Layman report

LIFE+ AgriClimateChange: combating climate change through farming

The LIFE+ AgriClimateChange project (LIFE+09 ENV/ES/00441) was implemented simultaneously in four European countries (France, Germany, Italy and Spain) between September 2010 and December 2013

With the contribution of the LIFE+ financial instrument of the European Community

Bodensee Stiftung

Comunità Montana Associazione dei Comuni "Trasimeno - Media Tevere"

FUNDACIÓN GLOBAL NATURE

Región de Murcia

Solagro

Life

www.agriclimatechange.eu

THE CONTEXT

01

Agriculture accounted for 10.1 % of the total greenhouse gas emissions in the EU-28 (excluding LULUCF), which corresponds to 464.3 million tCO_2e. Between 1990 and 2011, non-CO_2 emissions from agriculture decreased by 23.1 %, mainly due to the diminishing cattle numbers, better manure management in some countries, the progressive adoption of more effective farming practices, the reduction in the amount of nitrogen added to soils and the financial and economic crisis. Regulatory instruments not specifically focused on climate change also had an indirect influence on this decreasing trend.

Despite the decreasing trend in greenhouse gas emissions, the EU and the Member States will have to adopt further mitigation measures that include the farming sector in order to fulfil the global climate commitments. A good example is the EU Roadmap for moving to a low carbon economy, that recommends a decrease in GHGE for this sector of 36 to 37 % for 2030, and a more ambitious one (42 to 49 %) for 2050 (EU Roadmap for 2050).

Photo: Jordi Domingo - FGN

Photo: Bodensee-Stiftung

A preliminary overview of the greenhouse gas emissions sources from European agriculture shows that more than half the emissions are related to agricultural soils, one third to enteric fermentation and one sixth to manure management. The other sources of emissions (burning of residue and rice cultivation) are non-significant contributors. Nitrous oxide (N_2O) is the main greenhouse gas related to agricultural soil emissions, essentially due to microbial transformation of nitrogen in the soil (nitrification, denitrification). This concerns nitrogen mineral fertilisers, manure spreading and nitrogen from crop residues incorporated into the soil or lixiviation of surplus nitrogen. Enteric fermentation releases methane (CH_4), which is a natural part of the digestive process for ruminants. Both N_2O and CH_4 are also produced during manure storage (decomposition).

Agriculture emits very little carbon dioxide (CO_2), although assessments including direct energies consumed by agriculture as well as indirect CO_2 emissions from processing of inputs at farm level showed that this gas can represent between 10 and 20 % of the total greenhouse gas emissions. In addition, croplands, which occupy more than half the territory of the European Union, can stock massive reserves of carbon by putting in place agronomic measures and/or agro-ecological infrastructure that help reduce the amount of CO_2 in the atmosphere.


Photo: Jordi Domingo - FGN

THE OBJECTIVES

02

Tackling greenhouse gas emissions on farms and adapting to climate change are major challenges that the European agriculture will have to face over the coming years, thus promoting farming systems that combat climate change is a powerful strategy to improve climate conditions, to preserve nature and to increase the competitiveness of the agricultural sector. The objective of the AgriClimateChange project was to contribute to making the European farming sector an international leader in terms of climate change mitigation, considering the key role of farmers in a sector that serves different purposes, not only food production but also the protection of biodiversity, cultural heritage, landscapes…and of course, the climate protection.

Photo: Solagro

THE PARTNERSHIP

03

The project was coordinated by Fundación Global Nature, a Spanish foundation that has been working for 20 years promoting nature conservation and sustainable farming practices. The partnership included organizations, private or public, with extensive experience in farming and climate change. They provided different insights to the project. In France, Solagro has been a reference in sustainable farming, energy and natural resources management since its creation in 1981. The Lake Constance Foundation works towards sustainable economy in the international Lake Constance area (Germany) and beyond. Comunità Montana Associazione dei Comuni Trasimeno-Medio Tevere is a public body in charge of sustainable local development under a national and regional law and is responsible for the Lake Trasimeno Regional Park (Italy). The Consejería de Agricultura y Agua is the Department of the Regional Government of the Murcia Region (Spain) in charge of Agriculture, Fisheries, Water and Environment.

THE METHODOLOGY

04

To identify the most effective mitigation measures, in a first phase, the project gave birth to a software tool, called ACCT (AgriClimateChange Tool), based on the experience of the project partners, especially Solagro, which has created similar assessment tools since 1999. ACCT evaluates energy consumption, greenhouse gas emissions and carbon storage at farm level. ACCT is intended to be applicable throughout the European Union and has been continuously improved throughout the project thanks to its use in the four countries. 149 farms were assessed with ACCT over the 3 years of the project, representing more than 20 different production systems. Taking into account the assessment results, specific action plans were developed aiming at reducing energy consumption and GHG emissions of the farms by 10 to 40%.

Experts identified key issues in the farm management, offering room for improvement in terms of energy consumption and GHG emissions. Where possible, opportunities for associated financial savings were also identified in a context of rising energy prices. The action plans, a specific roadmap done for each farm, included a list of proposed measures discussed and agreed with farmers. These measures were implemented with the support of the project's experts, and their impacts were measured through annual assessments in 2011 and 2012 – when necessary, additional measures were proposed. The results and lessons obtained through the project led to the drafting of global mitigation proposals for the EU, National and Regional policy measures, especially in the context of the new Common Agricultural Policy (CAP). The project partners met members of the European Commission and Parliament several times during the project in order to suggest policy measures in relation to climate change in agriculture. After the project, and during the reporting phase, the EC and the EP invited the project to present their results and policy proposals.

