

PONTE Project

Practical solutions for the management and containment of *Xylella fastidiosa*

- Since *Xylella fastidiosa* was first detected in Europe in 2013, scientists and authorities have been working hard to elaborate new strategies to manage and control this highly infectious and destructive bacterium.
- Experimental activity carried out as part of the **PONTE project** allowed scientists to gather the first scientific dataset that is tailored to the specific conditions occurring in the *Xylella fastidiosa* epidemic that broke out in Apulia.

Xylella fastidiosa

The bacterium *Xylella fastidiosa* is one of the most threatening plant pests in the world. It can colonize more than 550 plant species and is pathogenic on a wide range of them, including grapevine, citrus, almond, oleander, orange, peach, coffee, avocado, olive tree, and oak. Once confined to North and South America, *Xylella fastidiosa* was first detected in Europe in 2013.

PONTE Project

The EU Horizon 2020 financed PONTE project started in 2015 and concluded in 2019. PONTE gathered 25 organizations and 120 researchers from 10 EU and three non-EU countries to foster and share knowledge for the prevention, detection, control, and management of a group of plant pests threatening crops, biodiversity, and the economy in Europe.



- In particular, scientists focused on ways to reduce the population of the *Philaenus spumarius* spittlebug in order to decrease the rate of transmission and slow down the spread of the bacterium.

Philaenus spumarius

The *Philaenus spumarius* spittlebug is a 5-6 millimetres long and feeds on a huge variety of plants. This insect is the primary ascertained vector of *Xylella fastidiosa* in Apulia. The bugs transmit the bacterium from one plant to another by feeding on the plant sap. It is widespread in Europe (including the entire Mediterranean Basin) and Asia, and has also been introduced to North America.



- Results indicated that soil tillage performed in olive groves at the right time is the most effective way to suppress spittlebug nymphs and prevent the emergence of adults responsible for spreading the bacterium. Other means that were tested, such as using herbicides, burning weeds, sowing gramineous plants, and mulching, were either less effective or less sustainable for the environment.
- The data collected on the transmission efficiency of spittlebugs that fed on the Leccino resistant olive cultivar demonstrated that using resistant plants in infected areas can significantly reduce the spread of the bacterium in areas where it is endemic and is a valuable strategy to contain the spread of the pathogen.

Cultivars

Short for "cultivated plant varieties"



New findings, new questions

As part of the POnTE project, scientists demonstrated that a few key steps taken at the appropriate time can reduce the population of *Philaenus spumarius*, mitigating the spread of *Xylella fastidiosa*. These steps should primarily address juvenile spittlebugs. It is also critical to decimate the adults before they acquire the ability to transmit the bacterium. Testing of chemical formulas to control adult spittlebugs showed that the majority of the products had low persistence compared to the bugs' lifespan. This suggests that new formulas and chemicals are needed, along with trials to determine the proper timing and number of applications for the effective management of this vector. Moreover, an integrated pest management approach is needed to manage spittlebug populations along with a sustainable strategy to reduce the progress of infections in olive groves or other crops.



PHOTO CREDITS: IPSP - CNR Bari