CONTEXT

Agriculture is a sector that both contributes to climate change and is deeply impacted by its adverse effects. More frequent extreme weather events, unpredictable precipitation and temperature can lead to harvest losses, irredeemable damage to natural resources and the destruction of farmers' economic viability. It is therefore essential to find solutions that will contribute to greater climate change mitigation and adaptation capacity of food and farming actors.

The EU has committed to reduce its GHG emissions by 40% by 2030. Officially, the agriculture sector accounts for around 10% of EU's GHG emissions, mainly from methane of ruminants' digestion, manure management and nitrous oxide from fertilised soils. In reality, direct and indirect emissions from the food sector (production, processing, distribution, storage, consumption and waste) range between 30-50% of global GHG emissions when taking into account e.g. deforestation linked to feed production and imports, or GHG emissions associated with the production of synthetic fertilisers. Thus, it is crucial to consider the wider picture to fully understand the impact of food and farming systems on climate change.

Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. It combines tradition, innovation and science to benefit the shared environment, and it promotes fairness and a good quality of life for all involved.

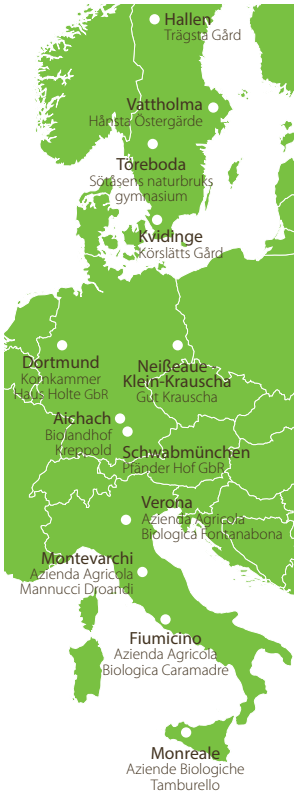
Proponents of the industrial farming model argue that we should produce as much as possible on a given amount of land to reduce GHG emissions per kg of food produced, without considering the overall environmental impact. Organic farming can display lower yields but it can also reduce emissions while safeguarding biodiversity, providing wider environmental, animal welfare and socio-economic benefits, and helping farmers adapt to climate change. Organic farming is therefore well-positioned to contribute to climate change mitigation, and many actors within the organic movement are taking the lead, such as organic farmers within the SOLMACC project.*

Policy action is needed to ensure that agriculture contributes more to EU GHG reduction commitments by 2030 and beyond, and to the objective of the Paris Agreement of reaching a balance between sources and sinks of GHG by 2050.

THE SOLMACC EXPERIENCE

SOLMACC is an EU project that aims to promote wider adoption of climate-friendly farming practices that can contribute to reaching EU's climate change mitigation and adaptation objectives in the food and farming sector. SOLMACC activities and outcomes:

- 12 demonstrations organic farms in Germany, Italy and Sweden changed their farming practices.
- Between 2013 and 2018, 48 farming practices were implemented and monitored together with farmers, scientists and farm advisors.
- The practices are linked to optimised on-farm nutrient management, optimised crop rotation, optimised tillage systems and agroforestry.
- Open field days on each farm allowed hundreds of visitors to learn about the benefits of climate-friendly and resilient farming.
- SOLMACC farms mainly reduced their on-farm GHG emissions following the adoption of new practices.
- Increased biodiversity and improved soil quality were observed.
- Yields were not negatively affected by the new practices, and in some cases even increased.



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ASSOCIAZIONE ITALIANA PER L'AGRICOLTURA BIOLOGICA

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A SYSTEMIC SOLUTION IS NEEDED IN FOOD & FARMING TO TACKLE CLIMATE CHANGE

FARMING IS HIGHLY VULNERABLE TO THE EFFECTS OF CLIMATE CHANGE
such as more frequent heat waves, droughts and heavy precipitation, and increased pest and disease pressure.

GHG

A SYSTEMIC APPROACH IS ESSENTIAL TO REDUCE GREENHOUSE GAS EMISSIONS
linked to food production and consumption while avoiding biodiversity loss, to help the agriculture sector adapt to climate change, and to reach the Sustainable Development Goals, especially for the restoration of ecosystems services.

