

## **Monte Argentario: some plants affected by the " *Xylella fastidiosa*" bacterium**

*Xylella fastidiosa* is a bacterium that infects many species of herbaceous, shrubby and arboreal plants and has therefore been included in the European Union's list of harmful organisms to quarantine provided for in Annex I, Part A, Section I, of Council Directive 2000/29/EC; its presence was first detected in the European Union in 2013, in Puglia.

This bacterium is not dangerous to humans or animals but can damage and kill plants. It is transmitted by small insects (mainly by the "meadow spittlebugs" (*Philaenus spumarius*) that feed on raw plant sap, biting a number of plants and therefore transmitting the infection.

As of the date of this note, the presence of *Xylella fastidiosa* has been detected in the following EU areas: Italy - Province of Lecce, and parts of the provinces of Brindisi, Taranto and Bari; France - Corsica, PACA Region (Provence-Alpes-Cote d'Azur); Spain - Balearic Islands and the Alicante region. In September 2018 in Belgium (Flanders) about twenty olive trees were found infected by the said bacterium which came from disease-free areas in Spain.

Due to the dangerousness of this pathogen for many cultivated and wild plant species, the risk of its spreading has triggered a series of actions at UE, national and regional levels to prevent its spread and to contain/eradicate outbreaks in contaminated areas. In Puglia, these measures have provoked reactions and even appeals to the administrative courts; however, the Court of Justice of the European Union has recently confirmed the legitimacy of the measures provided for in EU legislation to eradicate the bacterium.

The Regional Executive of the Regional Authority of Tuscany has approved with Decree (DGR) no. 475/2017 the 'Regional Plan for the implementation of the National Emergency Plan to manage *Xylella fastidiosa* in Italy', which provides for emergency measures to be taken in the event of an outbreak of *Xylella fastidiosa* in Tuscany.

Collaboration agreements have also been signed with the Council for Agricultural Research and Analysis of Agricultural Economics (CREA -DC) and the University of Florence to carry out analysis and monitoring activities for *Xylella* in the region; in addition, a technical-scientific panel has been set up, open to the participation of prominent figures in the Tuscan academic world, qualified in issues relating to the *Xylella fastidiosa* pathogen, including the University of Florence, the University of Pisa, the Scuola Superiore Sant'Anna, and the National Research Council CREA.

Given the dangerousness of the pathogen and the proximity of Tuscany to the infected areas of Puglia, France and Corsica, the Regional Plant Health Service has undertaken a series of actions in the area aimed at the surveillance, monitoring and control of *Xylella fastidiosa*.

In Tuscany, *Xylella fastidiosa* monitoring began in 2014 and has continued over the years to date, with a progressive increase in inspections, visual checks, sampling and laboratory analysis. In total 9691 samples of plant material and pathogen vector insects were collected and analysed in 2018.

The analytical results of the samples taken in 2018, processed using the molecular biology technique, were all negative until September. The analyses on the presence of the bacterium in vector insects were also all negative.

## The find

Following one of the last surveys carried out at the end of October, the biomolecular analysis revealed a positive sample taken from some common brooms (*Spartium junceum*) located in the hamlet of Pozzarello, Municipality of Monte Argentario. In order to confirm the presence of the harmful organism and to better investigate the spread of the phenomenon, in November and December more than 1000 surveys were carried out in the Monte Argentario area, with 1120 samples taken from plants with symptoms potentially relating to Xf.

The analyses carried out showed some other positive results, mainly on common broom, a spontaneous plant that is very common on the promontory and on buckthorn (*Rhamnus alaternus*), on *Calicotome sp.* (typical shrub in the area), almond tree (*Prunus amygdalus*) and *Polygala myrtifolia* (a very common ornamental plant).

The analyses carried out by the Department of Agrifood Production and Environmental Sciences of the University of Florence have confirmed the presence of *Xylella fastidiosa* in some samples.

The official confirmation of the presence of the bacterium in some samples was received on 6 December 2018 from both the laboratories accredited at the national level for the confirmation of the analyses for *Xylella fastidiosa*: CREA, Crop Protection Section of Rome, and CNR-Istitute for Sustainable Plant Protection, Bari Section.

Moreover, the said laboratories also preliminarily determined the '*Multiplex*' subspecies of *Xylella fastidiosa*. This data is of particular interest considering that the subspecies present in Puglia is another one, the '*Pauca*'. The same '*Multiplex*' subspecies is found on a variety of Mediterranean scrub plant species (e.g., *polygala*, *helichrysum*, *calicotome*, *cistus*) in Corsica. Different subspecies are found in Spain.

Following the first positive sample, continuous inspections, sampling and testing were carried out to determine the actual scale of the outbreak and the origin of the infection.

To date, 72 plants of the following species have been found to be positive: *polygala* (*Polygala myrtifolia*), common broom (*Spartium junceum*), *cistus* (*Cistus spp.*), alaterno (*Rhamnus alaternus*), *calicotome* (*Calicotome spinosa e calicotome sp.*), almond (*Prunus amygdalus*), lavender (*Lavandula spp.*), Judas tree (*Cercis siliquastrum*), *eleagno* (*Eleagnus angustifolia*), fig (*Ficus carica*), rosemary (*Rosmarinus officinalis*).

The infected plants were mainly found in areas with spontaneous vegetation, former crops, along the road network and in public or private gardens.

