

This series of informative fiches aim to present, in summary, examples collected by the ENRD Focus Group on Knowledge Transfer and Innovation. The case studies describe practices and approaches that EU Member States and Regions have put in place in order to promote Knowledge Transfer and Innovation, mainly but not exclusively, through their Rural Development Programmes in the current period. These examples aim to contribute to the understanding of what has worked well and less well in supporting innovation through the 2007-2013 RDPs and as far as possible, draw lessons in the view of future improvement of the programmes.

Integrated production of fodder by a cooperative with the use of renewable energy (biogas) in France - INTERREG Dairyman

SUMMARY: A farmers' cooperative used renewable energy (biogas) for the production of livestock feed. Hence it allowed its members to have their own locally produced fodder of high nutritious value at competitive cost while reducing greenhouse emissions.

1. Why the approach has been put in place

The time of harvesting silages for the production of fodder is a particularly challenging and stressful period for farmers. Mowing needs to take place at a stage of maturity of the crop that gives the desired quality and quantity. At the same time it is critical to harvest the silage within an optimum moisture range depending on the type of storage method to be used. Hence the quality of the produced fodder depends on the weather conditions during the harvest and drying period and this is particularly true for alfalfa since most of its proteins are located at the leaves that come off when it is sun dried. As a result, the most nutritious part of the plant is lost.

The Séché Environment Company was established in 1985 and is based in Mayenne, one of the 83 administrative departments in France. The company specializes in the recovery and treatment of household and industrial waste, environmental clean ups and restoration of sites in France or abroad. In recent years, the company is also active on renewable energy production. At some point the company needed land to expand its storage space for the waste to be processed. In exchange for land, farmers were offered to use the produced biogas. They could use the biogas for dehydrating their harvest of alfalfa and create their own fodder stocks.

2. How it was achieved in practice

After consultations, meetings and feasibility studies, 173 farmers decided to participate in this project. In 1997, they established the Cooperative of Dehydration of the Mayenne (CODEMA) and one year later, a unit of

dehydration of feeds – especially alfalfa – was built a few hundred meters away from the Séché Company. At the beginning, the cooperative was mainly interested in the dehydration of alfalfa since it is the traditional

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crop in the area and has the advantages of growing without fertilizers while its nutritional value is equivalent to that of soybean. For this purpose CODEMA and the Séché Environment set up the dehydration plant using a distiller powered by the biogas stemming from the treatment of the household waste.

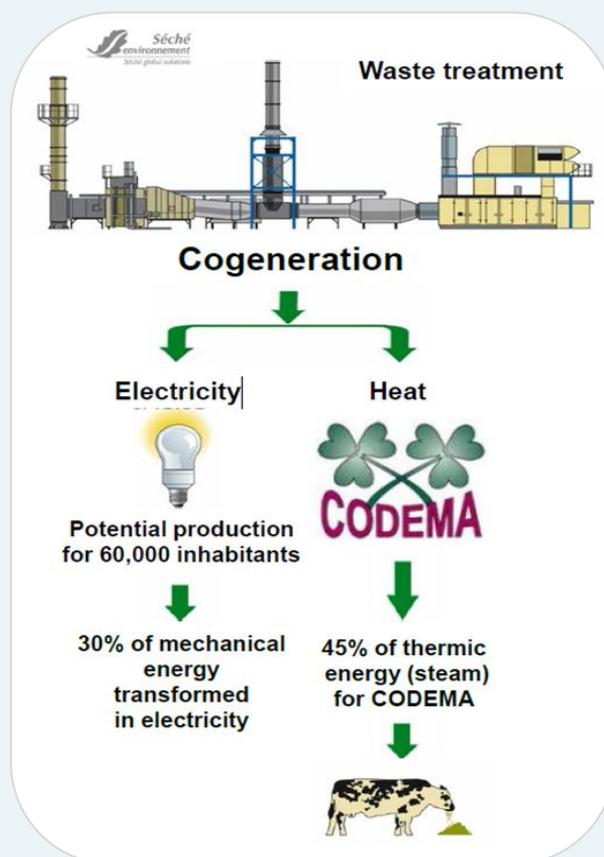
The cooperative also addressed the harvesting problem of its members when in spring they are under pressure to mow their crop at the right time depending on the weather conditions. The cooperative set up an integrated process for managing all steps of fodder production. A daily schedule is made by the members of the cooperative for mowing each farmer's crop when it is in its optimum condition. The cooperative harvests the alfalfa and the harvested silage is transported by trucks to the dehydration plant. It is then heated for twenty minutes to 400 degrees to be dried and then packaged into pellets of 10 mm before being returned to the farmer. Thanks to a computerized identification system each farmer received the alfalfa that was harvested on his farm.