Photo: Bodensee-Stiftung

The project also included various communication and awareness-raising activities in order to reach key stakeholders such as farmers, Farmer Unions, professional associations or consumers. Although climate change is a major challenge for agriculture, not all the farming community is aware of their responsibilities, needs and opportunities of combating climate change. As the farming sector is diverse, the communication campaign included several tools, such as a website, notice boards, press releases, radio and TV, specialized press, agricultural fairs and of course talks for farmers.

Photo: Conactor


Photo: Bodensee-Stiftung


Photo: AgriClimateChange Project

THE RESULTS

05

The project has clearly demonstrated through the implementation of 128 action plans in 4 countries that an average reduction of 10% of GHG emissions and 10% of energy consumption at the farm level is possible. In some cases the reduction can be much higher as can be seen in the project's results (actually the average energy reduction achieved was 17.6% and the average GHG emissions reduction was 22.2%).

The most important aspect is that these results can be achieved in different kind of production systems and geographical areas, thus in the majority of the European farmland. These average reductions are aligned with the most important mitigation and energy reduction commitments the EU has for the following years: the European Strategy 20-20-20 (which aims a 20% more efficient energy consumption, among other aspects) and the Roadmap 2050 towards a low carbon economy (which suggests for the farming sector a reduction of the GHG emissions of a 36-37% for 2030 and 42-49% for 2050).

Photo: AgriClimateChange Project

	Name	GHGE potential	Target	Farming system concerned	Implementation costs	Other environmental synergies	Main CAP option	Difficulty for farmers	Monitoring feasibility
Agronomic measures	Nitrogen balance	High	<50 kg N/ha	All, except, greenhouse, housed animals	Neutral / negative	ND, WFD, NEC, HD	Cross- Compliance	Easy	High
	Introduction of leguminous on arable land	Medium	>10% in cereals & >40% for temporary grassland	Arable land	Low / neutral	ND, WFD, HD & BD	Greening: crop diversification & EFA	Medium	Easy
	Conservation Agriculture	High	20% of the cropland	Cropland	Low / medium	Soil, WFD, HD	Greening Equivalency	High	High
	Green covers	High	100% of the cropland Permanent crops	Cropland and permanent crops	Low / medium	ND, WFD, Soil, HD, Pesticides	CC in NVZs	Medium / high	High
Livestock measures	Manure storage	Low -	Cover slurry pit	Livestock, especially pigs & cattle	Medium / high	NEC	Cross- Compliance	Easy	Easy
	Manure spreading	Low	Liquid manure	Livestock, especially pigs & cattle	Low	NEC	Cross- Compliance	Easy	Easy
	Biogas	High +	Manure	Livestock	Medium / high	NEC	Investment	High	Easy
Energy measures	Biomass	Low	Fuel substitution	Farms with heat needs	Medium	20/20/20, HD	Investment, AEM	Medium	Easy
	Photovoltaic	Medium	On farm roofs	All farms	Medium / High	20/20/20	Investment	Easy	Easy
	Fuel reduction	Medium	10% fuel reduction	All farms	Low	20/20/20	INF, AS	Easy	Easy
	Electricity reduction	Low	5 to 30% electricity reduction	Dairy, cold rooms, irrigation, processing	Low	20/20/20	Investment	Easy	Medium
AEM	Low carbon AEM	High	Maintain and encourage farms with low level of GHG emissions	All farms over 20 ha of UAA	Low	All	Agri-Environment Climate	Easy	Easy

Acronyms

ND: Nitrates Directive; WFD: Water Framework Directive; 20/20/20: climate and energy package European Strategy 20-20-20; HD: Habitat Directive; Soil: Soil directive; Pesticides: Sustainable use of pesticides directive; NEC: National Emission Ceilings Directive; AS: Advisory Services; INF: knowledge; NVZs: Nitrates Vulnerable Zones; AEN: Agri-Environmental Measure

THE CONTRIBUTION TO EU REGULATIONS

06

During the project implementation, the partnership organized several meetings in Brussels (both with the European Commission and members of the European Parliament). They also worked in close contact with their National and Regional authorities in order to propose the best mitigation measures at farm level. The most important regulation targeted was the Common European Policy (CAP) that during the project period was reformed and designed.

CAP reforms over the years have tried to deal with challenging environmental problems. In that sense, since 2010 it has been stated that the new CAP should support climate action while at the same time ensuring that economic, territorial and other environmental challenges are dealt with. The new CAP structure offers the possibility of including climate action instruments in both Pillar 1 and Pillar 2, but in some cases the impact of such measures is still uncertain. Nevertheless, agriculture will probably be a key sector in the mitigation of climate change and the new CAP will probably be one of the most important opportunities for the EU-28 to tackle the climate change issue.

Agriculture plays a key role in mitigating climate change. Mitigation measures at farm level have been shown to be effective, and the new CAP reform should help increase their potential. Nevertheless, a precise definition of and approach to these measures is needed in order to ensure that mitigation options at farm level are able to fulfil European mitigation commitments over the coming years.

INFORMATION ABOUT AGRICLIMATECHANGE IN NUMBERS

Website: www.agriclimatechange.eu
Total budget: 1.483.183,94 € (50% co-financed by the EU)
Time of implementation: from September 2010 to December 2013
Number of documents published: 6 different documents in 5 languages
Number of document downloads: aprox. 20,000
Number of visits to the website: aprox. 90,000
Number of news in media during the project: aprox. 320
Number of specialized articles published: 31
Number of meetings with decision-makers at EU and national level: approx. 25
Number of farmers informed: 664
Number of farms engaged in mitigation actions at farm level: 128
Number of advisors trained to the use of ACCTool: 50

Photo: Linzgau-Korn

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