

1. Content of the 'Topic Description' document

1.1. Topic area

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-3.1: to identify and evaluate (horizontal) risk reduction options (effectiveness, feasibility and cost)
- Objective 2017-C-3.1: to favour knowledge exchange and support common initiatives with relevant players

1.3. Topic title

Review of International Best Practice for Robust Border Biosecurity for Plant Health

1.4. Description of the problem the research should solve

Border biosecurity regulation and practice enjoys great potential for cooperation because biosecurity is not a zero-sum game; instead, slowing and stopping the spread of pests globally is directly and indirectly beneficial for all national systems. However, there is little coordination or information exchange about developing and sustaining robust biosecurity surveillance and action across jurisdictions. A horizon scan is needed that identifies and contextualises best practices for robust biosecurity activity across the biosecurity continuum. The scan will engage with plant-health biosecurity using the following motivating questions:

- 1) Systems level approach
 - a. What are the elements of quality for a robust biosecurity system? (non-exhaustive example list):
 - i. investment in relation to gross domestic product,
 - ii. infrastructure in terms of equipment / laboratories *etc.*,
 - iii. leadership of the system,
 - iv. communication within the system,
 - v. investment in science (links to universities or other border biosecurity science entities),
 - vi. border controls,
 - vii. the social context (community participation/social media),
 - viii. status of Pest Risk Assessments and their use in trade,
 - ix. focus on offshore activities,
 - x. compliance with international agreements,
 - xi. components of a Best Practise systems *etc.*
 - b. How do these elements differ among nations with differently robust biosecurity systems?
- 2) Risk analysis / assessment (hereafter just risk analysis)
 - a. What are measures of quality for risk analysis that can guide policy or practice for biosecurity regulators?
 - b. What are the leading examples of existing international best practice for risk analysis?
 - c. What is transferrable to other jurisdictional settings?
- 3) Robust offshore/border/domestic biosecurity surveillance
 - a. What are measures of quality for surveillance that can guide policy or practice for biosecurity regulators?
 - b. What are the characteristics of a robust biosecurity surveillance system in a regulatory context?



- c. What are the leading examples of existing international best practice for robust biosecurity surveillance, either in the pipeline, under early use, or well established?
 - d. How does robust biosecurity surveillance translate to differences in interception rates (or other measures) among jurisdictions?
 - e. If not already, how might these approaches be effectively integrated within European, Swiss, and UK contexts and what are the anticipated outcomes?
 - f. What additional factors or legislative considerations may need to be accounted for?
- 4) Diagnostic tools
- a. What are measures of quality for diagnostic tools that can guide policy or practice for biosecurity regulators?
 - b. What are the most promising emergent diagnostic tools in the developmental pipeline or at the early stages of operation?
 - c. If not already, how might these approaches be effectively integrated within different international (e.g. European, Swiss, and UK) contexts and what are the anticipated outcomes?
 - d. What additional factors or legislative considerations may need to be accounted for?
- 5) Societal awareness and engagement
- a. What role can societal (individual, community) awareness and engagement play in the effectiveness of a robust biosecurity system?
 - b. Does the level of citizen awareness and engagement differ across nations and across time? If so, then how and why?
 - c. What are ways of measuring examples of this engagement and methods for fostering a 'biosecurity culture'?
 - d. What are leading examples of creating biosecurity cultures and what in these leading examples is transferrable to other settings?
 - e. What role can non-governmental actors (private sector, indigenous communities, third sector, etc) play in fostering a societal scale biosecurity culture?

1.5. Description of the expected results

The expected end-product from this project is a report that provides a critical review of robust biosecurity surveillance. This report will unpack the definition of robustness in the context of biosecurity surveillance, identify regulatory-facing ways of measuring the robustness and/or quality of biosecurity surveillance systems, identify leading examples of international best practice robust biosecurity systems, and then establish the transferrable learnings, recognising that all national systems work within their own economic, agricultural, trade, and social contexts and that works well within and for one system may not work within another. The outcome may include a workshop involving officials, researchers, practitioners, industry reps, and community voices.

The report will be constructed by using literature review of published and grey (unpublished) literature, surveys, independently facilitated workshops, targeted interviews of risk owners and risk managers in a variety of biosecurity regulators (it is recognised that roles may be identified or even designed differently across biosecurity regulators and the intention is to capture a range of responses across policy makers and scientists, or priority setters and actors, or executives and operational staff), and to the extent possible, exchange visits.

