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

### 1.1. Topic area

Management of pest/vector

### 1.2. Links to the Euphresco Strategic Research Agenda

The topic addresses the following objective(s) of the 2017-2022 Euphresco Strategic Research Agenda

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### 1.3. Topic title

Potential for using IPM tools to control or eradicate box tree moth (*Cydalima perspectalis*) incursions.

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

*Cydalima perspectalis*, the box tree moth (BTM), is a serious pest of nearly all *Buxus* spp. in the family Buxaceae. The insect has been recorded in several European countries in recent years. Box tree moth was first recorded in North America from Toronto, Canada, in September 2018. The larvae typically cause complete defoliation and feed on the bark of boxwood trees, leading to tree death. Although boxwood is not native to the U.S., it has been propagated widely for ornamental planting.

USDA-APHIS has started to research methods to assess the potential for preventing establishment of BTM in the United States of America by developing integrated pest management methods for use as rapid response tool. Methods under review include enhanced survey and detection methods, mating disruption, pesticide treatments and the sterile insect technique. Since this pest has been detected in several Euphresco countries, there may be opportunities for member countries to collaborate on control methods in regions impacted by BTM or at risk of invasion.

This project aims to evaluate the potential for area-wide IPM tools such as application of mating disruption, coordinated pesticide treatments, biological control, development of enhanced monitoring methods and development of the sterile insect technique to control or eradicate BTM populations to protect boxwood in ornamental landscapes, native forests and in nursery production facilites.

A review of different control measures developed and evaluated will be performed and the most suitable approaches will be identified and shared with member countries.

### 1.5. Description of the expected results

The expected results for the project are:

- Development of monitoring tactics to respond to potential outbreaks of BTM in newly invaded areas by identifying effective trap and pheromone or kairomone combinations for catching adult male and female moths under field situations.
- Identification of potential tools and tactics to support rapid emergency response for eradication of outbreaks of BTM.
- Determination of the potential for applying mating disruption (with pheromone), chemical, cultural, biological control, and the sterile insect technique for use as components of a multi-faceted IPM program.
- Development of efficient mass-rearing methods to support research on pesticide treatments, the sterile insect techniques, biological control, and behavioural studies.
- Evaluation of the potential for classical biological control introductions of new BTM

parasitoids and conduct host range testing of the most promising agents.

- Development of treatments to eliminate BTM infestations on shipments of nursery stock.
- Provision of recommendations, educational and outreach materials of effective control measures in the form of presentations, written reports, and publications to affected stakeholders.

### 1.6. Beneficiaries of this research product

- National Plant Protection Organisations, by providing information and data to support risk management and policy-making processes
- EPPO and its members, by providing data for PRAs
- The European Union, by providing data of interceptions on different crops and from different countries to avoid introduction and damages
- NAPPO and its members, by providing data to develop mitigation plans
- Stakeholders in horticulture industry and public and private landscape gardens

### 1.7. Research funders and research contribution/ distribution

| Funding organisation | Research activity and researchers involved |
|---|---|
| 1. Department of Agriculture, Animal and Plant Health Inspection Service, United States of America<br><br>Jennifer Nicholson<br>jennifer.s.nicholson@usda.gov | -Project coordination;<br>-Research on Integrated Pest Management and eradication tactics, mating disruption, pesticide treatments, monitoring, classical biological controlsterile insect technique and mass-rearing using merdic diets;<br><br>Contact person: Greg Simmons<br>E.mail address: gregory.s.simmons@usda.gov |
| 2. Canadian Food Inspection Agency, Canada<br><br>Mireille Marcotte<br>mireille.marcotte@inspection.gc.ca | -Investigation of biology, population ecology and behaviour, IPM strategies, biological control, chemical, biochemical biopesticides and mating disruption, development of BTM phytosanitary protocol/certification for commercial growers to support market access, mass rearing methods using merdic diets;<br><br>Contact Person: Brittany Day<br>Email address: brittany.day@inspection.gc.ca |
| 3. Federal Ministry of Food and Agriculture, Germany<br><br>Bettina Beerbaum<br>Bettina.Beerbaum@bmel.bund.de<br><br>Silke Steinmöller<br>silke.steinmoeller@julius-kuehn.de | -Contribution to be defined;<br><br>Contact person: Annette Herz<br>E.mail address: Annette.herz@julius-kuehn.de |
| 4. Department for Environment Food and Rural Affairs, United Kingdom<br><br>Iain Dummett<br>Iain.Dummett@defra.gov.uk | -Contribution to be defined;<br><br>Contact person:<br>E.mail address: |

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|---|---|
| 5. University of Padova, Italy<br><br>Alberto Pozzebon<br>alberto.pozzebon@unipd.it | -Contribution to the identification of IPM tools for box tree moth management;<br>-Contribution to research and testing of control tools;<br><br>Contact person: Alberto Pozzebon<br>E.mail address: alberto.pozzebon@unipd.it |
| 6. University of Turin, Italy<br><br>Chiara Ferracini<br>chiara.ferracini@unito.it | - Evaluation of aerial treatments of boxwood stands with *BtK*;<br><br>Contact person: Chiara Ferracini<br>E.mail address: chiara.ferracini@unito.it |
| 7. Research Institute for Plant Protection, Romania<br><br>Maria Iamandei<br>maria_iamandei@yahoo.com | -Contribution to be defined;<br><br>Contact person: Maria Iamandei<br>E.mail address: maria_iamandei@yahoo.com |
| 8. University of Navarra, Spain<br><br>Rosa Murillo<br>rosa.murillo@unavarra.es | - Investigation of control treatments with *Bt* and baculoviruses; natural enemy surveys and evaluation of the impacts of native parasitoids and predators;<br><br>Contact person: Rosa Murillo<br>E.mail address: rosa.murillo@unavarra.es |
| 9. Cabi, Switzerland<br><br>Marc Kenis<br>m.kenis@cabi.org | -Investigation of classical biological control of BTM: foreign exploration; establishment of quarantine cultures; research on parasitoid biology; and non-target host range testing;<br><br>Contact person: Marc Kenis<br>E.mail address: m.kenis@cabi.org |

### 1.8. Research project partnership outside Euphresco

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

### 1.9. Any other relevant information on content

None.

## 2. *Euphresco management aspects of the project*

### 2.1. Indication of the topic budget

| Funding organisation [a] | Mechanism [b] | Total Budget [c] |
|---|---|---|
| 1. APHIS-USDA (US) | NC | € |
| 2. CFIA (CA) | NC | € |
| 3. BMEL (DE) | NC | € |
| 4. Defra (GB) | NC | € |
| 5. UNIPD (IT) | NC | € |
| 6. Unito (IT) | NC | € |
| 7. ICDPP (RO) | NC | € |
| 8. UNAVARRA (ES) | NC | € |
| 9. Cabi (CH) | NC | € |
| total | | € |

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

36 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.