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# Carbon Farming

## - Agriculture for the challenges of the XXI century -

Jerzy Kozyra, Institute of Soil Science and Plant Cultivation – State Research Institute in Puławy  
08.02.2024, BioRural Knowledge-exchange Workshop: Advancing the European Rural Bioeconomy



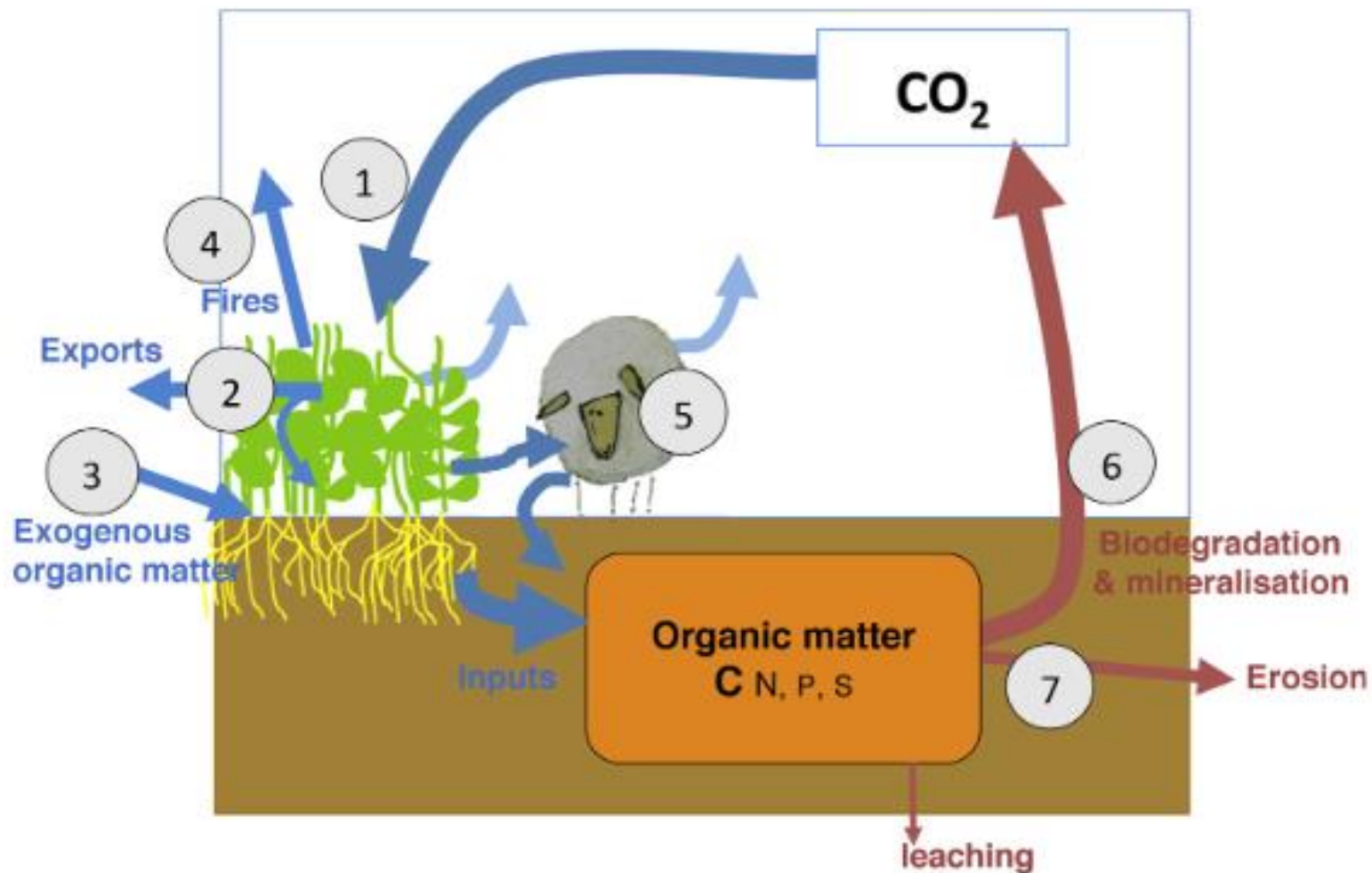


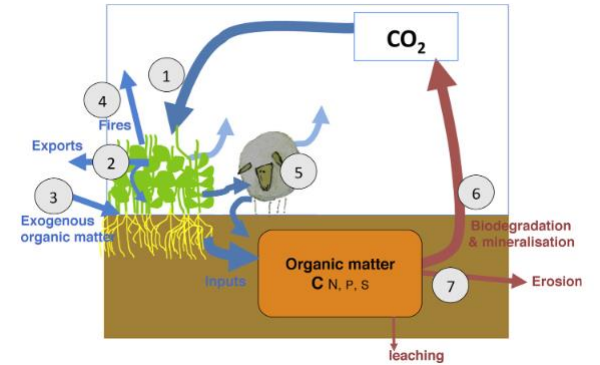
**Carbon farming** is a land-management activity that removes carbon dioxide from the atmosphere and results in increased carbon storage in living biomass, dead organic matter and soil by increasing or reducing carbon release into the atmosphere.

