



## CARBON FARMING & AGRICULTURAL CARBON CREDITS

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### Course Aims

The **objective** of this course is to provide 1) knowledge and experiences about carbon farming (CF) and **agricultural carbon credits** and 2) insights about what it entails **monitor, report and verify (MRV)** where and when the re-carbonization of agricultural soils takes place.

**Keywords:** Carbon markets · Climate mitigation · Carbon farming · SOC sequestration · MRV protocols · Monitoring and Verification · Sampling and Measuring · SOC models

### Methodology

During the course two key questions will be answered: 1) How carbon farming can contribute to re-carbonization of agricultural soils and contemporary to decarbonization of food sector? 2) How are MRV protocols measuring and estimating SOC sequestration and net GHG removals?

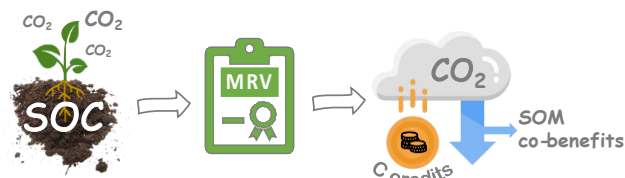
C removal potential of key CF practices on arable lands (e.g. residues management, cover/double/perennial cropping, organic fertilization) will be firstly reviewed. The C credits markets framework will be then introduced (principles, actors, the European C removal certification framework, examples from US, and Australia) to pave the way for the description of the SOC MRV protocols (sampling and measuring SOC, remote sensing, farmers data, SOC modelling, cost-accuracy ratio and uncertainty issue).

### Course description

This course is about the principles and practices of **carbon farming** and the technologies and mechanisms to support the transition to climate-resilient farming systems. Carbon farming is agriculture's answer to climate change and includes agricultural practices able to capture and store carbon (C) in soils through photosynthesis as soil organic carbon (SOC).

The recent increase in the price attainable for 1 ton of CO<sub>2</sub> removed (= 1 C credit) is creating a unique opportunity to leverage on **soil-based C economy** to financially support the diffusion of more regenerative farming practices (CF = climate + agronomic benefits).

Quality of the removed/avoided C unit is the cornerstone. Unlocking the potential for CF to scale relies on the establishment of protocols to MRV



changes in SOC stocks and/or GHGs emissions reduction. To allow C credits (and new ecosystem markets) to be possible (i.e., verified, certified, and audited) for farmers we need to make sense of independent, scalable, cost-effective, and transparent MRV protocols. This will realize the potential of C offsetting and insetting programs for market players and industries and most importantly will guarantee that CF outcomes are permanent and

additional, avoid leakage and have a positive impact on communities and ecosystems.

#### Recommended texts

Oldfield, E.E., A.J. Eagle, R.L. Rubin, J. Rudek, J. Sanderman, D.R. Gordon. 2021. Agricultural soil carbon credits: Making sense of protocols for carbon sequestration and net greenhouse gas removals. Environmental Defense Fund, New York, New York.

EU Carbon Removal Certification Framework [link](#)

EU Thematic Group on Carbon Farming [link](#)