

2025 Project collaboration for Chinese visiting scientists to the MARA-CABI European Laboratory in Switzerland

PROJECT DESCRIPTION No.1

Improving methods for mass-rearing and host-specificity testing for parasitoids of the invasive alien maize pest, fall armyworm

The fall armyworm (FAW), *Spodoptera frugiperda*, is a serious pest of maize originating from the Americas. In January 2016 it was observed for the first time in Africa and, in two years, it has invaded most of the continent. In 2018, it was discovered in many Asian countries including China. FAW is causing serious damage to maize in most invaded countries where it has become a serious threat to food security. It is considered a key invasive threat in China and South-East Asia, but has also started to invade Europe.

CABI is presently developing various sustainable management methods against FAW, including biological control. In Africa, native parasitoids that have adopted FAW as a host are presently being studied for their potential use in conservation and augmentative biocontrol strategies. At the same time, surveys have been carried out for parasitoids in the Americas to study the potential of classical biological control. The parasitoid species, *Eiphosoma laphygmae* and *Campoletis flavicincta*, have been imported from Bolivia to Switzerland and are being cultured at the CABI quarantine laboratory in Delémont. The parasitoids are being assessed for their potential as biological control agent for introduction into Africa or Asia. The release of *E. laphygmae* is just starting in Africa and is considered as well in Asia. However, the biocontrol programme is hampered by the difficulty in rearing *E. laphygmae*. Research is needed to improve the rearing techniques, a fundamental step needed for successful biocontrol agent releases. Studies on *Campoletis flavicincta* focus mostly on the assessment of its specificity for FAW.

The candidate will work as a collaborator in a biological control project at CABI Switzerland. He/she will help the team in improving mass rearing techniques of parasitoids, and will study various aspects of the biology and ecology of the parasitoids, including their specificity. The candidate will become familiar with FAW and parasitoid rearing and biology, and will also receive the necessary training and information for assessing the potential for biological control using these and other parasitoids in China, as well as on biological control techniques in general. The project supervisor (Dr Marc Kenis) is an experts in invasion ecology and biological control.

CABI hosting team and project supervisor:

Dr Marc Kenis

Risk Analysis & Invasion Ecology

CABI

Rue des Grillons 1

CH-2800 Delémont

Switzerland

Telephone: +41 (0)32 421 4884, Email: m.kenis@cabi.org

CANDIDATE SELECTION CRITERIA

Interest

- Strong interest in the specific proposed subject of project
- Research areas conducted by the candidate in China fit to the proposed research

Education & language skills

- MSc or above in a Life Science area ideally with entomology, invasive species, IPM and/or biological control as major subject(s);
- If part of education conducted in English speaking country, this would be regarded as an advantage;
- Fluent spoken English and good English writing skills.

Experience

- 2-3 years of post-graduate experience or equivalent working experience in relevant research area(s) as per announced project description;
- Experience in lab and field work, experimental design, data collection and handling, statistical analysis and reporting;
- Good scientific publication record;
- Proficiency in Microsoft Office Suite of packages.

Personal characteristics

- A team player with good interpersonal and communication skills;
- Reliable, precise, independent working style
- Self-motivated;
- Flexible;
- Ability to adapt to cultural differences.

Funding

- Funding is needed by Chinese applicant`s sending institution
- Co-Funding is provided through the MARA – CABI Joint Laboratory of Biosafety`s European laboratory

Period of secondments

- Ideally up to 4 months during 2025 (exact timing to be discussed)

PROJECT DESCRIPTION No. 2

Improving quantitative horizon scanning tools for prioritizing European pests potentially invasive in China and vice-versa in the framework of a Euphresco project

Invasive plant pests (invertebrates and pathogens) are increasingly invading new countries and continents. There is a need to identify new potential threats from these invasive plant pests before they enter countries to prioritize actions against them. This is usually conducted through horizon scanning, an approach that provides countries or regions with opportunities to gather information about invasive species likely to head in their direction. It involves the systematic search for potential invasive pests, their impacts on biodiversity, the potential to harm biodiversity, economic activities and human health, and opportunities for impact mitigation. It is an important tool that contributes to prevent arrival, early identification and eradication of these invasive pests and is an essential component of pest management with demonstrated net economic and ecological benefits. In recent years, CABI has developed and conducted prioritization exercises for several countries in Asia and Africa, in part based on the recently developed CABI horizon scanning tool. In addition, CABI is involved in a new Euphresco project with European and North America teams aiming at improving quantitative methods for the horizon scanning and prioritization of invasive pests.

The objectives of this secondment would be to conduct horizon scanning studies with the methods presently being used or being developed by CABI and the Euphresco project in order to identify European plant pests that may invade in China and East Asian plant pests that may become invasive pests in Europe. These pests would then be prioritized and, for the main species, biosecurity activities would be identified.

Applicants for this project should have an interest and experience in invasive species ecology, modelling, and/or pest management. The candidate will work as a collaborator in the pest risk analysis team at CABI in Switzerland, in the framework of an international Euphresco project developing quantitative horizon scanning tools at CABI Switzerland. CABI Switzerland offers a friendly multilingual (English, French, and German) work environment with the possibility to exchange with students and researchers and partners of the international project. The scientists will profit from learning different methods and approaches of risk assessments and biosafety. Project supervisors (Dr Marc Kenis and Dr Lukas Seehausen) are experts in invasion ecology and risk assessment.

