



Ecologic Institute

Science and Policy
for a Sustainable World

The challenges of certifying carbon farming

Evidence from existing soil carbon removal certification mechanisms

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**ENVI/AGRI Hearing: Carbon Farming: Practical applications in use in the EU –
22-03-2023**

Outline

Objective: Support transition of EU agriculture sector to sustainability – and achieve EU climate objectives

Question: Is soil carbon removal certification and offsetting a useful tool to promote this transition?

Evidence: Existing carbon removal certification mechanisms illustrate challenges

Recommendations: For Framework on Carbon Removal Certification and Common Agriculture Policy

Soil carbon: mitigation potential and current policy gap

Soil mitigation potential

- ▶ EU soils are currently a net source of emissions: 64 Mt CO₂-yr
- ▶ Potential additional mitigation: 71-115 Mt CO₂-yr ([Freluh-Larsen et al 2023](#))
- ▶ Promising actions: conversion to grasslands, peatland rewetting, agro-forestry
 - Deliver a mix of emissions reductions and removals
 - Plus: adaptation, productivity, biodiversity, soil health benefits...

EU Policy currently failing to deliver soil carbon mitigation

- ▶ Common Agriculture Policy has failed to deliver mitigation ([EU Court of Auditors 2021](#)) and Strategic Plans are not ambitious (e.g. [Nemcova and Nyssens-James et al 2022](#))

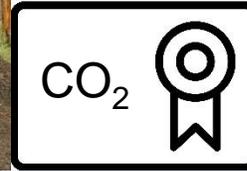
Carbon removal certification framework for soil carbon removals?



**Why offsetting is not the solution to
upscale carbon farming**

What is offsetting?

Farmer



- Implements agro-forestry
- Generates carbon removals
- Receives certified offset credits from certification mechanism

Airline company



- Reduces own emissions to meet climate objectives

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Farmer

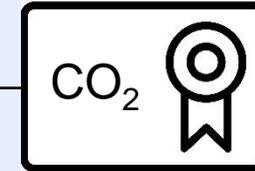
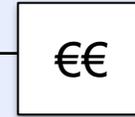


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Airline company



- ~~Reduces own emissions~~
Purchases offset credits to meet climate objectives



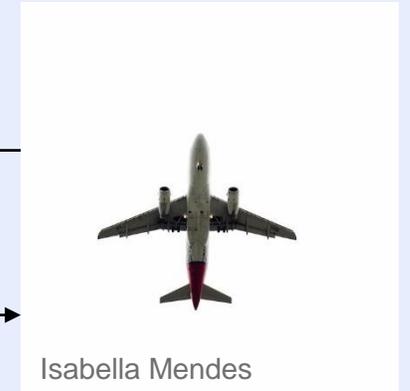
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- ▶ The airline company aims to “balance out” the impact of their emissions on the atmosphere through offsetting
- ▶ **Offsetting implies equivalence:** offset credits must be as good as not emitting
 - Are soil carbon removals really equivalent to reducing emissions?

Certification mechanisms for soil carbon removals: Evaluation

Evaluated 10 certification mechanisms

- ▶ **Certification mechanism:** establish rules and methods for implementing carbon farming actions and measuring and verifying mitigation



Key takeaway

- ▶ **Verified soil carbon removals are not equivalent** to an airline reducing their emissions under any of these mechanisms
- ▶ **Soil carbon poses fundamental challenges for certification:** quantification, non-permanence, non-additionality, sustainability



Soil carbon removals are difficult to quantify

- ▶ **Soil carbon sequestration rates are slow and small**
(e.g. 0.2 tonnes CO₂-e/hectare/year)
- ▶ **Soils are heterogenous**

- ▶ **Modelling uncertain**
- ▶ **Sampling and measurement expensive**
 - **Low certainty for regulators**
 - **Redtape for farmers**

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- ▶ Our review of existing mechanisms: we **cannot be confident** that the number of offset certificates matches tonnes of carbon removed from the atmosphere.
 - Lack of clarity about modelling/measurement **uncertainty**
 - Uncertainty about starting amount of carbon in the soil (**baseline**)
 - Failing to account for **leakage**
- ▶ Not surprising: **Science is not settled on how to quantify soil carbon removals**

