VINEYARD INNOVATIVE TOOL BASED ON THE INTEGRATION OF EARTH OBSERVATION SERVICES

**AND IN-FIELD SENSORS** 

Joana Valente, Symington Family Estates, R&D joana.valente@symington.com

Dias na Vinha: Tendências e inovações digitais aplicadas ao setor vitivinícola 26 de maio de 2023 - Quinta da Pacheca



Project funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 869565.





**INDEX** 







## **VitiGEOSS general overview**

#### Vineyard innovative tools based on the integration of Earth Observation Services and in-field sensors

- European project funded under the topic: SC5-16-2019 -Development of commercial activities and services through the use of GEOSS and Copernicus data
- Duration **3.5 years**, from 1/09/2020 to 29/02/2024
- **Budget: 3M**€, of which 2.6M€ funded by the EC
- 9 participants from 4 different European countries
- Coordinated by **EURECAT**, RTO
- Grant agreement ID: 869565









VITIGEOS



## **Consortium**

### 9 partners from 4 different European countries (Spain, Italy, Portugal and the Netherlands)







### The agriculture sector in Europe

#### Developing innovative solutions for maintaining quality and sustainability requirements

- The European Union is the world's biggest wine producer, and winemaking is the main economic activity in the South of Europe.
- Agriculture plays an important role in climate change, being responsible for more than **20% of CO<sub>2</sub> emissions**.
- Sustainable agriculture has the purpose to develop new farming practices and methodologies to meet current and future societal needs for food, ecosystem services and human health, whilst reducing the negative effects of climate change.









### The use of Earth Observation data in agriculture

# Improving the efficiency of vineyard management and cultivation

- Satellite data allows to extract **useful indicators to promote better management and planning of fields and vineyards**, as well as the optimization of **innovative agricultural practices**.
- The use of **open resources such as Earth Observation Services** can improve the efficiency of vineyards thanks to accurate mapping, novel production indicators, image and time series processing and an accurate and improved forecasting.









## **About VitiGEOSS**

#### Providing forecasts, estimations and recommendations to optimize vineyard management processes

- The VitiGEOSS project develops an innovative vineyard management solution based on the integration of Earth Observation services and in-field sensors to increase the resolution and reliability of satellite information applied to the viticulture sector.
- VitiGEOSS contributes to a responsible production of wine by minimising the use of chemical fertilisers and pesticides and offering tools for a better management and optimisation of resources for greater sustainability.









#### VitiGEOSS platform

#### A single entry-point solution for wine producers, aiming to boost vineyard sustainability

- The project uses free-of-charge satellite imagery and EO products from the European Copernicus Programme and NASA, coupling them with in-field and near in-field data to extract useful indicators for a better management of vineyards.
- The VitiGEOSS solution provides support to growers helping them to promote sustainable agriculture and a circular economy approach. VitiGEOSS' API available to be integrated together with third-party solutions and products.

The VitiGEOSS platform, deployed as a cloud-based Applications Portal, will be the first application offering integrated services for sub-seasonal and seasonal predictions, crop management, disease warnings, business operations and sustainability monitoring.







#### **Platform information services**



#### Weather and climate forecasting

Advanced techniques to apply sub-seasonal to seasonal climate forecasts in combination with short term weather to help farmers **prepare in advance for unusual climate conditions and extreme events that can damage the crop**.

## 2

#### Phenological monitoring

Automated system to predict and monitor the whole phenological annual cycle to **better plan and organise the whole vineyard management and optimize resources**.

#### 3

#### Crop status

Satellite imagery to monitor key indicators describing vegetation health status, crop productivity, crop water consumption and crop nitrogen content to optimize irrigation, sampling or selective harvesting leading to better grape quality and production.



#### **Disease management**

Tool for **forecasting the disease evolution** considering the meteorological conditions and crop status to optimize the number of treatments and resources used to assure its effectivity.



#### Business and sustainability manager

**Resource optimizer and planner service** that allows to identify the best **timing of field operations**, improve planning of resources needed, reduce the use of raw materials and promote a sustainable winegrowing.







The VitiGEOSS solution will be validated in three different vineyards for the calibration of the services and tested to be able to correct the models in future versions



Symington Family Estates (Portugal)



Mastroberardino Società Agricola (Italy)









Project funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 869565.



🥑 @vitigeoss\_EU

🔀 info@vitigeoss.eu



## Thank you!

**OF EARTH OBSERVATION SERVICES** 

VITIGEOSS (S)

**VINEYARD INNOVATIVE TOOL** 

**BASED ON THE INTEGRATION** 

**AND IN-FIELD SENSORS** 

A project coordinated by:

