



LOCATION



Italy and Greece

PARTNERS



3.1

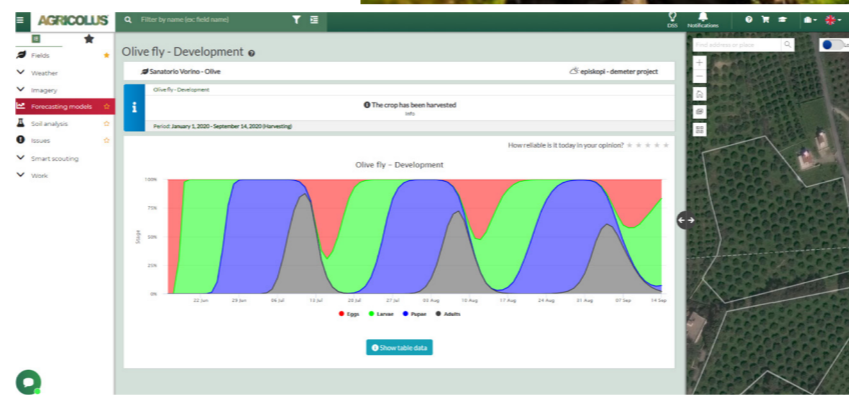
Decision Support System to Support Olive Growers

CHALLENGE

The efficient management of olive orchards requires complex decision-making processes. This is because of the increasing uncertainty and risk associated with olive fruit and olive oil production in a rapidly changing environment. Climate change is adding to erratic Mediterranean weather conditions, soil variability and pest outbreaks.

AIM

The aim of this pilot is to develop and demonstrate a Decision Support System (DSS) for olive tree growers, advisers and agri-food processors to address common issues associated with olive tree growing and olive oil production, including fertilisation, irrigation and integrated pest management (IPM). The DSS integrates in-field sensor data, remotely sensed data, a modelling platform, and a farm management system, combining weather patterns and soil information with crop traits, to foster the sustainable production of olive tree orchards.



HOW

An integrated solution, Agricolus© OLIWES, will be configured and deployed in selected olive tree farms to address different climatic and farming conditions. OLIWES is a cloud ecosystem, which provides the most modern technologies of data collection, analysis, and visualisation, delivered with a user-friendly interface. The functional features of OLIWES include the following areas: i) orchard management; ii) field scouting; iii) forecasting models; iv) Decision Support System. Open protocols and standards facilitate the integration of IoT sensors, interoperability, and data exchange.

BENEFIT

The expected benefits are the following: optimisation of water and nutrient management with data-driven decisions, implementation of IPM solutions and preventive measures through forecasting models, time series analysis of long-term data records and comparison of farmer performances to achieve sustainable crop production and protection.



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AGRICOLUS

ENGINEERING

DNET Labs

vicomtech

National Institute for
Agriculture and Fisheries
Research



DEMETER Integration

The pilot has integrated the Agricolus proprietary technologies with a set of components like DEMETER enablers to support farmers in decision making and to improve the possible solution that can be used. The DEMETER enablers integrated are DEMETER Access Control System, DEMETER AIM and DEMETER DEH. Using the components with AIM input and output simplifies the interaction in Agricolus of other components. Moreover, the pilot has also implemented a set of components to elaborate olive phenology using machine learning and calculate olive fruit fly growing degree day. Finally, the pilot has implemented DEMETER Benchmarking tools to give farmers the opportunity to compare their performance with neighbouring farms.

Feedback From Farmers

Farmers involved in the pilot project have used Agricolus Oliwes and tested the optimising decision-making process in planning and applying agronomic practices. They appreciated the use of decision support models in particular for tools to support IPM of olive fruit fly and irrigation management. Feedback from farmers was also collected during the project to understand how farmers perceive the use of the tools. Farmers find it useful to reduce the time needed to use the tools. For this reason, the team worked on simplifying access to data and models. In addition, farmers appreciated how Agricolus has provided video lessons to give them the necessary skills and support to use the tool.



Outcomes

This pilot project allowed Agricolus Oliwes to be tested on several farms in the three main olive-growing areas: Italy, Turkey and Greece.

Farmers are given access to these tools and are provided with training in how to operate them. The pilot increased the adoption of this decision support system among farmers, who welcomed its benefits. Agricolus OLIWES helped farmers in improving their decision-making process with a specific focus on integrated management of the olive fruit fly, irrigation management, and fertilisation optimization.

The use of DSS has optimized water and nutrient management, improved the IPM solution and preventive measures through forecasting models, time series analysis of long-term data records and comparison of farmer performances to achieve sustainable crop production and protection.