ORGANIC FARMING CAN DECREASE GHG EMISSIONS WHILE HELPING FARMERS TO ADAPT TO CLIMATE CHANGE EFFECTS
and can deliver greater biodiversity, increased soil carbon sequestration, water quality and other environmental benefits.

LONG-TERM STRATEGIES ARE NEEDED TO TRANSITION TO AGROECOLOGY
and to meet EU climate change mitigation targets and the Paris Agreement objectives. EU policies need to support climate-friendly farming systems through a reformed CAP that rewards public goods delivery.

WWW.SOLMACC.EU

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SOL MACC
ORGANIC FARMERS COUNTERING CLIMATE CHANGE

TOWARDS GREATER CLIMATE CHANGE MITIGATION & ADAPTATION OF THE AGRICULTURE SECTOR

CLIMATE BENEFITS OF ORGANIC FARMING

NO USE OF SYNTHETIC FERTILIZERS, leading to reduced Greenhouse Gas (GHG) emissions that are linked to the production process and transportation of synthetic fertilizers.

LOWER NITROGEN AND PHOSPHOROUS INPUT SYSTEMS, minimising nitrogen and phosphorous losses via runoff and volatilisation, leading to reduced eutrophication and water pollution and lower nitrogen levels per hectare, lowering nitrous oxide emissions.

LOCALLY PRODUCED LIVESTOCK FEED, leading to decreased GHG emissions from the production and transportation of feed outside of Europe, as large quantities of soya are currently produced on deforested land to feed livestock in the EU.

INCREASED BIODIVERSITY, both cultivated (agro-biodiversity) and wild, providing many ecosystems services such as pollination, leading to increased resistance to pests and diseases and to more resilient agro-ecosystems.

HIGHER SOIL CARBON SEQUESTRATION AND SOIL FERTILITY AND QUALITY, leading to increased offset of emissions and greater adaptation to climate change effects as organic carbon in soil maintains soil productivity and structure, and as organically managed soils have higher water capture and retention capacity.

HIGHER NET INCOMES, certified organic farmers can sell their products for higher prices, while often incurring lower input costs than conventional farmers, leading to greater economic resilience and therefore ability to adapt.

POTENTIAL OF CLIMATE-FRIENDLY FARMING PRACTICES

OPTIMISED ON-FARM NUTRIENT RECYCLING

Composting on-farm materials such as manure and residues from crops help to close nutrient cycles and reduce GHG emissions, such as methane. Biogas plants produce alternative energy and heat sources, and biogas slurries can be brought back to arable fields and used as fertilizer. Mobile livestock systems can be constructed to reduce GHG emissions from feed transport.

OPTIMISED CROP ROTATIONS

Introduction of or increased percentage of grain and forage legumes such as soya, winter peas and lupines lead to increased stabilisation of soil fertility, nitrogen fixation, and carbon sequestration. Energy and fossil fuel consumption can also be decreased by changing crops and machinery used.

OPTIMISED TILLAGE SYSTEM

Different forms of tillage systems can be adopted, such as reduced frequency, reduced depth or no-tillage, and the type of machinery used can be changed. This can lead to reduced fossil fuel consumption and helps to promote healthy soils.

AGROFORESTRY

Agroforestry elements, such as boundary hedges, buffer stripes, alley cropping or silvopasture, have a high potential to sequester atmospheric carbon, while the wood can be used for heating purposes, replacing fossil fuels. These systems also provide valuable ecosystem services.

POLICY RECOMMENDATIONS

- Set up long-term national and regional plans, both for 2030 and 2050 climate action in the agriculture sector, in line with international agreements such as the Paris Agreement and UN Sustainable Development Goals (SDGs).
- Use the Common Agricultural Policy (CAP) to encourage the uptake of climate relevant measures by farmers and move away from the "food security" narrative: the principle of public money for public goods in the CAP would allow farmers to take up climate-friendly measures and to reduce other environmental impacts in a more integrated way.
- Aim to reach sustainable levels of livestock production by reducing livestock feed imports and encouraging grazing on well-managed grasslands.
- Demand side measures, as consumers need to be incentivised to adopt sustainable diets.
- The EU should engage in a food systems transition and move agriculture towards agroecological approaches such as organic farming. A flagship research programme on agroecology must provide funds for an optimal assessment of multi-functional farming systems, for scaling up the best agroecological systems and integrating them into a coherent supply and value chain.