



COUNTRY

Italy

PROJECT PROMOTER

Confagricoltura Toscana

FUNDING

RDP funding, EUR 260 727

RDP MEASURES

- M01 - Knowledge transfer and information activities
- M16 - Co-operation (EIP-AGRI)

DURATION

2018 – on-going

CONTRIBUTION TO

- Generating environmental benefits
- Mitigating climate change
- Creating value through increased cooperation among value chain actors

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KEYWORDS

Agricultural practices, co-operation, fertilizers, soil carbon, GHG, knowledge transfer, renewable energy

SMARTGAS - farming with biogas to reduce the carbon footprint, increase sustainability and build resilience to climate change in cropping systems

SMARTGAS is an EIP-Agri Operational Group, financed by the Rural Development Programme of the Tuscany Region. The project brings together regional authorities, private companies, research institutions and farmers.

The objective of this EIP-AGRI project is to involve agriculture in GHG mitigation by reducing the use of agricultural inputs and energy (i.e. fuel and fertilizers) and increase carbon sequestration in agriculture.

The project will help identify, test and validate management strategies and agronomic solutions that are able to: guarantee sustainable crops and quality agricultural products; optimise farming systems by producing biogas and achieve sustainable farming intensification.

RESULTS

- ✓ Direct and indirect GHG reduction.
- ✓ Increased carbon content in soils.
- ✓ Increased soil biodiversity, by means of increased carbon content, more diverse cropping systems and reduced tillage.
- ✓ Avoid/reduce bad practices in biogas making.
- ✓ Increase the integration of biogas making with other farming activities in Tuscany.
- ✓ Create a local network of biogas makers, involving additional stakeholders (e.g. local authorities, universities).
- ✓ Increasing the geographical coverage from the involved farms and their surrounding to the whole region.
- ✓ Linking to national/international initiatives and providing new insights and information to the Operational Group / local network.
- ✓ 9 people employed directly and 9 indirectly (e.g. in spin-offs of the initiative, suppliers, transport).



Context

The project partners identified the need to involve farmers in GHG mitigation by reducing the use of agricultural inputs and energy (mostly fuel and fertilizers). Farmers can also contribute through increased carbon sequestration in farmland soils. This can be achieved through the use of more efficient digestate and tillage techniques in cropping systems, that can produce both animal feed and food for human consumption, as well as bioenergy.

Anaerobic digestion is a considerable asset when coupled with cultivation systems that optimise the carbon and nutrient potential of digestates. The use of digestates in such systems allows for a reduction in soil tillage and keeps the farmland 'photosynthetically active' for as long as possible throughout the year: producing food, feed and bioenergy crops.

Objectives

The project aims to identify and promote different management strategies and agronomic solutions, and to achieve sustainable intensification. It also aims to test and validate new agricultural techniques to support the long-term consolidation of the agricultural biogas sector in Tuscany.

Activities

The Academic partner (Scuola Superiore Sant'Anna) is responsible for setting up and monitoring the field trials and assessing the agronomic, economic and environmental sustainability of both the conventional and the innovative agricultural practices.

The farmers carry out the field trials, gather data and provide feedback about the tested farming practices.

The farmers' association (Confagricoltura Toscana) contributes to both the technical and scientific aspects of the project, overseeing its coordination and the actions of each of the partners. The farmers' association and the Italian Biogas Consortium (CIB) have a leading role in training and providing know-how to the farmers, based on Italian and international case-studies.

Environmental sustainability

The project will highlight and demonstrate the environmental benefits of alternative farming practices compared to conventional ones. The comparison will be based on reporting on carbon sequestration, assessing soil biodiversity and soil agronomic properties, as well as evaluating other impacts of these practices, e.g. on water use and nitrate leaching.

Innovation transfer is the main focus of the project. No direct investments in machinery and infrastructures are included. The academic partner will design the environmental indicators to evaluate the alternative practices to be tested. The same indicators will be used to evaluate the conventional practices that are to be replaced.

The project will help raise awareness on how to improve farming practices. It will provide a framework to further invest in biogas plants in order to keep them sustainable from an economic point of view, while increasing their environmental sustainability.

The project was planned by taking into consideration the existing biogas plants in Tuscany and the agricultural context in their areas (e.g. land abandonment and marginalization, depletion of soil organic matter) as well as the structure/management of nearby farms. The most structured, proactive and multifunctional farms producing biogas will serve as best practice case studies for replication.

This project was inspired mostly by the Europe 2020 Strategy for a resource-efficient Europe and by the '4 per 1000' initiative (www.4p1000.org/) originating from the Paris Agreement/COP21.

Lessons learnt

A project funded by the European Agricultural Fund for Rural Development should always be rooted in the practical needs of farmers and not just hypothetical ideas on paper.

Perhaps central to the project's successful funding application was the fact that farmers and a farmers' association were involved in the consortium. Their focus on working together to address concrete, practical issues by using up-to-date research and available means served to improve current practices, both from an environmental and economic perspective.