12th AIEAA Conference "Guns, Germs and Climate: Food security and Food Systems in a Risky World", Milan 22-23 June 2023

Supporting the development of a framework for certification of carbon removals: the Life Project C-Farms

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LIFE20 PRE IT/017

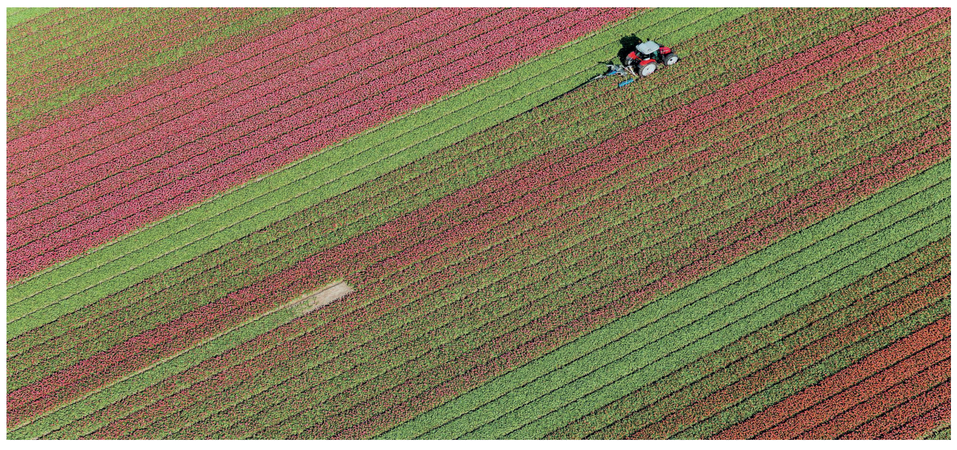
Carbon Farming Certification System (C-Farms) is a Life preparatory project conducted in Lombardy aiming to support the development of a regulatory framework for certification of carbon removals based on an accounting scheme in connection with the national GHG inventory. The project is divided in seven actions which objectives include:

(i) the description of the characteristics of agriculture (croplands and livestock management) and tree plantations (in particular, poplar) in Lombardy

(ii) the identification of the most common carbon farming practices

(iii) the definition of a regulatory framework for a carbon certification system

(iv) the creation of a high-resolution geographical information system (GIS-farms) as an open-source prototype tool available for the public administration for the management of carbon farming at regional at farm level.



Action 1
- Farms statistical and economical data and spatial information gathering (based on the FADN sample for Lombardy).

Action 2
- Carbon farming practices – cropland and livestock management.

Action 3
- Carbon Farming – Tree Plantation and Harvested Wood Products.

Action 4
- Creation of the High-resolution geographical information system for thereference region (GIS-FARMs).

Action 5
- Regulatory framework and Carbon certification system.

Action 6
- Evaluation of the application potential of IT tools and development of a prototype demonstrator web application for the management of Carbon Farming.

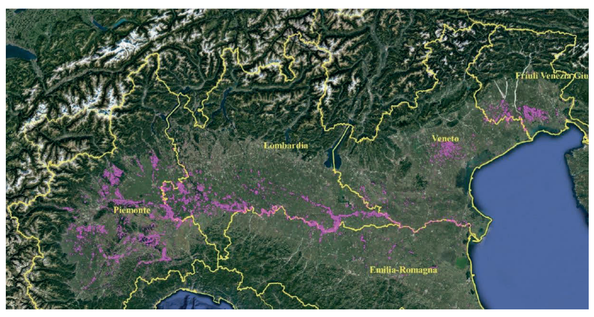
Action 7
- Demonstration at Farm and Regional Level.

The Italian FADN (RICA) has been the source of information for selection of the most important farm types in Lombardy and for the economic analysis inherent the carbon farming practices.

