1. Content of the 'Topic Description' document

1.1. Topic area

F: pest/vector biology, epidemiology, taxonomy.

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-1.1: to improve knowledge on the biology, epidemiology and ecology of priority invasive and (re)emerging pests
☒ Objective 2017-R-7.1: to validate cost-effective and socially acceptable phytosanitary measures for consignments (pre-border and at border)
☒ Objective 2017-R-7.2: to validate cost-effective and socially acceptable phytosanitary measures at the place of production (inland) for plants, plant products, water and soil

1.3. Topic title

Spodoptera frugiperda: spreading, establishment, damaging potential and control measures for the EU

1.4. Description of the problem the research should solve

Spodoptera frugiperda (fall armyworm) is a polyphagous pest which shows a definite preference for the Poaceae; it is most commonly recorded from grasses and from *Zea mays* (maize), *Oryza sativa* (rice), *Sorghum bicolor* (sorghum) and S*accharum officinarum* (sugarcane). Native to the tropical and subtropical regions of the Americas, its geographical distribution has changed considerably in the last years with its introduction in the African continent. The first outbreak of *Spodoptera frugiperda* was reported in 2016 in Nigeria, and since it has quickly spread across most of the sub-Saharan Africa. The moth is a strong flyer over thousands of km and it has been shown to regularly migrate to cooler region in the summer, so it can threaten the EPPO region.
The potential global distribution of *S. frugiperda* was recently modelled (Kriticos, unpublished) using CLIMEX/CLiMond, taking into account climate suitability (temperature and precipitation, and extended additional variables like solar radiation and soil moisture, and new Bioclim variables at a global extent) and the existence of suitable crop hosts. The project should aim to determine cold hardiness ability and climate limit of *S. frugiperda* by performing laboratory assays on different populations established in different areas. The best detection and interception tools should be identified depending on the possible pathways of introduction and recommended for the establishment of surveys and early warning systems. Different measures are available to control *S. frugiperda* (insecticides, larval parasitoids, resistant varieties, mating disruption, cultural control and finally IPM programmes). A review of the lessons learnt on the use of different control measures in the various (African) countries will be performed and the most suitable (for the EPPO region) approaches will be identified.

1.5. Description of the expected results

The project expected results are:

- Cold hardiness ability of *S. frugiperda*, which is essential for projecting the potential spread of this species and performing accurate PRAs
- Management strategies applied at both the place of production and place of entry in order to reduce the risk of introduction and spread within the EPPO region
- Increasing the public awareness of *S. frugiperda* to avoid establishment in some EPPO regions, damages and spread

1.6. Beneficiaries of this research product

- National Plant Protection Organisations (NPPO's), by providing information and data to support the risk management and policy-making processes
- EPPO and its members, by providing data for PRAs
- European Food Safety Authority (EFSA), by providing additional data to complement their PRA
- EU, by providing data of interceptions on different crops and from different countries to avoid the introduction and damages

1.7. Research funders and research contribution/ distribution

Funding organisation	Research activity and researchers involved
1. The Federal Agency for Agriculture and Food, Germany Bettina Beerbaum bettina.beerbaum@bmel.bund.de Silke Steinmöller silke.steinmoeller@julius-kuehn.de	- Research on cold-hardiness; - Public awareness; Contact person: Peter Baufeld E.mail address: peter.baufeld@julius-kuehn.de
2. Austrian Agency for Health and Food Safety, Austria Sylvia Bluemel sbluemel@ages.at	- Monitoring; - Public awareness; Contact person: Anna Moyses E.mail address: anna.moyses@ages.at Contact person: Katharina Wechselberger E.mail address: Katharina.Wechselberger@ages.at
3. Bulgarian Food Safety Agency, Bulgaria Ani Becheva a.besheva@bfsa.bg	- Contribution to be defined; Contact person: Boryana Katinova E.mail address: b.katinova@abv.bg
4. National Institute for Agronomic Research, France Thierry Candresse thierry.candresse@inra.fr	- Contribution to be defined; Contact person: Anne-Nathalie Volkoff E.mail address: anne-nathalie.volkoff@inra.fr
5. Botswana International University of Science & Technology, Botswana Contact person: Casper Nyamukondiwa E.mail address: nyamukondiwac@biust.ac.bw	- Contribution to be defined; Contact person: Casper Nyamukondiwa E.mail address: nyamukondiwac@biust.ac.bw
6. Cab International, Great Britain Roger Day r.day@cabi.org	- Contribution to be defined; Contact person: Marc Kenis E.mail address: m.kenis@cabi.org
7. North Western University, South Africa	- Ecology of FAW, temperature-pest development relationships;

Johnnie Van Den Berg Johnnie.VanDenBerg@nwu.ac.za	Contact person: Johnnie Van Den Berg E.mail address: Johnnie.VanDenBerg@nwu.ac.za Contact person: Hannalene Du Plessis E.mail address: Hannalene.DuPlessis@nwu.ac.za

1.8. Research project partnership outside Euphresco

☒ 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

The North-West University in South Africa has an established research program on FAW. This program involves several MSC students that address research topics which include:
a) ecology of FAW
b) cold hardiness and temperature-pest development relationships
c) investigations into trap crops
d) investigations into pesticide resistance
e) evaluation of FAW response and susceptibility to genetically modified Bt maize.

The programme ‘Action on Invasives’ that Cabi is leading aims to work on key species such as *S. frugiperda*: research is currently carried-on in offices in Ghana, Kenya and Zambia. The collaboration will facilitate linkages between research, regulation and other stakeholders.

2. Euphresco management aspects of the project

2.1. Indication of the topic budget

Funding organisation [a]	Mechanism [b]	Total Budget [c]
1. BMEL (DE)	NC	€ 60 000
2. AGES (AT)	NC	€ 32 384,85
3. BFSA (BG)	NC	€ 10 000
4. INRA (FR)	NC	€ 24 000
5. BIUST (BW)	NC	€ 20 000
6. CABI (GB)	NC	€ 15 000
7. NWU (ZA)	NC	€ 20 000
total		€ 181 384,85

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.