiative aims to increase soil organic carbon (SOC) stocks by 0.4% annually through optimised land and soil management. The CASAS project (09/2019-08/2022) aims to assess whether improved soil management in Austria can have the desired impact by:

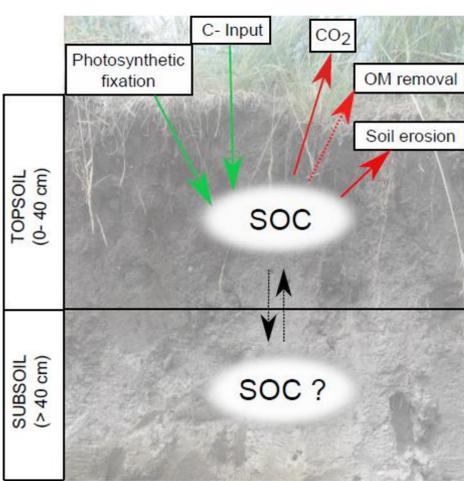
- Evaluation of Austrian long-term experiments and other experimental/monitoring data in croplands, grasslands and forests
- Development of a long-term 0.4% scenario until 2050 for Austria, including the involvement of all stakeholders
- Assessment of the economic viability of 0.4% management strategies
- Impact of the 0.4% initiative on selected Sustainable Development Goals (SDGs)

WHAT THE LITERATURE SAYS: IMPACT OF SOIL MANAGEMENT ON SOC SEQUESTRATION

CROPLAND



Tiefenbacher et al., submitted

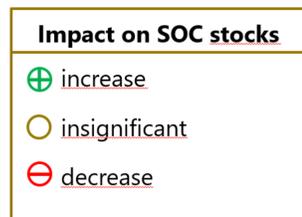
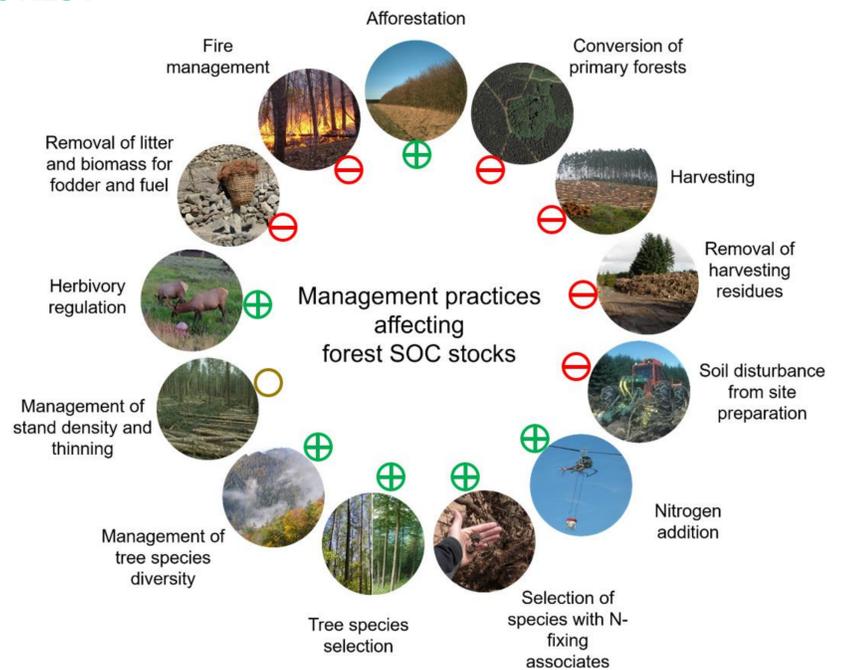


Improved SOC in cropland through

- enhanced primary production (eg. fertilization, irrigation)
- additional carbon (C) sources (eg. organic amendments, biochar)
- minimizing removal of organic material (OM); (eg. retention of crop residues, cover crops, deeprooting crops,...)
- managing CO₂ emissions (eg. tillage, application of inorganic carbon)

- increase soil organic carbon (SOC)
- decline SOC
- unknown pathways

FOREST



Mayer et al., 2020

WORKSHOPS

- Cropland workshop at AGES: 11.09.2020: ca. 70 participants
- Grassland workshop at HBLFA Raumberg-Gumpenstein (online): 24.02.2021: ca. 30 participants

NEXT STEPS

- Stakeholder workshop with policy makers to discuss the results for arable land, grassland and forests and derive a possible strategy for a viable '4-per-mille'/sustainable SOC management scenario for Austria until 2050
- Quantitative estimation of the sectoral costs of a sustainable SOC management scenario in the agricultural sector using the INCAP model
- Policy recommendations for implementation

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