



PROGRAMME OF THE
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COPERNICUS DATA SUPPORTS BATTLING XYLELLA FASTIDIOSA AFFECTING APULIA'S OLIVE TREES

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Remote sensing offers solutions for mitigation and adaptation strategies for Xylella severely affecting olive groves in Southern Apulia.

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✓ Vegetation anomaly analysis in Apulia | Copernicus EU

Xylella fastidiosa is one of the most harmful plant bacteria responsible for numerous diseases that impact both production and the environment. The 2013 outbreak in Apulia Region devastated millions of olive trees in less than a decade. Remote sensing techniques are able to support the fight against Xylella fastidiosa.

THE CHALLENGE

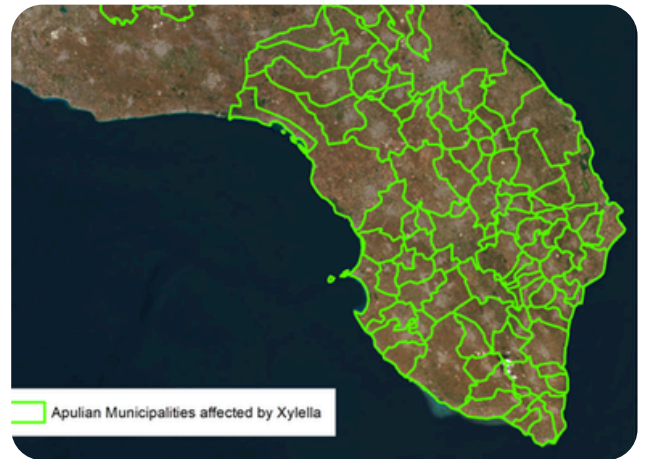
Xylella fastidiosa has caused devastating economic losses in Apulian olive agriculture. The Regione Puglia has developed and continuously updates a comprehensive set of protocols and action plans to combat the disease. These protocols are largely based on EU regulations (primarily Regulation (EU) 2020/1201) and adapt to the evolving understanding of the pathogen's spread and behavior. Copernicus data can offer support to the public administrations (i.e., the Phytosanitary Observatory of the Apulia Region), research institutes and universities (e.g., National Research Council), and the private sector. Two are the main areas: (a) the Regional mandatory phytosanitary measures, i.e., soil machining like tillage and infected tree explantation useful to contain and block the spread of Xylella fastidiosa; and (b) the identification of vigorous olive tree genotypes, as well as the monitoring of spatial distribution of the bacterium.

THE SPACE SOLUTIONS

The Earth Observation uses, among others, Copernicus Sentinel-2 satellite data to monitor and fight Xylella fastidiosa through both long term and short term analysis. Xylella fastidiosa is responsible for the death of thousands of olive trees across the Apulia Region, with negative consequences in terms of production and landscape change.

The fight and monitoring of Xylella fastidiosa are not easy due to the nature of its spatiotemporal spreading. As a matter of fact, such spreading has been going on for the last (and even more) two decades and it covers most of the agricultural areas of the Region: the whole southern part of Apulia is already compromised, while the infection is rapidly spreading more north. In return, public and private entities who are in charge of fostering and carrying out actions to fight Xylella fastidiosa, do not find easy, but rather sometimes even impossible, to perform those timely actions.

The Copernicus Sentinel-2 data, made available as a free public resource, supported by funding from the European Space Agency, are processed to create qualitative indicators of vegetation and soil status, offering valuable insights for effective land management. This data is provided as an open-access, public service funded by the European Space Agency and by the European Union.



