

DENMARK

Energy use efficiency

Location

Odense

Programming period

2014 – 2020

Priority

P5 – Resource efficiency & climate

Measure

M04 – Investments in physical assets

Funding (EUR)

Total budget 237 602
RDP support 95 041
Private 142 561

Project duration

2018 – 2019

Project promoter

Thoruplund Nursery A/S

Contact

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Website

www.thoruplund.dk

A Danish plant nursery installed climate and control systems in their greenhouses to increase energy efficiency and reduce their production costs.

Summary

‘Thoruplund Nursery’ is family business established in 1946 in Odense, Denmark. The company produces ornamental plants, the majority of which are exported, in 23 greenhouses covering an area of 45 000 m².



The company acquired and installed a climate computer system which includes the ability to automatically manage the climate curtains of the greenhouses. The climate curtains are used to provide insulation and shade when needed. The climate control computer and the automation of processes allows for increased energy efficiency and reduced production costs per unit.

Results

The new systems improved real time monitoring and is more efficient in regulating the temperature and humidity in the 23 greenhouses.

The climate curtains will generate savings of 537 000 kwh within five years of operation.

The total energy savings gained by installing the climate computer system will be 24 217 600 kwh in the same time period.

Less labour is required for the controlling the curtains.

The reduced production costs will allow to recover the investment cost within four years.

Lessons & Recommendations

- Investing in such technological solutions requires training of the operating staff not only when the systems are installed, but also during its operation for a period of at least two years.
- Climate computer systems are essential in reducing CO₂ emissions released from the nursery sector.
- The support received from the RDP requires fast and effective administrative procedures from the time of application until the approval of payments, to ensure the successful implementation of such investments.



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Context

'Thoruplund Nursery' has been a family business for three generations. It was established in 1946 in Odense, Denmark and is a highly specialised producer of Campanula and Schlumbergera species of plants. On an annual basis the nursery produces 2.5 million plants of the Tussock Bellflower (Campanula) and 2 million plants of November cactus (Schlumbergera). It also annually produces almost 1 million plants of other species. In 2020, the company's turnover was 65 million DKK (9 million EUR) and employs 45 fulltime employees (2/3 women, 1/3 men) from nine different countries. It exports the largest part of the production from the 23 glass houses which cover 45 000 m².

Dynamic growth has been achieved through product development and automatisisation of production. The main challenge for the company today, and in the years to come, is to reduce its carbon footprint and to increase its energy efficiency. The current project is essential for the nursery and it also contributes to the national Danish climate goals of reducing CO₂ emissions by 70%, compared to the Kyoto baseline, by 2030. Thoruplund sees climate change and the efforts to respond to the challenges it brings, as of paramount importance in its plans to develop its competitiveness further.

Objectives

This investment project, aimed to:

- Increase the company's energy efficiency;
- Reduce the cost of energy per production unit;
- Reduce CO₂ emissions; and
- Ensure the optimal climate conditions in the greenhouses for the growth of the plants.

Activities

The activities carried out for this investment included to:

1. Conduct a needs assessment for reducing CO₂ emissions during production.
2. Select the most suitable climate computer systems among the available solutions in the market.
3. Install and calibrate the climate computer systems using state-of the art software and a server.

4. Installation of the climate curtains.
5. Train the operators of the system after the installation, but also on an on-going basis in order to ensure its optimal operation.

Main results

- The new climate computer system improved real time monitoring and more efficiently regulates the temperature and humidity in the 23 greenhouses. The computer system also provides instant and real time information on any system errors.
- Increased energy efficiency has been achieved and consequently there will be reduced energy consumption.
- The climate control system will generate savings of 800 kwh per m² of glasshouse in the lifetime of the investment, equal to 24 million kwh.
- The automatically operated climate curtains will generate savings equal to 537 000 kwh within five years.
- The total energy savings between the climate curtains and the climate control computer will amount to 24 217 600 kwh in five years.
- Less labour is required to operate the climate curtains that provide insulation and shade.
- The reduced production costs will allow the cost of the investment to be recovered within four years.
- The investment took place 3-4 years earlier than would have been possible without the RDP support.

Key lessons

- Investing in climate control systems requires training of the operators, not only when the systems are installed, but also for a period of at least two years to ensure its optimum operation.
- Climate computer systems are essential in reducing CO₂ emissions from the nursery sector.
- The support received from the RDP requires fast and effective administrative procedures from the time of application until the approval of payments, to ensure the successful implementation of such investments.

Additional sources of information

n/a