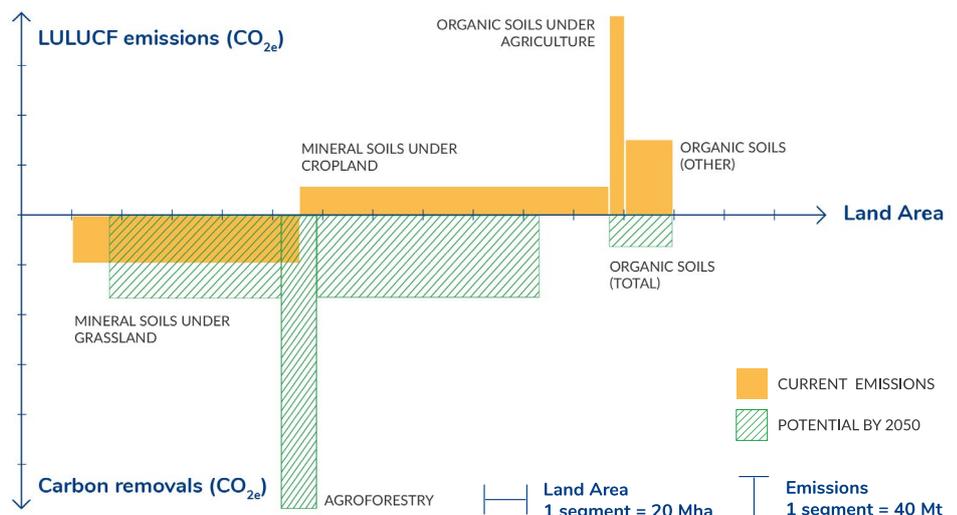


Carbon Farming: Deploying nature-based solutions in agriculture

Agricultural land has the potential to be a large carbon sink, but it is currently a major source of greenhouse gas (GHG) emissions. Decades of intensive agriculture have caused agricultural soils to lose up to 75% of their original carbon content and arable soils continue to lose soil carbon. This is contributing to the climate crisis and also threatening the very ability of soils to deliver the functions we rely on them for: plant nutrition, water regulation and purification, climate regulation, nutrient cycling, and hosting soil life.

Carbon farming could be key to healthy soils, benefitting climate and biodiversity, as well as the profitability and resilience of farms. To deliver these win-win-wins for nature, climate and farmers carbon farming must adopt a holistic approach, grounded in the framework of “nature-based solutions”.

“Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience, [...] through locally adapted, resource-efficient and systemic interventions.”



We define carbon farming as “the management of land-based GHG fluxes, including carbon pools and flows in soils and vegetation, with the purpose of reducing emissions and increasing carbon removal and storage.”

The four most important nature-based solutions in agriculture are:

Protecting, rewetting & restoring peatlands

Healthy peatlands are a crucial carbon sink and must be protected. Drained peatlands should be rewetted and restored, and either taken out of production and rewilded, or managed through what is known as “paludiculture”: productive land use of wet peatlands through the cultivation of crops or rearing of animals adapted to high water levels.

Managing grasslands for climate and biodiversity

Well-managed grasslands are a major carbon sink and an important habitat for biodiversity. It is therefore crucial to ensure the sustainable management of semi-natural grasslands and grasslands which are currently intensively managed. Additional conversion of less productive arable land to permanent grassy or shrubby areas (e.g. permanent buffer strips) should also be promoted.



Re-integrating trees in agricultural landscapes

Combining pastures and arable farming with trees – agroforestry – holds huge promise for climate mitigation. It can also bring ecosystemic, resilience and productivity benefits to most farming systems, such as: buffering of storms, droughts, and erosion; improving soil fertility and pest control; capturing excess nitrogen; and offering direct economic benefits through higher dairy and meat production in grazing systems and diversified income sources (fruits, nuts, timber, etc) from the trees.

Mainstreaming agroecology on arable land

Soil carbon sequestration requires to boost soil carbon flows by adding more carbon to soils through plant growth and organic amendments than what is lost (emissions or erosion) or removed (harvest). This requires fundamental change from the current high-input, high-output farming which damages soil biology, towards regenerative, or agroecological farming practices which restore natural nutrient cycling, such as:

- » constant soil cover, through intercropping and cover cropping;
- » long and diverse crop rotations including nitrogen fixing crops and temporary grasslands;
- » organic amendments such as compost or mulch, and
- » reduced or no tillage.



Co-benefits of soil carbon for farmers and society

Rebuilding soil organic matter on mineral soils improves soil structure and increases the diversity and density of soil (micro-)organisms, bringing many environmental and economic benefits:

- » Increased resilience through better water management and lower erosion,
- » Higher soil fertility, meaning a lower need for fertilisers
- » Better pest and disease resistance, reducing the need for pesticides
- » Improved nutritional value of crops



More information

This brochure is a summary of the EEB report “Carbon Farming for climate, nature and farmers”.

More information and all scientific references can be found in the full report at www.eeb.org/library/carbon-farming-for-climate-nature-and-farmers

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