

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

### 1.1. Topic area

Pest/Vector biology, epidemiology, taxonomy.

### 1.2. Topic title

Study on the diversity of phytoplasmas detected in European forests.

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

No wide knowledge is available about phytoplasmas' impact in the European forests, however several reports are highlighting the importance of these prokaryotes as associated with economic relevant factors with detrimental effects on both production and landscape (Bertaccini *et al.*, 2014). The recent introduction of several alien species of both insects phytoplasma possible vectors and weeds increased the risk of spreading of new phytoplasmas or new strains that could further reduce the healthy condition of forests. At the same time, forest plants infected by phytoplasmas could represent a treat for cultivated crops acting as reservoir of phytoplasmas. The topic will aim to develop a network for the application of common protocols for the monitoring and identification of phytoplasmas in the European forests. Survey for specific symptomatology and presence of potential insect vectors should be carried out together with the molecular verification of phytoplasma presence in such materials. Real-time PCR protocols can be used as common tools for phytoplasma detection whereas DNA barcoding can be employed for the identification together with identity confirmation on full 16S rRNA gene. Areas where the problems related to phytoplasmas presence are more common (i.e. near cultivated crops such as apple or grapevine) could be surveyed in particular together with areas in which alien weeds or potential alien insect vectors were recently reported.

### 1.4. Description of the expected results

One workshop focussing on forest trees/plants phytoplasmas will be organised at the beginning of the project that will allow participants to be informed of the most recent advancements on the phytoplasma detection and identification methods and to receive training on specific symptomatology reported and on insect vector of phytoplasma diseases. A national survey (dimension to be decided by the participants) focussing on phytoplasmas in forest areas will be implemented. Data on distribution on phytoplasmas in European forests will be collected.

A final workshop will report the new findings and update of the phytoplasmas situation in the European forests in order to help to identify the need for management strategies and associated risks with phytoplasmas in forest areas.

Common protocols for the monitoring and identification of phytoplasmas in the European forests will be produced.

### 1.5. Beneficiaries of this research product

The project will benefit to phytosanitary inspectors and laboratories that needs to survey and verify the presence of diseases due to these bacteria inside the most relevant environmental areas in and within Europe.

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

Funding organisation	Research activity and researchers involved
1. Alma Mater Studiorum, University of Bologna, Italy	-Project coordination. -Organisation of the workshops.



<p>Assunta Bertaccini <a href="mailto:assunta.bertaccini@unibo.it">assunta.bertaccini@unibo.it</a></p>	<p>-Survey for the presence of phytoplasmas and potential insect vectors in forest and phytoplasma strains identification. -Data collection from partners to define common protocols for the monitoring and identification of phytoplasmas and potential insect vectors in the European forests.</p> <p>Contact person: Assunta Bertaccini <a href="mailto:assunta.bertaccini@unibo.it">assunta.bertaccini@unibo.it</a></p>
<p>2. Austrian Agency for Health and Food Safety Austria  Sylvia Bluemel <a href="mailto:sbluemel@ages.at">sbluemel@ages.at</a></p>	<p>-Detection of phytoplasmas in forests and in particular in skirts of forests neighbouring to vine yards; strain typing for selected samples.</p> <p>Contact person: Helga Reizenzein <a href="mailto:helga.reizenzein@ages.at">helga.reizenzein@ages.at</a></p> <p>Contact person: Gudrun Strauss <a href="mailto:gudrun.strauss@ages.at">gudrun.strauss@ages.at</a></p>
<p>3. French Agency for Food, Environmental and Occupational Health &amp; Safety, France  Geraldine Anthoine <a href="mailto:geraldine.anthoine@anses.fr">geraldine.anthoine@anses.fr</a></p>	<p>-Detection of phytoplasmas by real-time PCR (Christensen <i>et al.</i>, 2009) of collected samples in forest. -Identification of detected phytoplasmas by DNA barcoding (EPPO protocol).</p> <p>Contact person: Marianne Loiseau <a href="mailto:marianne.loiseau@anses.fr">marianne.loiseau@anses.fr</a></p>
<p>4. Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Italy  Luca Riccioni <a href="mailto:luca.riccioni@crea.gov.it">luca.riccioni@crea.gov.it</a></p>	<p>-Survey for the presence of phytoplasmas and potential insect vectors in forest, in particular around grapevine crops.</p> <p>Contact person: Elisa Angelini <a href="mailto:elisa.angelini@crea.gov.it">elisa.angelini@crea.gov.it</a></p> <p>Contact person: Luca Ferretti <a href="mailto:luca.ferretti@crea.gov.it">luca.ferretti@crea.gov.it</a></p> <p>Contact person: Sabrina.Bertin <a href="mailto:sabrina.bertin@crea.gov.it">sabrina.bertin@crea.gov.it</a></p>
<p>5. Ministry of Agriculture, Forestry and Food, Slovenia  Erika Orešek <a href="mailto:erika.oresek@gov.si">erika.oresek@gov.si</a></p>	<p>-Survey for specific symptomatology. -Detection of phytoplasmas by real-time PCR of collected samples in forest.</p> <p>Contact person: Marina Dermastia <a href="mailto:marina.dermastia@nib.si">marina.dermastia@nib.si</a></p>
<p>6. Museum and Institute of Zoology, Poland  Tadeusz Malewski <a href="mailto:tmalewski@miiz.waw.pl">tmalewski@miiz.waw.pl</a></p>	<p>The group will focus on the following forest trees: alder, ash, oak, -Organisation of the workshops -Preparation of molecular tools for identification of phytoplasmas and their insect vectors -Survey for presence of phytoplasmas and potential insect vectors in nurseries and forest in Poland.</p>



	Contact person: Tadeusz Malewski <a href="mailto:tmalewski@miiz.waw.pl">tmalewski@miiz.waw.pl</a>
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### **1.7. Research project partnership outside Euphresco**

The workshops and trainings will be open to researchers outside the Euphresco network. The research organisations have not been identified.

### **1.8. Any other relevant information on content**

#### Reference

- Bertaccini A., B. Duduk, S. Paltrinieri, N. Contaldo. 2014. Phytoplasmas and phytoplasma diseases: a severe threat to agriculture. *American Journal of Plant Sciences* 5: 1763-1788.

## 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. UNIBO (IT)	NC	€ 5 000
2. AGES (AT)	NC	€ 20 500
3. ANSES (FR)	NC	€ 30 200
4. CREA (IT)	NC	€ 5 000
5. MKGP (SI)	NC	€ 6 000
6. MIIZ (PL)	NC	€
total		€

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

48 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.