EJP SOIL
European Joint Programme

TARGET STAKEHOLDERS

# WHEN DOES SOIL CARBON HELP CLIMATE?

## MIXUP OF TERMS

Carbon stock, carbon sink, carbon storage - are they the same thing? And does fixing carbon in the soil, for example, by building up soil organic carbon, automatically lead to climate change mitigation?

## THE BAD NEWS

- Many agricultural fields in Europe are currently losing soil carbon as a result of climate change or unsustainable management.
- Climate change mitigation effects of soil carbon measures need avoid or take into account additional greenhous gas emissions on site - or elsewhere

## THE GOOD NEWS

If carbon sequestratrion is not achived but only carbon loss mitigation, this reduction in soil carbon loss contributes to climate change mitigation, e.g. if soil carbon losses were high at an agricultural field and are now lower after implementing measures


## AUTHORS

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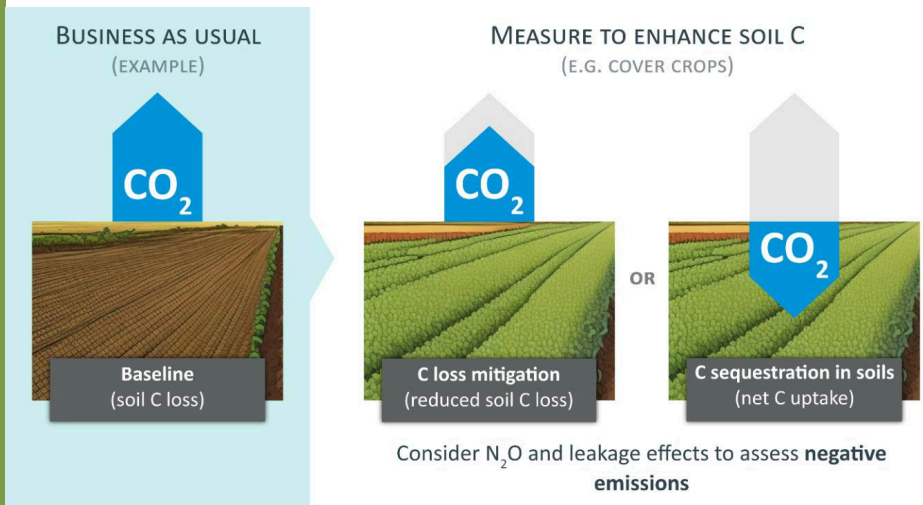
## The ultimate climate benefits

Only soil management that triggers $CO_2$ uptake from the atmosphere should be called "carbon sequestration"




Two Examples

1. Cropland management change to a higher share of cover crops can result in **carbon sequestration** and **negative emissions**. The increased soil organic **carbon stock** comes from atmospheric $CO_2$.The soil becomes a **carbon sink**.

2. Additional application of manure results in **carbon accrual**, not in carbon sequestration. The increased soil organic carbon comes from another agricultural field.

# EJP SOIL INNOVATION HIGHLIGHTS

EJP SOIL

CARBOSEQ

## TOWARDS CLIMATE-SMART SUSTAINABLE MANAGEMENT OF AGRICULTURAL SOILS

EJP SOIL is a European Joint Programme on Agricultural Soil Management addressing key societal challenges including climate change and future food supply. https://ejpsoil.eu/

The goal is to improve the understanding of agricultural soil management by finding synergies in research, strengthening research communities and raising public awareness.

1100+ experts, 24 countries, addressing multiple aspects of soil management across different European agroecosystems.

## EJP SOIL FUNDED PROJECT

### CARBOSEQ

*The aim of project CarboSeq is to estimate the feasible C sequestration potential of European agriculture, taking into account technical and socio-economic constraints. The project is aligned with the current FAO activity for a "global SOC-sequestration potential map" (GSOCseq).*

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## TARGET EJP SOIL EXPECTED IMPACT AND EU MISSION SOIL OBJECTIVES

Understanding how soil-carbon sequestration can contribute to **climate change mitigation** at the regional level and **accounting for carbon**.

**Mission SOIL**: conserve soil organic carbon stocks

**HIGHLIGHT FACTS FROM:**
EJP SOIL funded project:
CarboSeq

Applicability:
all climatic zones according to Metzger et al. (2005)
https://doi.org/10.1111 j.1466-822X.2005.00190.x

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