Job advertisement Agroscope

### Positions

  - One position in Biocontrol developing biological control approaches.
  - One position in Molecular Ecology investigating interactions between soil micro-arthropods and the soil microbiome with released microbial control agents.

### Introduction

The Japanese beetle, *Popillia japonica*, was detected near Milano in 2014, and is now starting to spread in Europe. It is an enormous threat to natural and agricultural environments in Europe: (1) It can feed on more than 300 host plants, including many important crops, (2) it is a good flyer and can be relocated via movement of goods and people, (3) climate suitability puts large parts of Europe at risk. The Horizon 2020 project “IPM-Popillia” aims at counteracting this invasion. Its main deliverable will be an IPM-Toolbox for control of *P. japonica*, relying exclusively on environmentally friendly control measures. The ambition of IPM-Popillia is to show that it is possible to control the new pest, and meet the requirements of phytosanitary quarantine regulations, while respecting the environment and the principles of the European sustainable use directive.

One PhD student will focus on biological control experiments in quarantine lab facilities and field work in the core of the recent outbreak area in Northern Italy. This part of the project focusses on applied entomology, with a clear dedication to practice oriented research output. The second PhD student will investigate interactions of soil micro-arthropods and the soil microbiome with released microbial control agents (entomopathogenic fungi) to assess biotic factors that affect reliability and persistence of the biological control measures. These analyses will involve a variety of molecular tools including DNA extraction from soil samples, amplification of marker genes, next generation sequencing and application of bioinformatics and statistical analyses. The two students will perform analyses in shared pot and field experiments and closely collaborate and support each other.

### Tasks

**PhD position 1**
- Planning, conducting and evaluating lab experiments in the quarantine facility in Zurich, and field experiments in the infested zone in Northern Italy
- Development of innovative application methods of entomopathogenic fungi, like “attract-and-infest” strategies, and evaluation of their efficacy

**PhD position 2**
- Design and perform pot experiments in the greenhouse and field experiments
- Assessment of bacterial, fungal and micro-arthropod communities in pot and field experiments to investigate interactions with and effects on applied fungal biocontrol strains.
- Bioinformatic and statistical analyses of metabarcoding data

**General**
- Presentation of research findings at national and international conferences
- Publication of the results in scientific journals

### Requirements

- MSc in agronomy, biology, ecology, molecular biology, or microbiology
- Strong interest in biological control, applied agricultural and ecological research
- Experience in design and analysis of lab and field experiments
- Knowledge and experience in molecular biology (required for position 2)
- Experience with statistics (R) and LINUX (required for position 2)
- Achievement-oriented, open-minded personality with capacity spirit for teamwork
- Good communications and writing skills in English and at least basic knowledge of German
**Organisation**

Agroscope is the Swiss federal centre of excellence for research in the agriculture and food sector. Its researchers carry out their work at a number of sites in Switzerland. Headquartered in Bern-Liebefeld, Agroscope is attached to the Swiss Federal Department of Economic Affairs, Education and Research EAER.

The research group “Ecological Plant Protection in Arable Crops” develops environmentally friendly and sustainable strategies for the control of pathogens and pests in arable crops. The entomology team of this group focusses on the use of entomopathogenic fungi for biocontrol of soil pest insects. The research group “Molecular Ecology” focusses on genetic analyses of microorganism, insects and plants in agricultural contexts. Main interests are the development and application of genetic markers to study genetic diversity, the investigation of biological soil quality as well as the exploration of ecological aspects in microbial pest control.

We offer an attractive project and work environment in young and multidisciplinary research teams as well as thorough initial training. Agroscope has excellent research facilities with well-equipped laboratories, greenhouses, climate chambers and agricultural fields.

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<th>Place of Work</th>
<th>8046 Zurich</th>
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<tr>
<td>Salary Category</td>
<td>According to the guidelines of the Swiss National Science Foundation</td>
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**Application**

If this challenge appeals to you and you meet our requirements profile, we look forward to receiving your online application to human.resources@agroscope.admin.ch (Ref.nr. 42973)

Online applications consist of a single PDF containing an application letter, CV, copy of certificates/Diplomas (MSc & BSc) and Email addresses of 2 referees. Deadline for application is August 26th, 2020.

For further information (do not send applications to these e-mail addresses):
- Dr. Giselher Grabenweger, RG Ecological Plant Protection in Arable Crops, giselher.grabenweger@agroscope.admin.ch
- Dr. Jürg Enkerli, RG Molecular Ecology, juerg.enkerli@agroscope.admin.ch

Starting date: November 1st 2020 (or upon agreement) - Duration: 4 years