

## DENMARK

### Fostering local development in rural areas

**Location**  
Randers

**Programming period**  
2014 – 2020

**Priority**  
P6 – Social Inclusion and  
Economic Development

**Measure**  
M19 – LEADER/CLLD

**Funding (EUR)**  
Total budget 79 419  
EAFRD 25 903  
National/Regional 6 476  
Private 47 040

**Project duration**  
2016 – 2017

**Project promoter**  
CURRU-TEK ApS

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Supporting the development of a demonstration model of a new harvesting machine adapted to the environment of Danish wetlands.

### Summary

Meadows and river valleys need grazing from animals or to harvest the grass that grows there since delicate flowers, such as orchids, only stand a chance of survival if the high grass around them is removed.

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The project supported the development and construction of a demonstration model of a completely new harvesting machine adapted to the environment of Danish wetlands.

### Results

Created 4 new jobs in the micro company, as well as corresponding number of workplaces with local subcontractors.

Helped establish a network of local actors specialized in design, strength calculation, surface treatment, and mechanical innovation, which is expected to last in the future due to the expected commercial success.

Promoted the production of biogas.

### Lessons & Recommendations

- ❑ The project demonstrated that cooperation between public agronomic and plant researchers, the Danish Nature Agency and a private company can lead to a commercial technical feasible solution on the harvesting challenge in wetlands.
- ❑ The case also shows that it is possible to develop commercial activities linked to nature conservation and that there are no contradictions between the two focus areas of the CAP Pillar 2 priorities.

## Context

Meadows and river valleys need grazing from animals or to harvest the grass that grows there to avoid that valuable nature is lost. Delicate flowers, such as orchids, only stand a chance of survival if the high grass around them is removed. However, the development of agriculture means that free-grazing cattle are currently in short supply. Simultaneously, maintaining an effective nature conservation on wetlands is turning increasingly difficult due to increased levels of rainfall. Consequently, it is often an expensive and cumbersome affair to harvest natural grass, and today many natural areas are overgrown. Intensive cultivation of Danish wetlands has led to increased CO<sub>2</sub> emissions from the conversion of the area's organic material, lowering the surface level, which, in combination with the increased rainfall levels, has made it difficult to cultivate traditional crops.

However, German, Dutch and Danish researchers have concluded that cultivation of Paludi crops (typically water-resistant grasses) has a wide range of benefits and potentials, which, however, requires an improved technique for harvesting the crops. A Danish micro company with many years of experience on the development, maintenance and operation of harvesting machines for wetlands for harvesting reeds for thatched roofs, decided to engage upon a project to find an innovative solution for the problem. The company wanted to draw on their experience with mechanical retrieval of material from soft soil areas and daily work with advanced automation in the industry.

## Objectives

The project aims at developing and constructing a demonstration model of a completely new harvesting machine adapted to the development of Danish wetlands. This would enable less accessible agricultural areas to be used to cultivate water tolerant grasses for extraction of protein feed, biogas and natural fertilizers.

## Activities

The project consists of two main activities, a design phase and an assembling phase.

1. *Design and dimensioning:* In the idea and development process, a number of local and regional companies are involved. For the beneficiary, it was a completely new experience to engage with external contractors, to ensure digital storage of work drawings and work with automated strength

calculations as will form the basis for the new harvesting machine

2. *Construction phase*
3. *Testing the demonstration model* at the wetlands along Randers Fjord (Randers inlet).



The target group for the developed prototype was initially the research groups working on the development of new (Paludi) crops for wetlands to make them aware that a new harvesting machine is available for the future studies. The second target group was public bodies interested in nature conservation of wetlands. In 3-5 years, as the next generations of the harvesting machine is developed, an additional target group will be machine stations that offer harvesting in wetlands.

The project was implemented as planned, with the exception that the project was challenged by poor quality parts provided by the hydraulic supplier. As a result, the final version of the machine awaits a new hydraulic unit. However, it was possible to test the machine with the insufficient hydraulics, and it was concluded that every other aspect of the machine works perfectly.

The beneficiary has thereby developed a new machine, which on all the promised parameters is highly competitive compared with previously used solutions. It is characterized by low ground pressure, as it runs on specially made rubber belts; it harvests and collects in a single workflow/movement, has high capacity, produces a quality that is cut / split into small enough entities for most of the biogas plants we know today, the machine manoeuvres very gently and thereby significantly reduces the damage to the grass' root system.

Already on August 26, the new combine harvester was commissioned by the Danish Nature Agency to harvest grass on 117 hectares around Lindemborg Å and Nørreåen near Brønderslev. The event was filmed by Danish national television and documented by the Danish Nature Agency. The harvested natural grass was then sent to two biogas plants, which had purchased the grass for the production of heat. According to the Nature Agency, the natural grass of the meadows can cover the heat consumption of 100 000 Danish households.

### Main Results

The project has thus generated the following results:

- 4 new jobs in the micro company, as well as corresponding number of workplaces with local subcontractors.
- Establishment of a network of local actors specialized in design, strength calculation, surface treatment, and mechanical innovation, which is expected to last in the future due to the expected commercial success.
- Promotion of the economy in the production of biogas.
- Promotion of the possibility to conduct effective nature conservation of wetlands.
- Optimization of wetlands yields and positive consequences thereof, such as production of biogas and protein rich feed.
- Reduced emissions of nutrient salts and CO<sub>2</sub>.

- Contribution to the beauty and conservation of natural areas through a reduction of nutrient salts and reduced CO<sub>2</sub> emissions
- Promotion of the access to natural areas through more effective tools for nature conservation.

### Key lessons

The project demonstrates that cooperation between public agronomic and plant researchers, the Danish Nature Agency and a private company can lead to a commercial technical feasible solution on the harvesting challenge in wetlands.

The case also shows that it is possible to develop commercial activities linked to nature conservation and that there are no contradictions between the two focus areas of the CAP Pillar 2 priorities.

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#### Additional sources of information

[www.youtube.com/watch?v=lo-KWYW\\_IgQ&t=34s](http://www.youtube.com/watch?v=lo-KWYW_IgQ&t=34s)