Three intermediate products will be formed using the same approach to the report as indicated above, namely (i) a critical review of contemporary or near-future diagnostic tools that are contemplated or have been deployed by biosecurity regulators, covering positive and negative aspects, (ii) a critical review of contemporary or near-future border/pre-border surveillance approaches, covering positive and negative aspects, and (iii) a critical review of the intersection between citizen awareness, culture, and biosecurity risk management.

1.6. Beneficiaries of this research product

International, national, and sub-national biosecurity regulators, and consequently all actors who rely on biosecurity, including primary producers, indigenous environmental guardians, etc.

1.7. Research funders and research contribution/ distribution

Funding organisation	Research activity and researchers involved
1. CEBRA-University of Melbourne, Australia Andrew Robinson apro@unimelb.edu.au	-Contribution to be detailed; Contact person: Andrew Robinson E.mail address: apro@unimelb.edu.au
2. Department of Agriculture, Fisheries and Forestry, Australia Keira Beattie PHSgovernancegroups@agriculture.gov.au	-Participate in research, review and horizon scanning activities – biosecurity, diagnostics and surveillance; Contact person: Uday Divi E. mail address: uday.divi@agriculture.gov.au -Contribution to be defined; Contact person: Brian Garms E.mail address: Brian.Garms@awe.gov.au -Review on border/pre-border surveillance approaches and Diagnostic tools; Contact person: Solomon Maina E.mail address: solomon.maina@dpi.nsw.gov.au
3. Council for agronomic research and the bioeconomy, Italy Pio Federico Roversi piofederico.roversi@crea.gov.it	-Contribution to be detailed; Contact persons: Sauro Simoni E.mail address: sauro.simoni@crea.gov.it Contact person: Leonardo Marianelli E.mail address: leonardo.marianelli@crea.gov.it
4. Better Border Biosecurity, New Zealand David Teulon David.Teulon@plantandfood.co.nz	-Contribution to be detailed; Contact person: David Teulon E.mail address: David.Teulon@plantandfood.co.nz
5. Te Tira Whakamataki, New Zealand Simon Lambert Simon@ttw.nz	-Contribution to be detailed; Contact person: Simon Lambert E.mail address: Simon@ttw.nz
6. Slovenian Forestry Institute, Slovenia Andreja Kavčič andreja.kavcic@gozdis.si	-Contribution to be detailed; Contact person: Andreja Kavčič E.mail address: andreja.kavcic@gozdis.si
7. Swiss Forest Protection, Switzerland	-Contribution to be detailed;

<p>Vivanne Dubach vivanne.dubach@wsl.ch</p>	<p>Contact person: Vivanne Dubach E.mail address: vivanne.dubach@wsl.ch</p>
<p>8. Department for Environment, Food & Rural Affairs, United Kingdom</p> <p>Jasmine Burr-Hersey Jasmine.Burr-Hersey@defra.gov.uk</p>	<p>-Contribution to be detailed;</p> <p>Contact person: Mariella Marzano E. mail address: Mariella.marzano@forestresearch.gov.uk</p> <p>Contact person: Chris Pollard E. mail address: chris.pollard@forestresearch.gov.uk</p>
<p>9. Science and advice for Scottish Agriculture, United Kingdom</p> <p>David Kenyon David.Kenyon@sasa.gov.scot</p>	<p>-Contribution to be detailed;</p> <p>Contact person: Denise A'Hara E.mail address: Denise.A'Hara@sasa.gov.scot</p>
<p>10. University of Arkansas, United States of America</p> <p>Ioannis Tzanetakis itzaneta@uark.edu</p>	<p>-Contribution to be detailed;</p> <p>Contact person: Ioannis Tzanetakis E. mail address: itzaneta@uark.edu</p>

1.8. 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:

The funding consortium of the topic mentioned in section 1.2 requires that the topic is advertised outside the Euphresco network

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

CEBRA is co-designing a project with the Australian Department of Agriculture, Water and the Environment on the efficient use of general surveillance, to be carried out under an existing funding arrangement in 2022-2025.

2. Euphresco management aspects of the project

2.1. Indication of the topic budget

Funding organisation	Mechanism	Total Budget
1. Cebra (AU)		€
2. DAFF (AU)		€
3. CREA (IT)		€
4. B3 (NZ)		€
5. TTW (NZ)		€
6. SFI (SI)		€
7. SFP (CH)		€
8. Defra (GB)		€
9. SASA (GB)		€
10. UARK (US)		€

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

This project explicitly seeks to work with Indigenous biosecurity practitioners and researchers and integrate relevant data management approaches sensitive to Indigenous data sovereignty claims.