

## 1. Content of the 'Topic Description' document

### 1.1. Topic area

Strategic scientific support for national and international plant biosecurity and plant health inspectorates with capacity building for this sector within member states, across the EU and with international trading partners.

### 1.2. Topic title

Building capability for frontline national inspectorates.

### 1.3. Description of the problem the research should solve

Currently there is no plant health 'inspectors' network at the EU-level. While the co-facilitated EPPO/Q-DETECT Inspectorates Workshop is an example of potential usefulness and success in this area, this project would instigate the process for a robust EU-wide plant health inspectorate.

An effective and co-ordinated plant health inspectorate across all EU countries is necessary to identify threats, protect our native floras and commercial crops and assist in eradication of recent imports of alien invasive threats in our countries.

### 1.4. Description of the expected results

- Building of direct linkages between science, policy and operational practitioners; building capability through a systems approach (open innovation pipeline)
- Providing a direct link with task force recommendations on improving biosecurity
- International sharing of intelligence on deployable technologies and approaches
- Technology/knowledge validation, transfer and adoption to approaches and effectiveness of outbreak management internationally
- Building more uniform capability amongst national inspectorates at the European-level

### 1.5. Beneficiaries of this research product

The project will benefit to:

- Inspectors
- Scientists
- Policy makers
- Legislators
- Biosecurity entrepreneurs
- Importers and exporters
- Postal and courier services

### 1.6. Euphresco members with proposal for content contribution/ distribution

Member	Proposed research component
1. AlphaTaxa, Dublin City University, Ireland  Maria Cullen <a href="mailto:alphataxa@gmail.com">alphataxa@gmail.com</a>	-Literature review. -Communication with relevant national and international inspectorate staff. -Policy development. -Improvements to mycological and molecular methods to support plant health inspectors.  Contact person: Maria Cullen <a href="mailto:alphataxa@gmail.com">alphataxa@gmail.com</a>
2. APHA Plant Health & Seeds Inspectorate, Great Britain	-Research into the role of import inspectors into an EU country.



Kelvin Hughes <a href="mailto:Kelvin.Hughes@apha.gsi.gov.uk">Kelvin.Hughes@apha.gsi.gov.uk</a>	-Research into seed inspection.  Contact person: Kelvin Hughes <a href="mailto:Kelvin.Hughes@apha.gsi.gov.uk">Kelvin.Hughes@apha.gsi.gov.uk</a>
3. Department of Agriculture and Rural Development, Great Britain  Jim Crummie <a href="mailto:Jim.Crummie@dardni.gov.uk">Jim.Crummie@dardni.gov.uk</a>	-Input as an inspectorate for forest health. -Internal research relating to what plant health inspectors on an island within Europe need in terms of scientific supports.  Contact person: Jim Crummie <a href="mailto:Jim.Crummie@dardni.gov.uk">Jim.Crummie@dardni.gov.uk</a>
4. Department for Environment, Food & Rural Affairs, Great Britain  Elspeth Steel <a href="mailto:elspeth.steel@defra.gsi.gov.uk">elspeth.steel@defra.gsi.gov.uk</a>	-Use of molecular methods in the support of plant health in Europe. -Protocols and training. -Structures for implementation of outcomes regarding policy.  Contact person: Elspeth Steel <a href="mailto:elspeth.steel@defra.gsi.gov.uk">elspeth.steel@defra.gsi.gov.uk</a>
5. Forest Research, Great Britain  Joan Weber <a href="mailto:joan.webber@forestry.gsi.gov.uk">joan.webber@forestry.gsi.gov.uk</a>	-Social science perspective. -Forest health research.  Contact person: Mariella Marzano <a href="mailto:Mariella.Marzano@forestry.gsi.gov.uk">Mariella.Marzano@forestry.gsi.gov.uk</a>
6. Department of Agriculture, Food & the Marine, Ireland  James Choiseul <a href="mailto:james.choiseul@agriculture.gov.ie">james.choiseul@agriculture.gov.ie</a>	-Entomological research. -Zoological perspective from the Irish plant health inspectorate.  Contact person: Rachel Wisdom <a href="mailto:rachel.wisdom@agriculture.gov.ie">rachel.wisdom@agriculture.gov.ie</a>

### 1.7. Research project partnership outside Euphresco

Euphresco funding ensures a certain level of transnational collaboration among Euphresco member countries. It is possible, if the funding consortium is interested, to contact funding organisations or research groups outside the geographical area covered by Euphresco members. The Euphresco coordinator could advertise the research topic in order to have an enlarged collaboration. If funders are interested in this possibility, please check the case below:

Yes. The funding consortium of the topic mentioned in section 1.2 requires to advertise the topic outside the Euphresco network

Information to sharpen the profile of sought partners could be useful (but not mandatory): country/region (if there are preferences), skills/expertise required, etc.

