

Title: PHC2018_05 - Using modelling to investigate the effectiveness of national surveillance monitoring aimed at detecting a *Xylella fastidiosa* outbreak in Scotland

Background: *Xylella fastidiosa* is a bacterial plant pathogen that can cause disease in a broad range of hosts. Disease symptoms include leaf scorch, wilting of foliage, dieback and plant death. *Xylella fastidiosa* was first detected in Europe in 2013 in Puglia in Italy and was identified as subspecies *pauca* which has gone on to devastate olive plantations in this region. There are currently major *Xylella* outbreaks in Southern France, including Corsica, Italy, mainland Spain and the Balearic Islands. Although *Xylella* has so far not been detected in Scotland, an outbreak would have serious impacts on any businesses where *Xylella* is detected and the wider environment. An essential aspect of ensuring that *Xylella* is not introduced to Scotland is to establish, through modelling, that national surveillance monitoring aimed at detecting a *Xylella* outbreak is effective. In addition, it is important to identify which epidemiological parameters most strongly influence the effectiveness of surveillance, to guide where future empirical research should be targeted to reduce any uncertainty.

Impact: This project will contribute to Scottish Government's preparedness measures for the possible arrival of *Xylella fastidiosa* by ensuring surveillance monitoring is effective and by identifying the key knowledge gaps for effective surveillance.

Objectives and research required for this call:

- To simulate potential *Xylella* outbreaks in Scotland across the wide range of uncertainty in epidemiological parameters and potential introduction locations.
- To simulate different national surveillance schemes on the simulated epidemics to estimate their probabilities of detecting an outbreak, given the uncertainty in the underlying epidemiology.
- To statistically model the effect of epidemiological parameters on surveillance effectiveness, to identify the key knowledge gaps for effective surveillance in Scotland

Outputs required:

The outputs of the study will include:

- A stand-alone 1-2 page policy summary (1 page)
- A report that covers the information as set out in the objectives
- An assessment of the effectiveness of different surveillance schemes, together with the epidemiological parameters that have the most significant impact on the effectiveness of the surveillance in Scotland.

Indicative key dates:

- Deadline for notes of interest: 27th September 2018
- Project start: 1st November 2018
- Overview of plans and project start-up meeting with PHC Directorate: by end November 2018

Plant Health Centre

C/o James Hutton Institute, Invergowrie, Dundee DD2 5DA

Phone: +44 (0)1382 568 905

Email: info@planthealthcentre.scot; Web: www.planthealthcentre.scot

- Completed discussion paper and summary: 28th February 2019
- Meeting with Scottish stakeholders: by 31st March 2019

Milestones to be confirmed by bidder.

Date all work needs to be completed by: 28th February 2019

Project type: Call down

Maximum funding available (including overheads and VAT, where applicable): Indicative cost
£12,000

Plant Health Centre

C/o James Hutton Institute, Invergowrie, Dundee DD2 5DA

Phone: +44 (0)1382 568 905

Email: info@planthealthcentre.scot; Web: www.planthealthcentre.scot