

# THE PROJECT INTEGRATES:

- **wireless sensors** for monitoring the micro-meteorological and soil conditions of the vineyard;
- **hand-held devices** for monitoring grapevine plants, pests, and diseases;
- **a web-based tool** which:
  - analyses the data collected by the wireless sensors and the hand-held devices using advanced modelling techniques;
  - optimises decision making considering the expected environmental impact;
  - suggests in the form of decision support the best options for managing the vineyard according to the Integrated Production (IP).

The prototype will be finalized by the end of 2012.

## MoDeM\_IVM CONSORTIUM

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SODIMEL(France)

GALTEL Proyectos y Desarrollos SL  
(Spain)

### RTD partners:

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*The research leading to these results has received funding from the European Union's Seventh Framework Programme managed by REA- Research Executive Agency <http://ec.europa.eu/research/rea> ([FP7/2007-2013] [FP7/2007-2011]) under grant agreement n° [262059]*

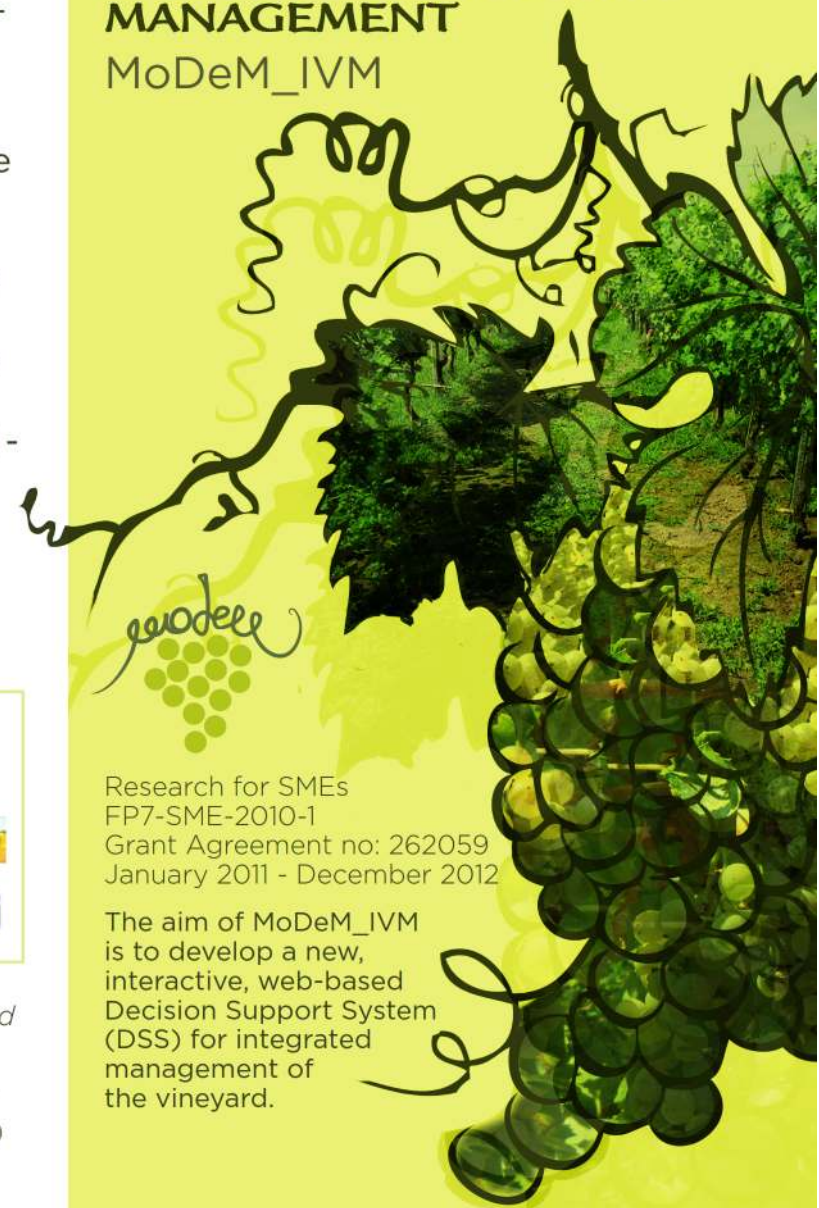


## A WEB-BASED SYSTEM FOR REAL-TIME MONITORING AND DECISION MAKING FOR INTEGRATED VINEYARD MANAGEMENT

MoDeM\_IVM

Research for SMEs  
FP7-SME-2010-1  
Grant Agreement no: 262059  
January 2011 - December 2012

The aim of MoDeM\_IVM is to develop a new, interactive, web-based Decision Support System (DSS) for integrated management of the vineyard.



# DSS FUNCTIONALITIES

## DECISION SUPPORT FOR CANOPY MANAGEMENT

- Severity and timing of summer pruning such as leaf removal and cluster thinning.

## DECISION SUPPORT FOR DISEASE CONTROL

- Downy mildew
- Powdery mildew
- Grey mould

## DECISION SUPPORT FOR INSECT PESTS CONTROL

- Grape berry moth
- Mediterranean vine mealybug
- American grapevine leafhopper

## ALERT ON ABIOTIC STRESSES

- Low temperature injuries
- Water stress

## ESTIMATE OF PENDING YIELD

# HOW THE SYSTEM WORKS

The **web-based tool** hosts the technological infrastructure of the DSS and provides decision supports and alerts on the basis of **mathematical models** and of the best options for managing the vineyard according to the IP.



The micrometeorological and soil data collected by the **wireless sensors** network feed the models working within the DSS.



Further information on the vineyard components can be collected by means of **hand-held devices** meant to give a feedback to the models and to further tailor the outputs at field level:

- **a camera**, for assessing the canopy status and ripening process;



- **an application for tablet/PCs**, which guides the user in scouting activities on the plant status and the presence of diseases and insect pests.

# USERS

The DSS is targeted to the **vineyard manager**, i.e., the person who makes decisions about the vineyard's management or suggests the proper actions to the grape-grower.

## BENEFITS RISING FROM THE USE OF THE DSS

- implementation of the IP principles:
  - maintenance of the natural resources for future grape production;
  - better resources management (i.e., canopy and water);
  - rational plant protection products distribution;
- reduction of the environmental impacts of protection against disease and insect pests;
- demonstration of safe environmental performance;
- meeting industry, community and government expectations about environmental management;
- improvement of the final product quality;
- maintaining or gaining access to certain markets, especially those with high standards for either quality of the product or environmental safety.