✓ **Geographic scope of the outbreak** | Screenshot

THEMATIC AREA



Agriculture, Food, Forestry and Fisheries

REGION OF APPLICATION



Puglia

SENTINEL MISSION USED



S2

COPERNICUS SERVICE USED



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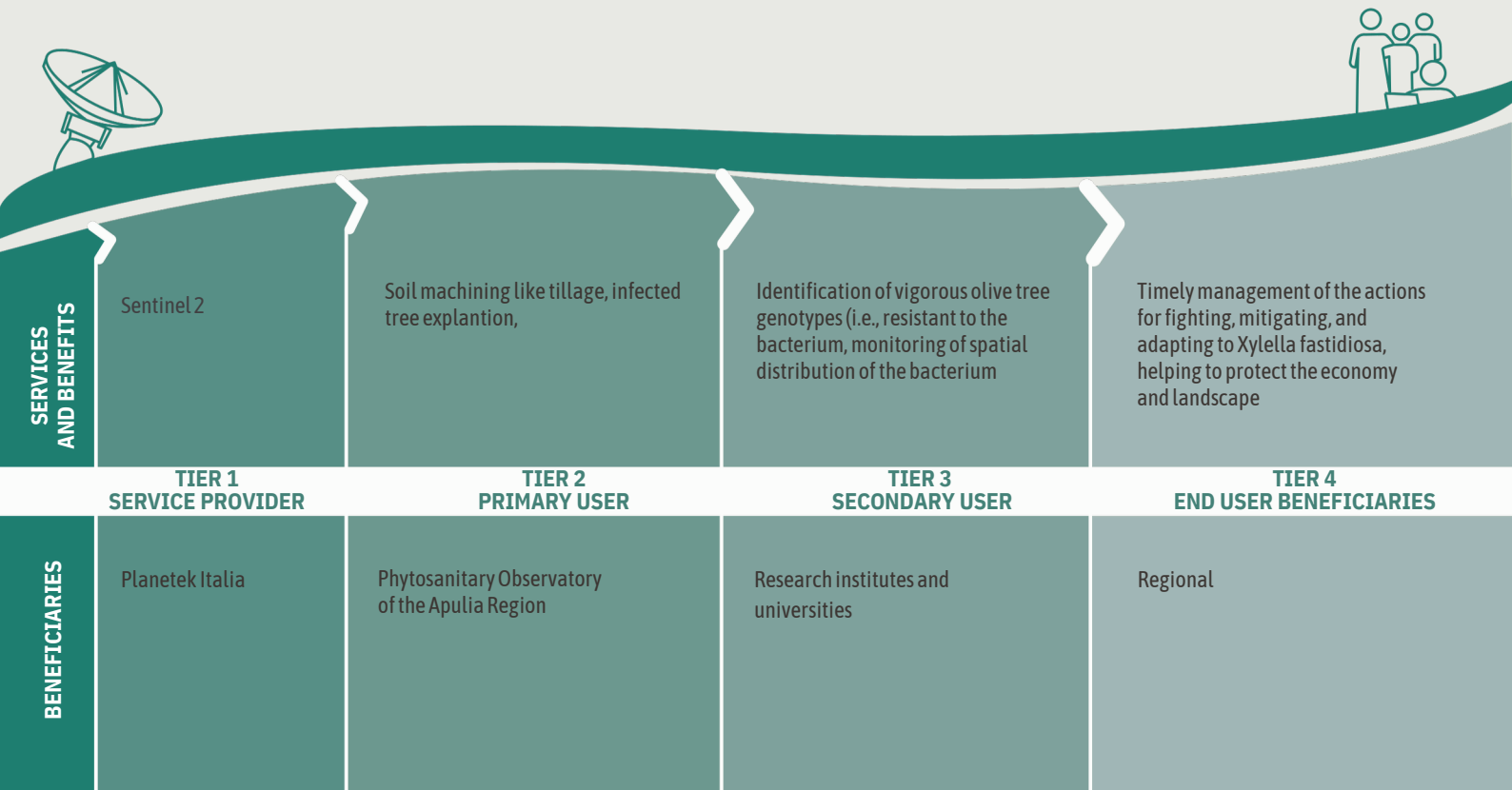
THE BENEFITS AND THE BENEFICIARIES

The project empowers local and regional authorities to make informed decisions about *Xylella fastidiosa*. These decisions allow a timely management of all the actions for fighting, mitigating, and adapting to *Xylella fastidiosa*, helping to protect the Regional economy and landscape.

For instance, the department of Phytosanitary Observatory of the Apulia Region fosters and carries out actions like the publication, through official channels, of resolutions containing information about when and where soil machining (e.g., tillage) activities have to occur, or what infected trees have to be explanted. Such resolutions, then, have to be adopted by farmers and land owners, while the department of Phytosanitary Observatory implements tier-two audits.

Currently, such audits take place through in field monitoring activities which can be time and money consuming. In contrast, the EO-based solution proposed through the Fixyll project, allows local and regional authorities to act in a more efficient and sustainable way with a general impact on the entire Regional territory.

Moreover, despite the proposed services are primarily designed for Apulia region, the benefit of using EO-based solution is that of re-using the methodology for any other case of phytosanitary emergencies, by providing quicker, more reliable, and comprehensive information, thanks to current and upcoming Copernicus EO missions.



EU POLICY / DIRECTIVE



Climate Action Policy

TYPE OF SERVICE PROVIDER



Commercial Service

TYPE OF FUNDING SOURCE



National Space Programmes

USAGE MATURITY LEVEL



3



A FUTURE WITH COPERNICUS

Despite the proposed services are primarily designed for Apulia region, the benefit of using EO-based solution is that of the re-use of the methodology for any other cases of phytosanitary emergencies, both National and Worldwide. Furthermore, scaling up the solution is possible thanks to the upcoming Copernicus EO missions.



DID YOU KNOW?

Copernicus contributes the monitoring and management of Xylella fastidiosa in the olive trees in the Apulia Region. Utilizing advanced satellite imagery, it delivers valuable insights into the spread of Xylella fastidiosa and the adoption by farmers and land owners of guidelines deriving from regional and local authorities.



Acknowledgements

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