Soil carbon removals are not permanent

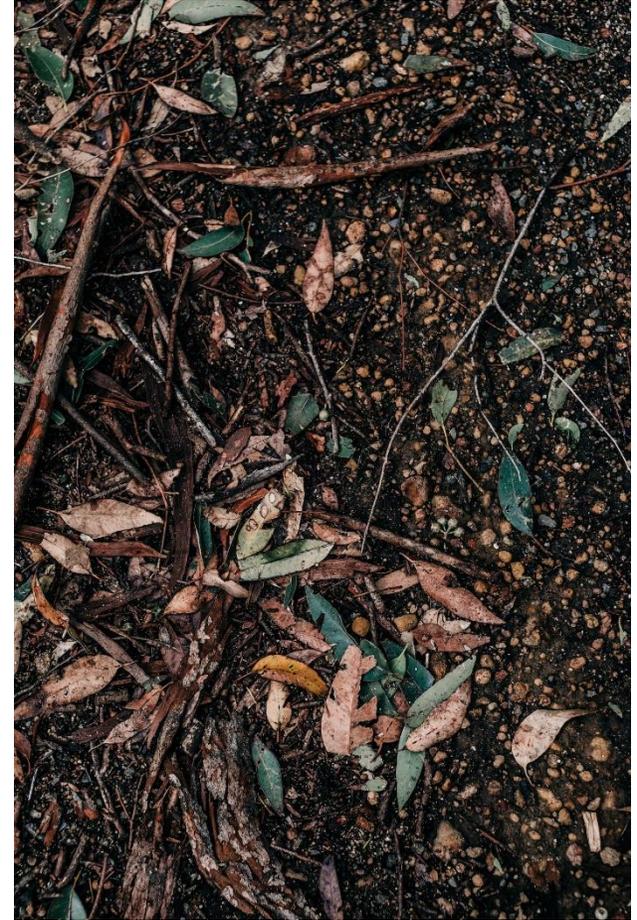
- ▶ Soil carbon is easily **re-released** unintentionally (drought, fire, disease) or through management change



- ▶ Our review of existing mechanisms: **current measures to account for impermanence are insufficient.**
 - Low quality examples: Short monitoring periods of 0-10 years, with weak permanence requirements.
 - Best examples: Monitor soil carbon removals for 40-100 years – but this is **significantly less than the 300-1000s of years that carbon emissions remain in atmosphere**
- ▶ **Soil carbon removals are not equivalently permanent to avoiding emissions in the first place.**

Other concerns with existing soil carbon removal certification mechanisms

- ▶ **Non-additionality:** Failure to ensure certified soil carbon removals are new
- ▶ **Risk of double-counting:** lack of transparent registries or rules on use of certificates
- ▶ **Sustainability impacts:** lack of adequate controls to limit risks/prioritise biodiversity positive actions



Conclusions: Evaluation of existing soil carbon removal certification mechanism

Soil carbon removals are not equivalent to not emitting GHGs, because soil carbon poses fundamental challenges to certification

- ▶ **Difficult and costly to quantify**
- ▶ **Non-permanent**
- ▶ Other concerns

The proposed Framework for Carbon Removal Certification fails the same tests: **carbon farming removals under the proposed Framework are not sufficient quality for offsetting** ([McDonald et al 2023](#)).

Recommendations: Framework for Carbon Removal Certification

- ▶ **Limit the use of carbon removal certificates: exclude offsetting for soil carbon removals (“carbon farming”)**
- ▶ Acceptable uses: targeting public funding, national accounting, contribution claims...
- ▶ Additional specific technical recommendations:

[McDonald, H.; Siemons, A.; Bodle, R.; Hobeika, M.; Scheid, A.; Schneider, L. \(2023\): QU.A.L.ITY soil carbon removals? Assessing the EU Framework for Carbon Removal Certification's from a climate-friendly soil management perspective. Ecologic Institute, Berlin.](#)



Recommendations: Upscale soil carbon removals through broader EU Agricultural and Climate policy

- ▶ **Common agricultural policy has €155 billion earmarked for climate (2023-2027): orders of magnitude more than voluntary carbon market**

Upscale soil carbon removals through CAP

- ▶ **Strengthen conditionality:** Strengthen crop rotation standards (GAEC 7); strengthen soil-related standards (GAEC 5 and 6)
- ▶ **Reduce emissions from peatlands:** phase out direct payments on drained organic soils + support long-term rewetting through eco-schemes and rural development
- ▶ **Increase CAP ambition – to support transition of agriculture to sustainability**
 - Increase budget for climate, biodiversity, environment
 - Increase ambition of CAP strategic plans

Thanks! Any more Questions?

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Photos: Pexels.com; photographers named

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