COM(2022) 672 final

**Carbon farming** can be defined as a **green business model for farmers** who undertake to improve agrotechnics, resulting in increased carbon sequestration from the atmosphere, carbon sequestration in living biomass, dead organic matter and soils, and/or reduction of carbon dioxide emissions into the atmosphere respecting ecological principles, biodiversity and natural resources.

European Parliament (UE) 2018/841





- Increase productivity (e.g. rotation, agroforestry, cover crops)
- Increase the amount of biomass returning to the soil (ploughing plants/crop residues)
- "Importing" organic waste into the soil (manure, compost)
- Fire prevention grassland (fertilization, grazing)
- Reducing mineralization of soils (no-tillage, water management)
- Erosion reduction

Chenu 2019



**Action-Based Carbon Farming:** A scheme under which a farmer or landowner receives payment for the implementation of specific cultivation activities, regardless of the resulting impact.

**Results-based carbon farming:** a scheme under which a farmer or landowner receives a payment for reducing net greenhouse gas emissions from land, either through direct reductions in their greenhouse gas emissions or through the capture and accumulation of carbon dioxide in the soil. The amount of payment depends on the reduction results achieved.

**Hybrid model of carbon farming:** a scheme combining support for cultivation activities performed and support for direct reduction of greenhouse gases on the same area of agricultural land.



## Carbon Farming in Poland - CAP Strategic Plan - Eco-schemes in Poland 2023-2027

Eco-schemes **are payment schemes in agriculture aiming at the protection of environment and climate.**

**They are a key element of the Common agricultural policy (CAP)** (see Article 31 of Regulation (EU) 2021/2115 of the European Parliament and of the Council).

### Carbon farming practices and nutrient management payment – action based CF payment

Extensive use of permanent grasslands with livestock

Winter catch crops or inter-cropping

Fertilisation plan based on soil samplings- baseline option

Fertilisation plan based on soil samplings- with liming

Diversified crop structure

Manure use on arable land within 12 hours of application

Application of liquid natural fertilisers by other methods than by splashing

No-till cropping systems

Mixing straw into the soil

<https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Eco-schemes>

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## Carbon farming techniques should:

- A) add external C to the soil,
- B) incorporate by plants through photosynthesis bound atmospheric CO<sub>2</sub> to the soil,
- C) avoid loss of C/CO<sub>2</sub> from the soil and thereby improve humus balance, decrease the greenhouse gas CO<sub>2</sub> in the atmosphere, and increase C content in the soil.

### Carbon Farming CE



#### Testing carbon farming techniques



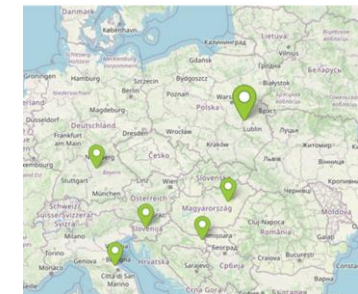
#### Testing of carbon farming business models



#### Carbon farming mainstreaming



#### Pilot actions



<https://www.interreg-central.eu/projects/carbon-farming-ce/>





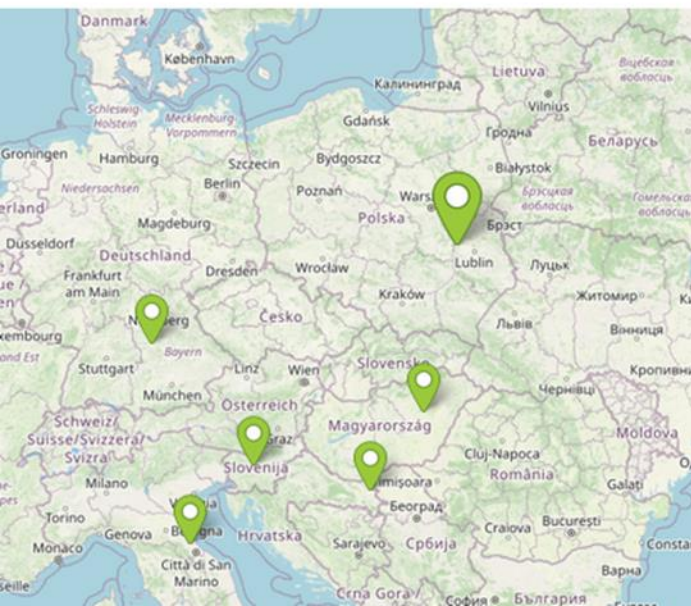
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Carbon Farming CE

## Pilot actions



### Poland

Techniques selected for first and second year in Poland:

- A.1 Use of organic fertilization
- B.1 Additional cultivation of cover/catch crops instead of fallow
- B.4. Agroforestry
- C.1 Reducing tillage to different extents



### Croatia

Techniques selected for first and second year in Croatia:

- A.2 Relocation harvest residues
- B.1 Additional cover crops
- B.2 Diversification crop rotation
- C.4 Liming effect



### Hungary

Techniques selected for first and second year in Hungary:

- A.1 Use of organic fertilization
- B.1 Additional cover crops
- B.2 Diversification of field crop rotation
- C.1 Reducing tillage to different extents



### Italy

Techniques selected for first and second year in Italy:

- A.1 Use of organic fertilization
- B.1 Additional cultivation of cover crops
- B.2 Diversification crop rotation
- C.1 Reducing tillage to different extents

### Germany

Techniques selected for first and second year in Germany:

- B.1 Additional cover crops
- B.2 Diversification crop rotation
- B.4 Agroforestry
- C.4 Liming effect

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