



VITICAST

PRODUCTION OPTIMIZATION AND SUSTAINABLE DEVELOPMENT OF THE VINE CULTIVATION THROUGH FUNGAL DISEASES PREDICTION

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VITICAST is a Spanish supra-autonomous Operational Group whose purpose is to provide innovative solutions for the prediction of fungal diseases in vineyards.

The project develops a tool for the forecasting of possible infections which implementation will facilitate the work of cooperatives and wine cellars, contributing to the production of a higher quality wine and a more sustainable production by minimizing the impacts on the environment related to the application of phytosanitary products.

EIP-Agri Operational Groups

Operational Groups are the main actors in the implementation of the EIP-Agri (European Innovation Partnership for Agricultural Productivity and Sustainability), and one of the key tools for the execution of the National Rural Development Programme (NRDP) 2014-2020 for promoting innovation in the agri-food and forestry sectors within the European scope. They gather agents of different profiles with common interests, such as farmers, companies, researchers, advisers or training and dissemination actors, who are associated to implement an innovation project in order to provide a joint and multi-sectorial response to a problem or need.

VITICAST innovation project receives a total grant of 599,957.11 eur (total project budget 615,249.11 eur), 80% co-funded by the European Agricultural Fund for Rural Development (EAFRD) of the European Union and 20% by the Spanish Ministry of Agriculture, Fisheries and Food, within the framework of the NRDP 2014-2020.

Objectives and working plan

The general objective is the optimization of the production and the sustainable development of the vine cultivation in the most important bioclimatic regions in the Spanish northwest (vineyards under study are located within the following Appellations of Origin: Rías Baixas, Ribeiro, Valdeorras and Ribera del Duero) through the innovation in the management of fungal diseases of higher incidence (downy mildew, powdery mildew and botrytis) to achieve:

- Estimation of crop production in advance and reduction of antifungal treatments
- Improvement of wine quality
- Greater protection of the environment through phytosanitary reduction
- Optimization of production costs

For this, the project develops a tool for the forecasting of possible infections which will combine:

- Meteorological data measured at the vineyard level
- Prediction of the phenological stages of the vine
- Concentration of spores and inoculum necessary for the infection to occur as depicted in the infographic (Figure 1)