### 1.8. Any other relevant information on content

National Inspectorates for Plant Health are the “Frontline” in EU member states for the identification and exclusion of potentially dangerous pathogens and pests across the groups of fungi, viruses, insects, bacteria etc. that pose threats to commercial crops, forests and native floras and thereby causing issues for biosecurity, economics, the environment and trade.

While humans have been trading goods, including plant material, over wide areas of our planet for millennia, the scale of trade in live plant material and plant products has increased dramatically since the 19th century, as commercial shipping, freight air services, internet

shopping, courier services and trade agreements have become more efficient and capacity for transport has expanded.

Plants have no immune systems so they are more susceptible and likely to die when exposed to newly imported diseases as they do not “learn” to fight in the same way as the animal kingdom. Prevention is much of what we have as biosecurity against plant diseases in particular. Public awareness, import/export monitoring, legislation, phytosanitary policy, diagnostic methods for early detection, use of quarantine – these are the techniques available to us to stem the spread of plant diseases and potential epidemics.

Insect infestations can devastate entire regions of monocultures and cultivated crops. So containment of insects is vital. The ‘teaming up’ of insects and fungi compounds and magnifies the individual threats to plant health.

For effective implementation of plant biosecurity policies National Inspectorates (‘The Frontline’) need to be involved in the identification and development of required technologies for practical use at their ‘point-of-decision-making’ (*i.e.* point of inspection or action on the identification of a potential threat to biosecurity). This ‘bottom up’ approach ensures that we learn from the people dealing with these threats and challenges directly. It ensures the most effective practicality and the usefulness and adaptation of best practice and tools across Europe, thereby raising levels of capacity and an improvement in biosecurity for all. This project has several aims:

- Establishment of a European-level Network of Plant Health Inspectors (practitioners) that is linked to Science Networks. This would enable end-users to be involved in the early stages of technology development (‘Co-design’); the focus would be on detection technologies, but could be extended to other areas of biosecurity (*e.g.* risk management and contingency planning approaches and tools). EPPO and COPHS can be facilitators in the development of this network.
- Involvement of inspectorate end-users in the testing of new technologies and scientific methods at a European-level in order to aid validation and to encourage the adoption of best ‘front-line’ technologies/approaches/protocols (*e.g.* an inspectorate-led ‘ring-test’ of fire blight or improved and rapid *Phytophthora ramorum* detection methods).
- Development of a ‘tool box’ for National Inspectorates, with associated best practice and operating procedures, for improvement of quality, efficiency and effectiveness in plant biosecurity. These procedures, protocols and ‘tool box’ could be extended pre-border for use by third countries exporting plant material to Europe (see EC-PHSC’s RIRA Working Group’s ‘Alert List’ of countries and commodities). The EU also has a responsibility not to spread virulent diseases and pests between member states (particularly islands) or to countries to which it exports goods.

This project would, for the first time in the vital matter of European plant health, enable **effective knowledge/technology transfer** from research projects funded nationally, by Euphresco or the EU (*e.g.* Q-DETECT) to and from inspectorates across Europe, in order to build and help standardise capabilities.

There is no ‘inspectors’ network at the EU-level; the co-facilitated EPPO/Q-DETECT Inspectorates Workshop is an example of potential usefulness and success in this area.

Among the technologies to be explored are: on-site diagnostics (*e.g.* LFDs, LAMP, MINION portable NGS); physical detection methods (*e.g.* sniffer dogs, acoustics); remote sensing and photo-diagnostic screening.

This approach works at all stages of the Biosecurity Continuum: Pre-, At- and Post-Border activities (operations). By facilitating technology transfer between European countries and sharing further afield with border countries and 3<sup>rd</sup> country exporters, we can improve plant biosecurity so that the big picture of plant health can begin to be addressed by the global community of inspectors and scientists.

## 2. Euphresco management aspects of the project

### 2.1. Indication of the topic budget

Member <sup>a</sup>	Mechanism <sup>b</sup>	Total Budget <sup>c</sup>
AlphaTaxa (IE)	NC	€ 30.000
APHA (GB)		€
DARDNI (GB)		€
DEFRA (GB)	NC	€ 6.000
FR (GB)		€
DAFM (IE)	NC	€ 7.000
Total		€

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

18 months.

### 2.3 Any other relevant information on topic organisation and management

<sup>a</sup> First member is project coordinator. A minimum of two partners are necessary for each proposal. Add lines as needed.

<sup>b</sup> Please indicate the preferred mechanism (e.g. real pot RP; virtual pot VP; non-competitive NC), or several mechanisms if there is flexibility.

<sup>c</sup> Optional, as this amount can still change in the next phase. In-kind contribution should also be indicated in this column.