

PONTE Project

Identification of *Xylella fastidiosa* vectors in the contaminated areas

- In the EU, *Xylella fastidiosa* was first detected in the southern Italian region of Apulia, which is famous for its olive groves. Researchers began investigating the main factors driving the spread of the bacterium on local olive trees in the infected area by focusing on the vectors: the insects that transmit the pest from one plant to another.

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, peach, coffee, avocado, olive tree, and oak. Once confined to North and South America, *Xylella fastidiosa* was first detected in Europe in 2013.



- A spittlebug called *Philaenus spumarius* had already been identified as the vector that plays the main role in the epidemiology of *Xylella fastidiosa* in Apulia. Thanks to the POnTE project, scientists carried out extensive surveys in the olive groves located in the infected area. The results confirmed the prominent role of this bug in conveying the infection.

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.

Philaenus spumarius

The *Philaenus spumarius* spittlebug is 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.



- Scientists also discovered that the same spittlebug was capable of efficiently transmitting the bacterium to oleanders and myrtle-leaf milkwort plants. The transmission rates recorded for oleanders were higher than for olives.
- The scientists assessed the possibility that other insect species can transmit the pathogen. Experiments on a cicada (*Cicada orni*) and a planthopper (*Latilica tunetana*) gave negative results, indicating that these bugs do not play a role in the transmission of *X. fastidiosa* to olives. On the contrary, scientists found that two other spittlebugs, *Neophilaenus campestris* and *Philaenus italosignus*, are able to acquire and transmit the bacterium.



New findings, new questions

The identification of two new vectors of *Xylella fastidiosa* in Apulia has consequences for future research and the management of the disease. The first identified species, *Philaenus italosignus*, was found mainly in olive groves in the northern part of the Apulia region. The second species, *Neophilaenus campestris*, rarely feeds on olives and therefore has low relevance in the spread of the bacterium. However it is abundant on other kinds of plants, so its potential for spreading *Xylella fastidiosa* to other hosts, both wild and cultivated, should not be neglected.

These findings helped to clarify the epidemiology of the Olive Quick Decline Syndrome associated with the *Xylella fastidiosa* strain in Apulia, but they also raised new questions about the transmission of the disease. Continuing research into this aspect is paramount for the management, monitoring and control of the pest.