

# **Pilot project of phytosanitary treatment remote sensing and management in vineyard**

## **Summary**

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The aim of the project is the analysis and assessment of a DSS (Decision Support System) in order to reduce the number of fungicide treatments in vineyard in Catalonia. SISTEMIO meets the requirements of the wine sector, about the limitation of the use of fungicides and the wish of heading straight for an organic and sustainable viticulture.

SISTEMIO represents a great innovation in Catalan viticulture. A new system barely used in Catalonia has been assessed, improving vineyard management, and seeking a reduction of fungicide treatments.

## **Objectives**

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The specific objective of the project has been the validation of the DSS in vineyard, based on weather data collected at vineyard level and processed with the SISTEMIO epidemiology model.

SISTEMIO provides full access to online information about the epidemiologic evolution of downy mildew (DM) and powdery mildew (PM) in every test plot. According to this information, users take decision whether a preventive treatment is required or not. Effectiveness and treatment reduction along the season is what we have got following the model

## **Description of project activities**

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Installation and setting up of an 18 weather station network, each of them provided with temperature, humidity, precipitation and leaf wetness sensors. Weather stations are connected via GPRS modem and supplied by solar batteries, guarantying a 24/7 service all along the season.

Test vineyards data insertion and configuration into the Vite.net system. Weather data obtained from every station is processed in Vite.net system and the results are available online on the website. A real configuration of every vineyard is required by the system: variety, training system, type of soil, etc. Once all the data needed is inserted in the system, Vite.net provides DM and PM infections forecast, for every test vineyard, according to the epidemiological models and the weather forecast.

The management of the treatments in every test vineyard is carried out by wineries and ADV technicians, following the directions provided by Vite.net system. All technically coordinate by INCAVI and SSV. The expected result is a full and effective protection against DM and PM infections with the minimum required treatments, thanks to the accuracy of the new system.

Verification of the sanitary situation of every test vineyard along de season, in order to confirm the efficacy of the system.

Filling in all the treatments data: product, dose, date of treatment, etc. This information will allow the system to give information about de level of protection of every vineyard anytime.

## **Final results and practical recommendations**

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The work has been carried out under the conditions that were planned, which has made it possible to evaluate the grapevine disease monitoring system, especially mildiu. The evaluation of the system in the control of powdery mildew is more complex, since the presence of this fungus is practically permanent under the conditions of the vineyards of the project (as the system itself shows). In this environment, the strategy of treatments according to the phenological stage is less intensive than that given by the

system, although it makes some forecasts of intensity in the pressure of the disease, according to meteorological conditions, which have shown great interest in the global management of the healing of the vine.

The structure and presentation of the vite.net system is highly valued. The meteorological stations installed send with periodicity and definition with very good data, putting them at the disposal of the technicians through an interactive web platform easy to manage and understand. The system includes the real data obtained, as well as a meteorological forecast as a basis for the forecast of fungal development, reproduction and dispersion processes.

## Conclusions

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The joint work of the companies and research centres that participate in the study has allowed us to conclude that the vite.net system is a very good support for the decision, it allows a very good management of the phytosanitary strategy of the viticulture companies, in an environment very understanding and user-friendly graphic. The use of the system cannot be done in isolation from the recommendations of the services of official notices, nor of the joint management of territory that the ADVs do, on the contrary, all of them are complementary. It is a new tool, very powerful, that provides differentiated information at the level of a plot or farm, but that requires continuous technical monitoring, as well as periodic observations at the plot level.

The optimization in the decision of the moment and characteristics of the system, in a preventive strategy, supposes a reduction of phytosanitary treatments and, in definite, a better quality of the harvest.

## Operational Group Leader

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## Operational Group Coordinator

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## Other Operational Group members (beneficiaries of aid)

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## Other Operational Group members

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### Keyword-category

Agricultural production system  
Farming equipment and machinery  
Fertilisation and nutrients management  
Pest / disease control

### Territorial scope

<b>Province</b>	<b>County</b>
Lleida	Segrià
Barcelona	Baix Llobregat
	Anoia
	Alt Penedès

### Project dissemination *(publications, seminars, multimedia...)*

### Pàgina web del projecte

### Other project information

#### Projecte period

Starting date (month-year): Novembre 2015  
End date (month-year): Setembre 2017  
Project status: *Finalised*

#### Approved budget

<b>Total Budget:</b>	<b>209.937,50 €</b>
<i>Funding source DARP:</i>	86.355,71 €
<i>Funding source UE:</i>	65.145,54 €
<i>Own funds:</i>	58.436,25 €

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*Basic regulation: Ordre ARP/258/2015, de 17 d'agost, per la qual s'aproven les bases reguladores dels ajuts a la cooperació per a la innovació a través del foment de la creació de grups operatius de l'Associació Europea per a la Innovació en matèria de productivitat i sostenibilitat agrícoles i la realització de projectes pilot innovadors per part d'aquests grups, i es convoquen els corresponents a 2015.*

*Id. projecte: 24 2015*