



## Cat Correggio – Producing biogas from agricultural by-products

### COUNTRY

Italy

### PROJECT PROMOTER

CAT Correggio

### FUNDING

n/a

### DURATION

2007 – on-going

### CONTRIBUTION TO

- generating environmental benefits
- mitigating climate change
- increasing efficiency of biomass resource use

### KEYWORDS

Agriculture, bio-energy, by-products, cooperation, renewable energy

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### WEBSITE

n/a

### The initiative

In 2005, a group of farmers and technicians from Emilia-Romagna began to look for new ideas for increasing the productivity of their farmland. They identified interesting examples of biogas and bioenergy production from agriculture and wineries in Austria, Germany and Spain and decided to study the examples in detail. They later went on to set up the CAT cooperative in Correggio. The cooperative collaborates with research centres, industry, schools and universities in order to study and improve agricultural technologies for the production of food and bio-energy, sharing information about innovative technologies amongst its members.

Since 2010, CAT has been operating a biogas plant – with over 30% of the biomass it uses coming from by-products produced in the area. CAT is also involved in the management of agricultural field tests to reduce energy demand in the primary sector and to reduce the environmental impact of crops.

### RESULTS

- ✓ Improve the agricultural techniques of farmers and industries. Contribute to raising awareness about ecological sustainability among farmers and young people.
- ✓ Support traditional agriculture, improve its eco-sustainability and productivity. From the anaerobic digestion of by-products and dedicated crops, CAT produces enough energy for 2 400 households. The biogas engine also produces heat that is used to dry hay and to heat buildings and digesters.
- ✓ Increase the reuse of by-products from regional industries. Increase the number of students and research projects in the field of agriculture and bioeconomy.
- ✓ 40 individuals directly employed in/by the initiative and 80 individuals indirectly.



## Context

In 2005, a group of farmers and technicians from Emilia-Romagna began to look for new ideas for increasing the productivity of their farmland. They identified interesting examples of biogas and bioenergy production from agriculture and wineries in Austria, Germany and Spain and decided to study the examples in detail. In 2007, the group grew to 27 farmers, 3 agriculture energy experts and 5 wineries from the Lambrusco district, decided to set up the CAT cooperative in Correggio.

## Objectives

CAT Correggio aims to share information about innovative agricultural technologies amongst its members. More specifically, it aims to improve efficiency in crop production and to reduce land use and energy demand by/from the primary sector.

## Activities

Since 2010, CAT has been operating a biogas plant (998 kW of electrical power) with over 30% of the biomass it uses coming from by-products produced in the area (stalks from grapes, slurry, sugar beet pulps).

The biogas plant and the cooperative are located in a food producing region. CAT is involved in the management of agricultural field tests and works to maintain food crops in the area by balancing the introduction of energy crops with innovative agricultural techniques.

## Lessons learnt

Sharing information and expertise with other similar projects, developed both in EU countries and outside the EU, can be very useful. Also, try to involve research centres, industries, farms, schools and others, as different perspectives can help create new ideas.

## Environmental sustainability

The distance between the agricultural fields/farmland and the biogas plant was taken into account in order to reduce the carbon footprint of transferring the biomass to the plant. The biogas plant was designed to be able to manage several types of feedstock (solids, liquids, silages, by-products). The buildings, machines and lighting were all designed to minimise the energy demand and avoid wasteful consumption.

On a monthly basis, the company collects all production and energy data from the plant and the farms, and establishes an energy-mass balance.

CAT has developed important collaborative relationships with research centres, industries, schools and universities. Some research activities are dedicated to the life cycle assessment of the carbon footprint of the biogas plant (e.g. Fantin, Valentina, et al., "Environmental assessment of electricity generation from an Italian anaerobic digestion plant." *Biomass and Bioenergy* 83 (2015): 422-435).

A cooperative is a particular form of enterprise where each member owns a share of the cooperative asset, and works for it as well. The value of people comes first and the farmers and cooperative members gain additional income from the plant's activities.

The CAT biogas plant welcomes over 100 students from schools and universities every year.

CAT was inspired in particular by the following examples of agro-energy:

- Austrian Bioenergy Centre, Graz, Austria;
- Bayerische Landesanstalt für Landwirtschaft, Freising, Germany;
- Centrales Agrar. Rohstoff Marketing und Entwicklungs (CARMEN), Straubing, Germany;
- Centro Nacional de Energías Renovables (CENER), Pamplona, Spain;
- Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT), Soria and Valladolid, Spain.