RICA
Rete d'Informazione Contabile Agricola

ANALYSIS OF CARBON FARMING PRACTICES IN 6-8 FARMS (ARABLE CROPS + POPLAR PLANTATIONS) IN LOMBARDY:
1. Description of carbon farming practices at farm level (questionnaire)
2. Economic analysis of the certification of carbon removals (Italian FADN and farm survey)

Annual crops in Lombardy
- Database on carbon-farming practices
- Survey at farm level in 4-6 farms
- Economic impact of the certification of carbon removals



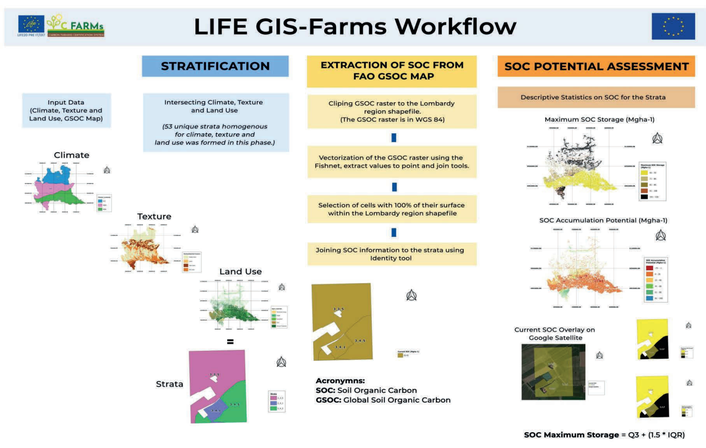
Poplar plantation map (updating 2020)
- Database on carbon farming practices
- Analysis on MSA vs IT214 poplar
- Description of carbon farming practices and benefits
- Economic impact of the certification of carbon removals

Carbon farming practices → identified through additional surveys (questionnaire) and a targeted scientific literature review in different kind of soils, climates and crops.
STOCK DIFFERENCE METHOD (IPPC, 2006) + pairwise comparison method

STOCK DIFFERENCE METHOD

ΔSOC t C ha-1 yr-1 = (SOC STOCK t1 - SOC STOCK t0)/years
where:
SOC STOCK t1: follow-up carbon stock, i.e., carbon stock measured after the experiment in the treatment plot (t/ha)
SOC STOCK t0: baseline carbon stock, i.e., carbon stock measured before the experiment in the treatment plot, (t/ha)
years: duration of the experiment

GIS Farms → mapping the soil C sequestration potential of agricultural land in Lombardy in relation to local environmental conditions, and simulating annual SOC change projections for agricultural land parcels, in terms of CO_2 sequestration and/or emissions reduction potential associated to different carbon-farming practices.

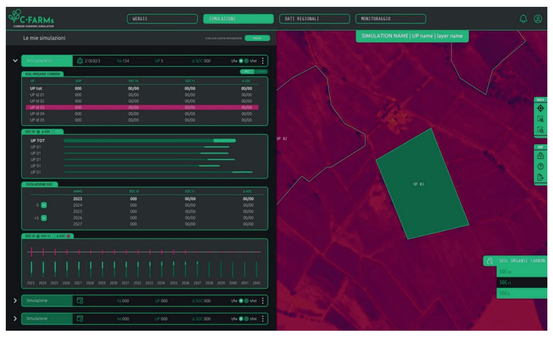


Regulatory framework for a Standard of Certification

Multiple meetings with the stakeholders have permitted to better define the regulatory framework for a standard of certification that has been discussed also based on the proposal for a regulation establishing a Union certification framework for carbon removals (COM2022, 676 final).

A Carbon Farming Certification scheme has been defined after a public consultation with the stakeholders and according to the EU regulations.

GIS-FARMs has been integrated in a prototype demonstrator web application for the management of carbon farming, which aim is the assessment of "performance indicators" certifying the dynamics of soil organic carbon with respect to the baseline.



Demonstration at farm and regional level

1. Analysis of the main practices in use in the farm and related carbon emissions/removals
2. Assessment of potential of implementation of carbon farming practices using GIS-Farms tool and application of IT tools
3. Comparative economic impact analysis resulting from the introduction of the sustainable practices analysed in the project.

Web: www.c-farms.eu

COORDINATOR

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