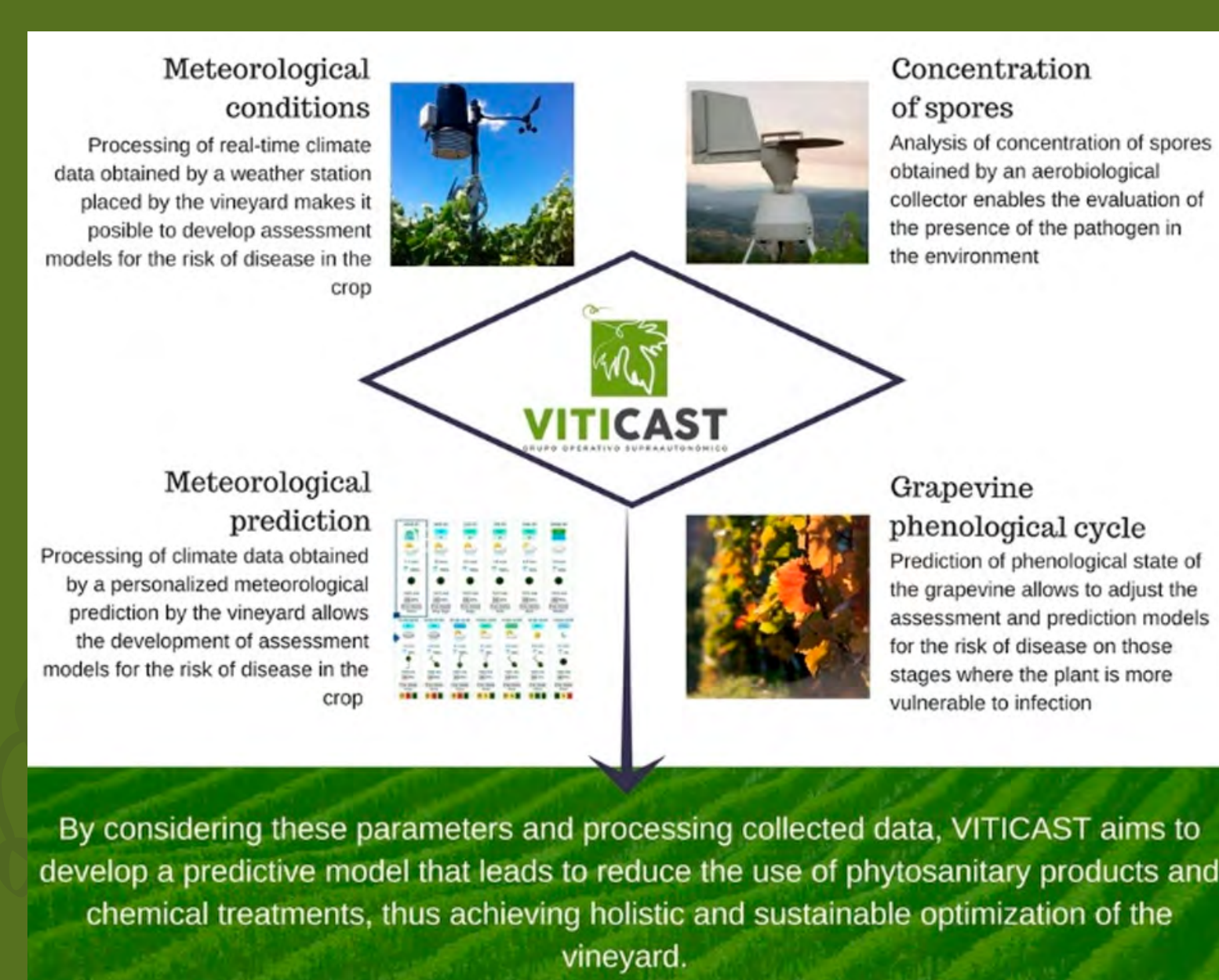


Figure 1. VITICAST project infographic.

Results to be attained

1. Established phytoclimatic models for the phenological stages evolution, for each vineyard under study and grape variety.
2. For this study, we count with a 15-year database in the Appellations of Origin Rías Baixas (Eurosiberian Region) and Ribeiro (Mediterranean Region) which, along with the data compiled during the VITICAST project execution, will allow the assessment of the impact that the various scenarios of climate change predicted by the IPCC will have on the cultivation of grapevine in both bioclimatic regions.
3. General model for the spores prediction for each studied phytopathogen.

4. Determined thresholds of spores concentration in the air against lesions and leaf spots a days later.
5. Determined thresholds of infection for the warning tool based on climatic and phenological conditions and spores concentration in the atmosphere.
6. Efficiency of post-harvest treatments assessed through comparison with the soil analytics at the beginning of the campaign.
7. Models for calculation of fungal diseases risk adjusted according to the geographical and climatic characteristics of the vineyard location the grape variety.
8. Warning tool for fungal diseases which provides forecasting of possible infections.



Figure 2. Equipment installed in the vineyards under study within VITICAST project located in the Appellations of Origin (from left to right): Ribera del Duero, Valdeorras and Rías Baixas.

Also, the following results will be obtained in order to evaluate the benefits of the implementation of the tool in the addressed Appellations of Origin:

- A model to determine the annual cost savings per hectare, obtained by reducing the chemical phytosanitary use and achieving new crop management practices, through the technology applied in the project
- The quantification of the improvement in the wine quality by comparing multi-residue analyses from the control vines and from those in which the phytosanitary treatments are applied by the conventional procedure without taking into account the warning information provided by the tool

A direct transfer of the knowledge generated within the project concerning the main cultivation in the Spanish Northwest will be carried out to the productive sector: Regulatory Councils and ecological agriculture, Councils for Rural and Environmental Affairs, companies in the wine-growing sector in the Appellations of Origin Rías Baixas, Valdeorras, Ribeiro and Ribera del Duero and wine producers in general.

For further information: llloret@feuga.es | Updated information, news and events and dissemination materials: www.viticast.es



Innovation project 80% co-funded by the European Agricultural Fund for Rural Development (EAFRD) of the European Union and 20% by the Ministry of Agriculture, Fisheries and Food, within the framework of the National Rural Development Programme 2014-2020. Total project budget: 615,249.11 eur, Total grant: 599,957.11 eur.