LIFE Project “Integrated systems to enhance sequestration of carbon, producing energy crops by using organic residues” – Seq-Cure

Minutes of the 2nd European Orientation Group Meeting
Viborg, 12th December 2008

The Second European Orientation Group (EOG) Meeting was held on 12 December 2008 in Viborg, Denmark, at the University of Aarhus, Faculty of Agricultural Sciences, organized by CRPA SpA in collaboration with Dr. Uffe Jørgensen, one of the members of the EOG.

The following members of the Group were present at the Meeting:

Rene Dechow Max Planck Institute for Biogeochemistry - Jena Germany
Roland Kirchmayr Institute for Environmental Biotechnology - IFA Tulln Austria
Maria Luz Cayuela Wageningen University Holland
Uffe Jørgensen University of Aarhus, Faculty of Agricultural Sciences Denmark
Ioannis Eleftheriadis Centre for Renewable Energy Sources (CRES) Greece
Walter Merzagora Italian Biomass Association ITABIA - Roma Italy
Christian Siegler SODEMASA Spain
Paolo Mantovi Fondazione CRPA Italy
Elena Bortolazzo Fondazione CRPA Italy

The meeting was divided in two parts. The morning was dedicated to technical visits to sites of importance for bio-energy activities, particularly anaerobic digestion and gasification in Denmark.

The group visited the following:

a) **Samson Bimatech** company, which works on the design and construction of pumps and machinery for the treatment and spreading of slurry.
The visit was focused on the explanation of the functioning of a modular plant for the manure separation, drying, pelletization and combustion (gasification) of different kind of livestock manure; heat is produced to be used at farm level.
The technology proposed represents an alternative to anaerobic processing, of importance particularly in relation to the fibrous content of livestock manure.

b) **Xergi**, which is a company specialised in the construction of anaerobic digestion plants working under thermophilic conditions. Xergi supplies modular AD and separation plants: basic biogas plant, module for separation of phosphorous and nitrogen, module for separation of nutrients and water, pre-treatment and CHP module which consist of an energy generator and a boiler.
The Research and Development Manager, Anders Peter Jensen explained the reasons behind the decision to work in thermophilic conditions instead of the more traditional mesophilic one.
A description was also provided of the changes made to the plant which had resulted in an increase in biogas yield.

c) The **Biogas Research Centre** of the University of Aarhus including a laboratory, pilot plants at different scales and a full-scale biogas plant heating the University of Aarhus premises. Facilities can be used also for research and private projects. The biogas test facilities include...
four test reactors which can run parallel and independent experiments and are the main part of the experimental facilities of the University. The facilities consist of:
  • a decanter,
  • four mixing tanks (30 m$^3$),
  • two feeders,
  • four reactors (10 m$^3$),
  • laboratories and test hall,
  • three post digestors,
  • a co-generating facility which uses biogas from the test reactors and also from the main biogas production unit.

Additional information can be found in the attached “Biogas test facility” depliant.

The afternoon was dedicated to the LIFE Seq-Cure project. In the first part, Elena Bortolazzo welcomed the participants, explained the meeting objectives and described the progress achieved during the second year of the project for the different tasks, making use of the Seq-Cure Internet site.

Paolo Mantovi then showed the work carried out within the different agro-energy production chains forming part of the Project, making use of the Seq-Cure Internet site. He described the agronomic demonstration trials and the monitoring activities of the energy plants. He introduced also the state of the art of biogas production in Italy which was also reported the day before by Sergio Piccinini (CRPA) in the Workshop “Biogas: a promising renewable energy source for Europe” organised by AEBIOM, on 11th December 2008 at the European Parliament, Brussels.

The meeting continued with an explanation provided by Rene Dechow of the model used for the calculation of GHG emissions and C storage on which the Internet service for use by technicians and scientists (developed in conjunction with CRPA, Task 5) was based.

In the discussion the following project-related issues emerged:
  • Ioannis Eleftheriadis asked why the ash resulting from the combustion had not been used as a soil amendment. Elena Bortolazzo explained that under Italian law the ashes were classified as special waste, and cannot be used for agronomic purposes. The discussion continued on the possibility of use of ashes in different countries.
  • Roland Kirchmayr noted the high level of livestock farming and density in the Emilia-Romagna Region and a discussion ensued on how the Nitrates Directive was implemented in Emilia-Romagna.
  • Roland Kirchmayr drew attention to the fact that sunflower oil was known to cause engine corrosion and asked whether the plant monitored (Kómárós) had shown signs of this kind of problem. Paolo Mantovi replied that the plant had been functioning for about one year and no problems had been reported until now.
  • Questions were raised as to whether plant using biowaste as biomass had been monitored in the project. The reply was that the project provides for the use of biomass from agricultural production. It was noted that a biowaste plant had been built in Denmark but it had to be closed because of the problems encountered.
The meeting concluded with contributions from:

- Uffe Jørgensen, reporting on the state of progress reached by the Bioman project conducted by the University of Aarhus and concerned with greenhouse gas emissions from the treatment and application of manure.

- Christian Siegler, describing the LIFE ES-Wamar: environmentally-friendly management of swine waste based on innovative technology. The project concern with the management of pig slurry in the Region of Aragon, Spain.

All the presentation are annexed to this minutes and available in the Internet site of the project.

The meeting closed at 18.00 and Elena Bortolazzo thanked all those present for their participation and stated that the next meeting would be part of the Project’s final Conference, which will be probably held in April 2010 in Italy. The conference will probably last a day and it will be split in two parts, the first part will be dedicated to the international context and the second part will be dedicated to the discussion of LIFE Seq-Cure project's results.