The cooperative initially dehydrated only alfalfa and corn and the dehydration plant operated at full capacity for eight months. Alfalfa is harvested from April to September while maize is harvested between September and November. During this period, the plant worked in three shifts. However, during the winter months the dryers were hardly used. As a consequence, only part of the energy produced from the household waste was used and the surplus of biogas was burned.

At that stage the cooperative served around 550 farmers and the quantity of processed alfalfa reached 23,000 tons per year (about 3,500 hectares).

In an effort to maximise the use of the biogas and stop CO₂ emissions, the Séché Environment decided to completely revamp

its installation using 100% of the produced biogas compared to the previous 32%. Since 2009, the upgraded plant uses biogas to produce electrical and thermal energy. The thermal energy produced is recovered by CODEMA through a cogeneration system. In parallel CODEMA upgraded its dehydration plant as well. The cooperative installed two dryers using the hot air produced by the new Séché Environment plant. The first dryer became operational in early 2009 and the second one a year later.



The new method is advantageous in a number of ways: the system operates on low temperature (125 degrees), therefore the drying process allows to preserve the nutritional and organoleptic qualities of the plants.

The upgrade also enabled CODEMA to accommodate an additional 250 members in a radius of 30 km around the site and produce more than 30,000 tons of dehydrated alfalfa.

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The cooperative also developed new services including the dehydration of grapes and grains

such as beans, carrots etc. so that the facility would operate all year round.

3. Lessons learnt for the future

Results: This initiative enabled farmers to ensure fodder autonomy for their livestock at low cost. The cost is attractive – about 90€/ton of alfalfa including harvesting, transportation and dehydration – and especially if the price volatility of raw materials is taken into account. The initiative also decreased greenhouse gas emissions at farm level by promoting alfalfa and limiting the use of nitrate fertilizers needed for other fodder crops. Moreover the use of locally produced fodder decreased the dependency on soya imports. Also the dehydration allows a long very practical storage in the form of

granules or of corks while protecting proteins and trace elements.

Encouraged by its success, the cooperative expanded its activities and became a service provider exceeding its original targets. Since 2005 the cooperative created a commercial union that buys alfalfa, dehydrates it and then resells it to farmers and sometimes to the industry. This activity represents 30% of the production. At regional level, the cooperative employs eight people and provides good quality livestock feed at competitive costs with minimum environmental impact to 700 farmers.

Lessons learnt:

- ⇒ The use of renewable energy not only led to almost self-sufficiency in livestock feed but also created opportunities for new markets and new activities.
- ⇒ Such investments largely depend on having a minimum number of farms around the plant. The proximity of the farms to the plant should allow a moderate transport cost that would make the investment profitable.
- ⇒ Such initiatives could be replicated in other regions, however it should be noted that the creation of a cooperative is a key success factor in order to engage and facilitate farmers groups.
- ⇒ Overall, this initiative demonstrates how responsible farming can create employment and economic vitality for farmers and rural areas.

For more information:

- <http://agriculture.gouv.fr/la-codema-mayenne-deshydrate-les>
- http://www.interregdairyman.eu/upload_mm/c/0/f/38fe13f3-88c8-440e-b1e8-3b476525e5ca_Cooperation%20PdL%20v2.pdf

Information included in this fiche is primarily coming from the case studies carried out within the ENRD Focus Group on Knowledge Transfer & Innovation. The fiche is compiled by the ENRD Contact Point on the basis of the information collected in the EU Member States and Regions and takes into account views expressed at the European, national and regional level. This notwithstanding, the content does not necessarily reflect the official position of the EU institutions and national authorities.