

INNOTARDOR – Innovative sustainable cooling system for mushroom cultivation

Summary

The general objective of the INNOTARDOR project is the analysis and design of a new climate control system that guarantees the comfort conditions required in the fruiting rooms of the Bolets Ben Fet mushroom production line at the TEB VERD farm in Sant Antoni de Vilamajor. This system must ensure there are no shutdowns of production in the summer due to the impossibility of using air-conditioning units because of their high electricity consumption and the generation of air currents that are counterproductive to the fruiting of the mushrooms.

Objectives

- Modelling of the thermal behaviour of the Bolet Ben Fet farm in order to determine the necessary thermal demands and meet the maximum comfort conditions that favour optimal production.
- Analysis of radiant emission systems that maximise the efficiency of thermal elements, fostering a reduction in energy consumption and expenditure while meeting the thermal comfort requirements.
- Analysis of energy production systems and use of existing natural resources (well) to maximise energy generation.

Conclusions

The system developed in this project has proven to be an innovative and technically and financially viable solution that meets the required comfort levels with a significant reduction in consumption. This mainly consists of a new emission system that enables the cooling of the mushroom fruiting rooms with water from an irrigation well. When the temperature of the well water is low enough, the only consumption associated with the cooling system is that of the pumps used to drive the fluid through the pipes. When the temperature of the well is insufficient, cooling is achieved by means of an auxiliary system that consists of a geothermal heat pump or a cooling tower. Both solutions represent measures to mitigate the activity's contribution to climate change, as the CO₂ associated with the electricity generated for the cooling technologies that would be used is no longer produced.

Task force leader

Entity: **TEB VERD SCCL**

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Typology of entity:

Cooperative

Subject area(s) of application

Agricultural production system

Climate and climate change

Geographical area(s) of application

Province(s)

Barcelona

Region(s)

Vallès Oriental

Plant production and horticulture

Dissemination of the project (publications, conferences, multimedia...)

News article on the Bolet Ben Fet website: <http://www.boletbenfet.com/blog/>

Project website

www.boletbenfet.com/blog/

More information on the project

Project dates

Starting date (month-year): March 2018

Completion date (month-year): July 2018

Current status: *Executed*

Budget approved

Total budget: €14,285.71

DARP funding: €5,700.00

EU funding: €4,300.00

Own funding: €4,285.71

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Generalitat de Catalunya
**Departament d'Agricultura,
Ramaderia, Pesca i Alimentació**



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