**No infected plants were found in licensed nurseries or active plant retailers.  
No olive trees were found that were infected by the bacterium.**

Following the discovery of the outbreak, on 17/12/2018 has been adopted the resolution n. 1463 of the Regional executive, relative to the 'Approval of the action plan for the eradication of the *Xylella fastidiosa* outbreak on the territory of the Tuscany region' which defined the methods for implementing monitoring activities in the buffer zone and eradication measures in the infected areas, in order to guarantee a rapid, effective and coordinated response to the detection of the *Xylella fastidiosa* pathogen in the territory of Monte Argentario.

## **NEXT STEPS**

Pursuant to Ministerial Decree of 13 February 2018 'Emergency measures for the prevention, control and eradication of *Xylella fastidiosa* in the Italian Republic', the actions to be taken by the Plant Protection Service are as follows:

### **Demarcation**

In the event of an outbreak, a restricted zone composed as follows must be identified:

(a) the *infected zone*, which will include all plants found to be infected by the specified organism, all plants showing symptoms indicating possible infection by the specified organism, and all other plants likely to be infected by the specified organism due to their proximity to the already infected plants or their coming from the same production site (if known) as already infected plants or their having being obtained from the latter;

b) *the buffer zone*, which comprises a radius of at least 5 km beyond the boundaries of the infested area.

On 20/12/2018 with Executive Decree no. 20621, the cartography showing the demarcated area, consisting of an infected zone and a buffer zone for *Xylella fastidiosa* in Monte Argentario, was approved.

### **Organisation of eradication activities**

By resolution of the Regional Executive no. 475/2017, the Regional Authority of Tuscany has organised and regulated emergency and eradication activities under the Regional Plan for the implementation of the National Emergency Plan to manage *Xylella fastidiosa* in Italy'.

The plan established the intervention phases and the roles assigned to each subject involved in the eradication activities.

The Regional Plant Health Service is in charge of most of the activities, which began with a careful survey of the territory to identify the outbreak zone and the buffer zone to be marked.

In the marked zones, the Regional Plant Protection Services (SFR) are required to adopt the measures provided for in the Ministerial Decree of 13 February 2018 in order to eradicate the bacterium.

The measures are as follows:

The Regional Plant Protection Service arranges and controls the immediate removal of the following plants within a radius of 100 m radius of the plants that were examined and found to be infected with *Xylella fastidiosa*:

- a) plants infected by the specified organism;
- b) plants showing symptoms indicating possible infection by the said organism or suspected of having been infected by it;
- c) host plants<sup>1</sup>, irrespective of their state of health;

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<sup>1</sup>Pursuant to Ministerial Decree of 13 February 2018, 'host plants' means plants intended for planting, with the exception of seeds, belonging to the genera or species listed in the European Commission's database of host plants that are susceptible to *Xylella fastidiosa* in the European Union because they have been found to be susceptible to the specified organism in the European Union or, if a Member State has marked a zone in relation to only one or more subspecies of the organism specified in accordance with Article 7, paragraph 1, because they have been found to be

Prior to removing the plants referred to in paragraph 2, the Regional Plant Protection Service shall arrange for appropriate phytosanitary treatments to be carried out against the vectors of the specified organism and the plants which may host the vectors. Interventions against the vectors may include, where appropriate, the removal of plants.

The Regional Plant Protection Service, in situ or in a nearby place designated for this purpose within the infected area, will arrange for the destruction of the plants or parts of plants that have been grubbed up, so as to ensure that the specified organism does not spread.

The planting of host plants in infected zones is prohibited, except for sites that are physically protected against the introduction of the specified organism and its vectors.

Moving specified plants that have been grown for at least part of their life cycle in a marked zone to the outside of this marked zone, and from an infected zone to its buffer zone, is prohibited.

### **Phytosanitary surveillance activities**

The Regional Plant Protection Service monitors the presence of the specified organism through annual inspections, taking into account the technical guidelines for inspections of *Xylella fastidiosa*. It shall carry out visual inspections of the specified plants, as well as sampling and analysis of symptomatic plants and asymptomatic plants in the vicinity of symptomatic plants. In buffer zones, the inspected areas shall be based on a grid divided into squares of 100 m × 100 m within a zone of at least 1 km width surrounding the infected zone and on a grid divided into squares of 1 km × 1 km within the rest of the buffer zone. In each of these squares, the Regional Plant Protection Service shall carry out visual inspections of the specified plants<sup>2</sup>, as well as sampling and analysis of symptomatic plants and asymptomatic plants in the vicinity of symptomatic plants.

### **We can all work together**

Given the danger of the bacterium spreading beyond the already affected areas and in order to facilitate monitoring and implementation of eradication measures, we ask for the utmost cooperation from all citizens of the territory concerned.

In particular, we ask all visitors to the concerned areas (which will be identified by special signs along the roads) not to move plants or parts of plants that may be infected or become a carrier for insects that may infect other plants.

Especially those who frequent uncultivated land and scrubland, such as hunters and mushroom gatherers, must be very careful not to carry insects capable of transmitting the infection.

In infected and buffer zones, all plants with suspected symptoms should be reported to the following email address: [xylellafastidiosa@regione.toscana.it](mailto:xylellafastidiosa@regione.toscana.it).

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susceptible to that or those subspecies;

<sup>2</sup> Pursuant to Ministerial Decree 13/2/2018 "specified plants" are host plants and all plants intended for planting, with the exception of seeds, belonging to the genera or species listed in Annex I of the same decree;