CABI hosting team and project supervisors:

Dr Marc Kenis and Dr Lukas Seehausen

Risk Analysis & Invasion Ecology

CABI

Rue des Grillons 1

CH-2800 Delémont

Switzerland

Telephone: +41 (0)32 421 4887, Email: m.kenis@cabi.org

CANDIDATE SELECTION CRITERIA

Interest

- Strong interest in the specific proposed subject of project
- Research areas conducted by the candidate in China fit to the proposed research

Education & language skills

- MSc or above in a Life Science area ideally with entomology, invasive species, or pest risk assessment, as major subject(s);
- If part of education conducted in English speaking country, this would be regarded as an advantage;
- Fluent spoken English and good English writing skills.

Experience

- 2-3 years of post-graduate experience or equivalent working experience in relevant research area(s) as per announced project description;
- Experience in lab and field work, experimental design, data collection and handling, statistical analysis and reporting;
- Good scientific publication record;
- Proficiency in Microsoft Office Suite of packages.

Personal characteristics

- A team player with good interpersonal and communication skills;
- Reliable, precise, independent working style
- Self-motivated;
- Flexible;
- Ability to adapt to cultural differences.

Funding

- Funding is needed by Chinese applicant`s sending institution
- Co-Funding is provided through the MARA – CABI Joint Laboratory of Biosafety`s European laboratory

Period of secondments

- Ideally up to 4 months in the second half of 2025

PROJECT DESCRIPTION No. 3

Strengthening international collaboration between Chinese institutions and CABI in international bioprotection research and development, knowledge management and publishing

We are inviting an experienced Chinese plant protection expert to collaborate with CABI in enhancing international collaboration in the field of agriculture, including international bioprotection research and development, knowledge management and publishing. The visiting expert will work closely with CABI teams to:

- **Boost international collaboration:** The expert will have the opportunity to gain insights into CABI and its international operation, thereby facilitating future identification of project development opportunities in the field of bioprotection research and agriculture in general. The expert will be connected to different CABI teams and CABI centres, and is expected to facilitate linking those with Chinese institutions, including key institutions such as IPP-CAAS, and subcentres of the MARA- CABI Joint Lab for biosafety.
- **Link Chinese and international information on bioprotection:** The expert will support the global initiative of the CABI BioProtection Portal with the mid-term aim of making key information accessible to Chinese growers and advisory services. This opportunity will involve translating key content on the CABI BioProtection Portal into Chinese, ensuring that this valuable content becomes accessible to Chinese growers and advisors. Localisation of existing content and/or development of new content for the Portal is also a possibility. This work will support sustainable pest management practices by empowering stakeholders with relevant, research-backed information. The collaboration opportunity will also involve exploration into Chinese scientific literature for examples of biocontrol in action, specifically highlighting success stories and challenges. This research will help provide valuable insights to the global bioprotection community, which currently has limited access to this important body of knowledge. The expert will also be involved in exploring regulatory landscapes for biocontrols. These insights will contribute to a global database on biocontrol regulations, and will help build collaboration with China.

Applicants for this project should have a background in inter-institutional or international collaboration, and an interest and experience in biological control and/or pest management. They should also have skills in reviewing, extracting and communicating research results. The candidate will work as a collaborator with different teams of CABI's Switzerland Centre, particularly the CABI BioProtection Portal team. Links to other CABI centres are possible and encouraged. CABI Switzerland offers a friendly, international, and multilingual (English, French, and German) work environment with the possibility to interact with international researchers and students. The expert will benefit from improving his/her international network, learning different methods and approaches of handling biological control information. He/she will have the chance to make important contributions to the CABI BioProtection Portal and scientific communication and publishing. Project leads are Dr Emma Jenner and Pia Eliason who are the Project Executive and Project Manager, respectively, of the CABI BioProtection Portal. The Executive Director for Global Operations of CABI, Dr Ulrich Kuhlmann, will support the seconded expert to build international connections and linkages.

CABI hosting team and project supervisors:

Dr Emma Jenner and Pia Eliason

Project Executive and Project Manager of the CABI BioProtection Portal.

Dr Ulrich Kuhlmann

Executive Director, Global Operations

CABI

Rue des Grillons 1

CH-2800 Delémont

Switzerland

Telephone: +41 (0)32 421 4887, Email: e.jenner@cabi.org; u.kuhlmann@cabi.org

CANDIDATE SELECTION CRITERIA

Interest

- Strong interest in the specific proposed subject of project
- Research and development areas conducted by the candidate in China fit to the proposed secondment project

Education & language skills

- MSc or above in a Life Science area ideally with entomology, invasive species, weed science, IPM and/or biological control as major subject(s);
- If part of education conducted in English speaking country, this would be regarded as an advantage;
- Fluent spoken English and very good English writing skills.

Experience

- 2-3 years of post-graduate experience or equivalent working experience in relevant research area(s) as per announced project description;
- Experience in inter-institutional and/or international collaboration
- Experience in scientific work, including experimentation, data collection and handling, statistical analysis and reporting;
- Good scientific publication record;
- Proficiency in Microsoft Office Suite of packages.

Personal characteristics

- A team player with good interpersonal, communication and networking skills;
- Reliable, precise, independent working style
- Self-motivated;
- Flexible;
- Ability to adapt to cultural differences.

Funding

- Funding is needed by Chinese applicant`s sending institution
- Co-Funding is provided through the MARA – CABI Joint Laboratory of Biosafety`s European laboratory

Period of secondments

- Ideally up to 4 months, preferably between March-June 2025, however other time slots could be discussed