

## **1. Topic Description**

### **1.1. Topic area**

Pest risk analysis

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

- ☒ Objective 2017-I-2.1: to support data exchange, data use and re-use for the benefit of plant health research activities
- ☒ Objective 2017-C-3.1: to favour knowledge exchange and support common initiatives with relevant players

### **1.3. Topic title**

Data sharing initiative

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

Data sharing among laboratories could be facilitated across the EU and worldwide. Data from collaborating laboratories may often be output from High Throughput Sequencing (HTS), but any data related to the evaluation and maintenance of plant health should qualify as sharable data under this initiative. When different laboratories are finding and investigating the properties of similar organisms (primarily viruses, but also viroids, and potentially bacteria and fungi) in host plants, they have not had access to similar research carried out at other laboratories. This results in unnecessary duplication of research efforts that strains budgetary resources and may even reduce the quality of research results. Medical researchers have long identified the value of sharing data on drug clinical trials between countries. The project partners will review Euphresco projects, data at different organizations and in various countries, and consider if there are data products that should be considered in this data-sharing initiative. An example of an existing data-sharing infrastructure in Germany called GAIA-X “A Federated Data Infrastructure as the Cradle of a Vibrant European Ecosystem” could be investigated as one model of decentralized data-sharing. One possible Euphresco data-sharing arrangement would be one that uses data-sharing hubs in a cloud infrastructure where different users pull-in or pull-out data based on different types of licences.

### **1.5. Description of the expected results**

The project partners will investigate different methods and protocols for data-sharing, and each of these data-sharing protocols may provide different degrees of data openness and degree of access to a range of researchers. As a starting point, it seems logical that more data will be shared if some degree of control over data access is available. The initiative may help to demonstrate to plant health authorities in different jurisdictions that by data-sharing among laboratories under the auspices of the plant health community, it may in some circumstances be possible to increase the quality of research on plant viruses, bacteria and fungi, while also lowering the cost of that research through data sharing and discussion. Better availability of data for sharing between researchers investigating complementary plant disease problems could also enable the design of better harmonized and validated molecular tests, and knowledge translation and exchange among high-containment laboratories. One of the first steps taken during the project, could be to explore what data-sharing arrangements are being used in other research areas, and consider how these other frameworks for data-sharing could be implemented in plant health. This would allow investigation of the main benefits and limitations of these other frameworks.

Alternative data-sharing arrangements will be explored during the project. The specific data-sharing arrangement proposed may vary from organization to organization, and country to

country. In some cases, data-sharing arrangements may exist that can be adapted to the specific circumstances and needs of participants.

### 1.6 Beneficiaries of this research product

Beneficiaries of this project would be the plant health research community including:

- Computational biologists and bioinformaticians working in plant health (interaction with colleagues, sharing of data analysis pipelines, meetings);
- Plant health researchers working on bacteria, viruses and fungi and diagnosticians (training materials, meetings, better communication with computational biologists);
- Students and teachers in plant pathology (training materials);
- National Plant Protection Organisations, EPPO and its members (validated reference datasets, training materials).

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

Funding organisation	Research activity and researchers involved
1. US Department of Agriculture, Animal and Plant Health Inspection Service, United States of America  David Schimmelpfennig <a href="mailto:david.schimmelpfennig@usda.gov">david.schimmelpfennig@usda.gov</a>	-Project coordination; -Other contributions to be detailed;  Contact person: Yulu Xia E. mail address: <a href="mailto:yuluxia@ncsu.edu">yuluxia@ncsu.edu</a>
2. Canadian Food Inspection Agency-Plant Research & Strategies, Canada  Loren Matheson <a href="mailto:loren.matheson@canada.ca">loren.matheson@canada.ca</a>	-Contribution to be detailed;  Contact person: E. mail address:
3. French Agency for Food, Environmental and Occupational Health & Safety, France  Géraldine Anthoine <a href="mailto:geraldine.anthoine@anses.fr">geraldine.anthoine@anses.fr</a>	-Contribution to be detailed;  Contact person: E. mail address:
4. European and Mediterranean Plant Protection Organization, France  Françoise Petter <a href="mailto:fp@eppo.int">fp@eppo.int</a>	-Contribution to be detailed;  Contact person: E. mail address:
5. The State Plant Service under the Ministry of Agriculture of the Republic of Lithuania  Arunas Beniusis <a href="mailto:arunas.beniusis@vatzum.lt">arunas.beniusis@vatzum.lt</a>	-Contribution to be detailed;  Contact person: E. mail address:
6. Netherlands Food and Consumer Products Safety Authority, Netherlands  Martijn Schenk <a href="mailto:M.Schenk1@nvwa.nl">M.Schenk1@nvwa.nl</a>	-Contribution to be detailed;  Contact person: E. mail address:
7. Department for Environment Food and Rural Affairs, United Kingdom	-Contribution to be detailed;

Iain Dummett <a href="mailto:Iain.Dummett@defra.gov.uk">Iain.Dummett@defra.gov.uk</a>	Contact person: E. mail address:
--	-------------------------------------

### 1.7. Research project partnership outside Euphresco

None.

### 1.8. Any other relevant information on content

The platform for data sharing would have the following features:

- A secure data storage infrastructure with restricted access to protect data;
- The platform will allow laboratories to share HTS data and related metadata (to be defined by participants) on unknown organisms on a voluntary basis;
- Include protocols for data access and governance;

This platform has the potential to rationalise and enhance surveillance activities, to empower diagnostic laboratories, and benefit to risk managers. Data sharing platforms exist, such as the CABI Fall Armyworm Research Collaboration Portal <https://faw.researchcollaborationportal.org/> (here the data are different but the idea is to develop a place where people can share pre-published data to help advance research). There is also a global surveillance system, where the issue of sharing of data to optimise surveillance is described <https://science.sciencemag.org/content/364/6447/1237>. Rules for users of the database, including possible Material Transfer Agreements (MTA), will be agreed in advance; and questions such as levels of access to data, how to use the data, communication of data, will be addressed. The project should also explore the long-term hosting and maintenance of this database, since the project will develop a prototype only.

## 2. Euphresco management aspects of the project

### 2.1. Indication of the topic budget

Funding organisation <sup>a</sup>	Mechanism <sup>b</sup>	Total Budget <sup>c</sup>
1. APHIS-USDA (USA)	NC	€
2. CFIA (CA)	VP	€
3. ANSES (FR)	NC	€
4. EPPO (FR)	NC	€
5. VATZUM (LT)	NC	€
6. NVWA (NL)	NC	€
7. Defra (GB)	VR	€
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.

<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.