

PREDIVÍ: big data-based wine harvest prediction model

Summary

Big data technology allows large volume of hyper-localised meteorological variables (both historical and predictive) to be combined with each other and with historical records on production and ripening controls, among other variables, thus facilitating the creation of machine learning-based prediction models, to improve on the forecasts currently made by technical teams. Other sectors are already using prediction models and have been shown to improve on human forecasts.

Reducing the uncertainty regarding production volume (by plot, production area, variety, etc.) and changes in different qualitative parameters will help optimise harvest planning and therefore improve related decision-making. Such decisions are mainly related to aspects of logistics, production volume, sales and production quality.

Objectives

The main objective of the project is to provide organisations and actors in the wine industry with decision-making support tools to obtain advance information on harvest predictions, particularly regarding:

1. Production volume per plot
2. Production quality parameters (grade, acidity, pH, etc.)
3. Classification of the plot qualitative potential

Description of the measures planned in the project

- Phase A. Evaluation and definition of variables and data sources for each model and creation of the database architecture.
- Phase B. Creation and training of prediction models, test results and interaction with beneficiary companies in order to ensure the models are as reliable as possible.
- Phase C. Creation of a tool to display the results provided by the models.
- Phase D. Validation of results and automation of the data collection and transmission system.
- Phase E. Incorporation of the predictive system.
- Phase F. Technological development and algorithms.
- Phase G. Media system.
- Phase H. System automation.

Expected results and practical recommendations

The expected results of this project are in line with its objectives:

- Definition and validation of the set of variables needed to create each prediction model.

- Creation of the different prediction models, aimed at obtaining forecasts for volume, quality and classification per plot for the beneficiary companies.
- Validation of the results from prediction models with higher reliability levels than current methods and approved by the project beneficiary companies.
- Technological development for processes to automate data transmission between the current information systems of the beneficiary companies and the prediction models.
- Creation of a platform to view the results of the prediction models adapted to the needs of each beneficiary company.

Subject area(s) of application

- Agricultural production system
- Agricultural practice
- Agricultural equipment and machinery
- Livestock farming and animal welfare
- Vegetable production and horticulture
- Landscape / Territorial management
- Pest and disease control
- Fertilisation and nutrient management
- Soil management
- Genetic resources
- Forestry
- Water management
- Climate and Climate Change
- Energy management
- Waste and by-product management
- Biodiversity and environmental management
- Food quality/processing and nutrition
- Supply chain, marketing and consumption
- Competitiveness and agricultural and forestry diversification
- General

Geographical area(s) of application

PROVINCE(S)	REGION(S)
Girona, Tarragona, Lleida and Barcelona	All

Dissemination of the project (publications, seminars, multimedia, etc.)

News on the progress of the project will be published on the INNOVI.cat website and posted on the social media of INNOVI and the Cluster members.

There will be an informative conference at the beginning of 2021.

Project website

This will open soon at www.innovi.cat/projectes/predivi

More information on the project

PROJECT DATES	TOTAL BUDGET
Start date (month-year): July 2019	Total budget: €191,674.47
Completion date (month-year):	DARP funding: €78,333.37
Current status: Underway	EU funding: €59,093.60
	Own funding: €54,247.50

With funding from:

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Order ARP/133/2017 of 21 June, approving the regulatory bases for grants for cooperation for innovation by promoting the creation of European Association for Innovation operational groups in the areas of agricultural productivity and sustainability and the execution of innovative pilot projects by those groups, and Resolution ARP/1282/2018, of 8 June, announcing the call for the grant.



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