BRIGIT Consortium Meetings 2020/21 - Session 1

Development and implementation of diagnostic tools for Xylella

2nd December 2020, 09:00-13:00

Session Lead: Dr Joana Vicente (Fera Science) BRIGIT WP2 Lead

Summary: *Xylella fastidiosa* is an insect-transmitted bacterium that causes economically important diseases in a large number of hosts. There is considerable variation of symptom development in different hosts and, in some cases, plants can remain asymptomatic for many years and still contribute to the spread of disease. Some of the diseases caused by Xylella are established in South America and the Southeastern and Western coast regions of the US; the areas affected in Europe in countries like Italy and France have expanded despite efforts to eradicate it.

This Brigit Consortium Meeting will address issues surrounding diagnostics and will present updates on progress made to build the UK's capability to prevent the establishment of Xylella and to prepare to respond in case of introduction. There will be presentations from other scientists involved in diagnostics and research including colleagues from countries that, like the UK, do not have Xylella (e.g. Australia and New Zealand) and countries that have been dealing with Xylella for longer (e.g. Brazil) or shorter periods of time (e.g. Italy, France).

This will opportunities to interact with a range of stakeholders and industry, and gather information and opinions on the availability and acceptability of Xylella diagnostics.

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Please note that the sessions will be recorded.

Draft Agenda

09:00 **Session Welcome** - Joana Vicente

1st session: Preparation for possible interceptions/outbreaks of Xylella

09:05 **Harmonisation of standard laboratory diagnostics in the UK**

Xylella detection predominantly relies on DNA based diagnostics. The laboratories involved in statutory testing in the event of an outbreak worked together to ensure that samples sent to any of the laboratories would return an equivalent result.

Jennifer Cole, Jenny Tomlinson, Adam Bryning, Eleanor Jones (presenter)

09:20 **Diagnostics for Xylella in Australia**

Rachel Mann (Australia)

09:35 **Diagnostics for Xylella in New Zealand**

Robert Taylor (New Zealand)

09:50 **Improving diagnostics for Xylella fastidiosa, a potential threat to UK trees**

Details of advances in diagnostics specifically aimed at trees and the problems faced with these samples.

Sundeep Kaur (presenter), A. Lewis, C. Gorton, A. Chitty, A. Perez-Sierra, S. van der Linde

10:05 **A core-genome MLST scheme for source tracing Xylella fastidiosa**

The ability to trace to source any infected material in the event of an interception or outbreak can be improved through the use of genomic data.

Sam McGreig, John Walshaw (presenter), Alan McCluskey, Karen Fraser

10:25 **Socio-technological innovation for Xylella diagnostics**

The development and successful implementation of diagnostic tools and approaches is dependent not only on science, but also on the extent of co-design with end users, social acceptability, implementation strategies, confidence in findings and subsequent policy and practice changes. We will draw on a largescale research project in which we previously explored the socio-technological innovation of several novel detection approaches for plant pests and pathogens. We will then consider how these lessons apply to the development and implementation of diagnostics for Xylella, considering our ongoing research within BRIGIT.

Rehema White (presenter), Mariella Marzano, Althea Davies, Chris Pollard, Glyn Jones

10:35 **Break**

10:45 **1st Panel Discussion** - with opportunity for questions and stakeholders input

Themes:

- Methods of diagnostic and sampling (e.g. trees)
- Implementing standardization
- Social acceptability

Panel including presenters from the 1st session

2nd Session: Dealing with Interceptions and Outbreaks

11:00 **Field deployable technologies for *Xylella fastidiosa* detection**

Sioban Ostoja-Starzewska

11:15 **Identification of pathogenicity factors and first detection of Xylella in Colombia**

Understanding how *Xylella fastidiosa* works at a molecular level could lead to the development of targeted treatment plans. We will describe the work that led to the detection of *X. fastidiosa* in coffee plants in Colombia, where no serious outbreak of the disease has been reported so far.

Louisse P. Mirabueno (presenter), Valeska Villegas-Escobar, Glyn A. Barrett, Robert W. Jackson, Emma Cascant López, Michelle Hulin

11:30 **Diagnostics of *Xylella fastidiosa* in Italy**

Giuliana Loconsole

11:45 **Diagnostics of *Xylella fastidiosa* in France**

Valérie Olivier/Francoise Poliakoff/Amandine Cunty

We will cover

- the scheme of detection *of X. fastidiosa* used for reference activity in France (for French surveillance) including the network of official laboratories and the role of the French National Reference Lab
- update of the situation in France on Xylella, symptoms
- determination of the subspecies, validation of methods on plants and vectors and alternative one

12:00 **Diagnostics of *Xylella fastidiosa* in Brazil**

Helvécio Coletta-Filho (Brazil)

12:15 **Understanding the distribution and colonisation of Xylella fastidiosa in plants**

The colonisation rate following infection of a host depends on many factors including the environmental conditions and the host genetics. The aim of our studies is to understand spread, latency and symptom development in key high-risk plant species for the UK. This will inform how we approach sampling and interpret results of diagnostic tests.

Adam Bryning, Jenny Cole, Eleanor Jones, A. Lloyd, M. Dickinson, John Elphinstone, Joana Vicente (presenter)

12:35 **Break**

12:40 **2nd Panel Discussion** - with opportunity for questions and stakeholders input

Themes

- Sampling: How much sampling should be done for Xylella?
- What kind of diagnostics do we want? New methods? Do we need field diagnostics or equipment that can be used at borders?
- Barriers to report results

Panel including presenters from the 2nd session

12:55 **Wrap Up**

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