What is PRERIVID?

PRERIVID is a Supra-regional Operational Group aiming to create a tool for managing vineyard irrigation. This tool will allow the prediction of irrigation requirements 7 days in advance by integrating data from active vegetation, soil moisture, cultural practices, local meteorology, and climatology. This way, PRERIVID will contribute to creating a more sustainable and competitive wine sector, enabling companies to adapt to the challenges posed by climate change, such as water scarcity and heat waves.

To achieve this, PRERIVID will install sensors and measure all relevant parameters to determine the vineyard's water status. With this information, the SIMDualKc model will be calibrated and validated. Using this model and the 7-day weather forecast, PRERIVID will calculate reference evapotranspiration (ET_o) and future crop coefficients (K_c) and develop an irrigation management tool. PRERIVID will adjust these predictions to the phenological stage, vineyard configuration, cultural practices, soil types, and the studied wine-growing areas. It will also evaluate the use of agricultural practices that impact water management, such as the use of cover crops and the application of kaolin, analyze the impact of treatments on grape quality, and study the use of NIR techniques to assess water and nutritional status.

Thus, PRERIVID will help address the challenges of climate change through sustainable water resource management in areas under high water pressure. PRERIVID will also improve the competitiveness of wineries by helping them maintain the quality and production of vineyards and contribute to the development of rural areas. For all these reasons, PRERIVID is perfectly aligned with the Common Agricultural Policy (CAP) of the European Union and will represent a milestone in the way vineyard irrigation water is managed in Spain.

What are Supra-regional Operational Groups?

Operational Groups, main actors in the implementation of the EIP-Agri (European Innovation Partnership for Agricultural productivity and sustainability), are one of the key tools within the execution of the Strategic Plan of the Common Agricultural Policy (CAP) 2023–2027 to modernise agricultural and rural areas, promoting and sharing knowledge, innovation and digitalisation in agricultural areas. These groups consist of a combination of actors with different profiles and common interests, such as farmers, livestock producers, companies, research centres, training and outreach institutions, who come together to launch an innovative project aimed at providing a collaborative multi-sectorial response to a specific problem or need.

Prerivid

Do you want to know more about PRERIVID?

You can send an email to feuga@feuga.es
or call +34 981 534 180.

More information about the project is available on its website www.prerivid.es

The **PRERIVID** Operational Group is responsible for this content.

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MINISTERIO DE AGRICULTURA, PESCA Y ALIMENTACIÓN

Prerivid

Prediction of Vineyard Irrigation Needs for Sustainable Water Use

Total project budget: €589,371.54 **Total grant: €583,385.01**

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What are the objectives of PRERIVID?

The main objective of **PRERIVID** is to develop an irrigation management tool that allows the prediction of irrigation requirements based on meteorological data, soil moisture, and a local weather forecast. To achieve this, **PRERIVID** has the following specific objectives:

1. Determine vineyard water needs based on local data from each plot.
2. Estimate future irrigation requirements using ET_o and K_c models.
3. Develop a 7-day prediction model for ET_o and K_c for each phenological stage and vineyard.
4. Develop a management tool that integrates present and future water needs.
5. Evaluate the impact of agronomic techniques affecting the vineyard's water status:
    - Implementation and management of cover crops.
    - Application of kaolin.
6. Estimate grape quality based on treatments established in the vineyard.
7. Use digital tools (NIR spectroscopy) to evaluate vineyard water stress.

What results are expected from PRERIVID?

The expected results of the **PRERIVID** project are as follows:

- Calculation model for vineyard water needs and estimation of 7-day irrigation requirements.
- 7-day prediction model for ET_o and K_c for each vineyard and phenological stage.
- Irrigation management tool that determines current and future irrigation needs.
- Management of agronomic techniques impacting vineyard water status:
    - Implementation and management of cover crops.
    - Application of kaolin.
- Effects of irrigation strategies and agronomic practices on grape composition and quality.
- Prediction of water stress and nutritional quality of vineyards using NIR spectroscopy.
- Economic impact of irrigation strategies and agronomic practices on vineyard management.

PRERIVID activities

The **PRERIVID** project includes a series of key activities to meet its objectives:

Activity 1
Installation of meteorological and soil moisture sensors.

Activity 2
Adaptation of irrigation systems for experimental treatments.

Activity 3
Data collection on phenology, climate, soil moisture, and water potential.

Activity 4
Weather forecasting for each plot.

Activity 5
Development and validation of water needs prediction models.

Activity 6
Design, implementation, and evaluation of experimental irrigation strategies.

Activity 7
Evaluation of grape quality and final composition.

Activity 8
Dissemination, outreach, and transfer of results.

Other activities:
Evaluation of the use of cover crops and kaolin.
Evaluation of digital techniques (NIR) to assess vineyard water status.

Who are the target groups?

The **PRERIVID** project targets all agents in the agri-food sector, as well as the general public:

- Farmers, wineries, cooperatives, and wine-growing operations.
- Business associations in the sector.
- Regulatory councils and designations of origin in the sector.
- Companies marketing irrigation systems.
- Companies marketing technologies and equipment.
- Universities, technological centres, research centres.
- Administrations related to agriculture, the environment, and/or rural development.
- Final consumers and the general public.

To maximize the impact of the results and the transfer of generated knowledge, **PRERIVID** will carry out intense dissemination efforts at regional, national, and European levels through articles, press releases, webinars, outreach events, and talks, among other activities.

Who are the members?

Beneficiaries: The Supra-regional Operational Group PRERIVID spans the communities of Galicia, Valencia, Castilla y León, and La Rioja, is coordinated by Fundación Empresa-Universidad Gallega (FEUGA), and involves the participation of the company MONET Tecnología e Innovación S.L., Quinta Couselo winery, Quinta Sardonia winery, and Bodegas Enguera winery.

Subcontracted members: The University of Santiago de Compostela (USC), the Technological Institute of Castilla y León (ITACYL), the Desertification Research Center (CIDE), and the Institute for Vine and Wine Sciences (ICVV).