1. Content of the 'Topic Description' document

1.1. Topic area

A: Diagnostics, Field detection. Surveillance.

1.2. Links to the Euphresco Strategic Research Agenda

The topic addresses the following objective(s) of the 2017-2022 Euphresco Strategic Research Agenda
☒ Objective 2017-R-2.1: to improve knowledge on emerging pathways of entry and means of spread for pests
☒ Objective 2017-R-2.2: to expand knowledge on transmission of disease and pathogens for healthy planting material
☒ Objective 2017-R-4.1: to validate risk-based sampling methodologies for phytosanitary inspections
☒ Objective 2017-R-6.1: to test and validate methods for in situ detection and identification of pests

1.3. Topic title

Development and validation of diagnostic tools for *Ceratocystis platani*; testing strategies e.g. soil testing and water testing.

1.4. Description of the problem the research should solve

Plane wilt, caused by the fungal pathogen *Ceratocystis platani*, is usually a lethal disease of *Platanus*. Thought to be indigenous to Northern America, *C. platani* was introduced into Italy apparently in the 1940s and has since spread to other European countries including France, Greece and Switzerland. Long distance spread is through trade of infected plants, but contaminated tools and machinery can also transmit the pathogen and facilitate infection via wounds. Once established in a location, spread from diseased to healthy trees can result from pruning activities with contaminated tools, and via soil moving machinery as spores of the pathogen can remain viable in soil for several weeks. Outbreaks in France along the Canal du Midi have also shown water borne spread can be a pathway, with lesions developing on the root collar or the roots of plane trees when entrance points have been created as a result of damage from boats or machinery. There is also the possibility of tree-to-tree spread through root contacts when trees are in close proximity.
In continental Europe, the pathogen has not yet reached areas north of the Alps, but the risk of introduction into these areas is considered high, since there are no climatic obstacles to its establishment even though current outbreaks are mainly within the Mediterranean region. Lack of awareness about the disease in these areas may also hamper disease detection and allow the pathogen to establish more widely.
Currently there are no methods to directly test soil and water for the presence of *C. platani*, although protocols are available for pathogen detection *in planta*. Additionally, interested persons/stakeholders require information on early symptom detection and hygienic/best practice during arboricultural and forestry activities to provide the best outcomes for early detection and disease management.
The project shall be structured into two main activities: Test and develop molecular tools for detection of *C. platani* in various substrata; raise stakeholder and public awareness about plane wilt to aid rapid recognition and use of best practice.

1.5. Description of the expected results

Expected outcomes from the project will:
- Compare published molecular methods for the detection of *Ceratocystis platani*;

- Develop a method to detect *C. platani* in non-wood material (e.g. soil and water) which are known pathways for pathogen spread with wider testing and validate the new method(s) through a test performance study;
- Develop materials and training for stakeholders to aid recognition of the symptoms of plane wilt;
- Propose a monitoring and reporting scheme including some mapping of high-risk hotspots for disease introduction.

1.6. Beneficiaries of this research product

- Scientists, arboculturists, plant health inspectors, stakeholders.
- Scientists through availability of a robust and validated method for the detection of *C. platani* in non-plant substrata, allowing action to be taken if necessary.
- Raised awareness in the general public, professionals and stakeholders of plane wilt and clear, practical information to enable them to recognise and report this harmful quarantine organism.

1.7. Research funders and research contribution/ distribution

Funding organisation	Research activity and researchers involved
1. Department for Environment Food & Rural Affairs, United Kingdom. Elspeth Steel Elspeth.Steel@defra.gov.uk	-Project coordination; -Compare and verify published molecular methods for detecting *Ceratocystis platani*; -Develop a method for testing soil and water for the presence of *Ceratocystis platani*; -Run a Test Performance Study; Contact person: Victoria Barton E-mail address: victoria.barton@fera.co.uk
2. Federal Ministry for Sustainability and Tourism, Austria Sylvia Blümel sbluemel@ages.at	-Establishing a map showing hotspots of risks for introduction; -Establishing a monitoring and reporting scheme; -Training of arborists, tree caring and other interested people in early detection and prevention of plane wilt-spread; -Information material on disease detection; -Participation in tests for detection (water, soil); Contact person: Thomas Cech E-mail address: thomas.cech@bfw.gv.at -Social science perspective for improved disease recognition; -Involvement in the Test Performance Study; Contact person: Thomas Leichtfried E-mail address: thomas.leichtfried@ages.at
3. Forestry Commission, United Kingdom Joan Webber joan.webber@forestresearch.gov.uk	-Improved disease recognition; -Refining monitoring and reporting scheme;

Ana Perez Sierra ana.perez-sierra@forestry.gsi.gov.uk	-Training of arboculturists, tree caring and other interested people in early detection and prevention of plane wilt-spread; -Involvement in the Test Performance Study (plant material, soil, water); Contact person: Joan Webber E-mail address: joan.webber@forestresearch.gov.uk

2. *Euphresco management aspects of the project*

2.1. Indication of the topic budget

Funding organisation [a]	Mechanism [b]	Total Budget [c]
1. Defra (GB)	NC	€
2. BMNT (AT)	NC	€
3. UKFC (GB)	NC	€
total		€

2.2. Expected duration of the project (only for non-competitive topics)

24 months.

2.3. Identification of project coordinator

Has the research project coordinator been identified?

☒ Yes
☐ No

2.4. Any other relevant information on topic organisation and management

None.

[a] First member is project coordinator. A minimum of two partners are necessary for each proposal. Add lines as needed.
[b] Please indicate the preferred mechanism (e.g. real pot RP; virtual pot VP; non-competitive NC), or several mechanisms if there is flexibility.
[c] Optional, as this amount can still change in the next phase. In-kind contribution should also be indicated in this column.