

Biological Control: fighting below ground insect pests with *Pseudomonas* bacteria

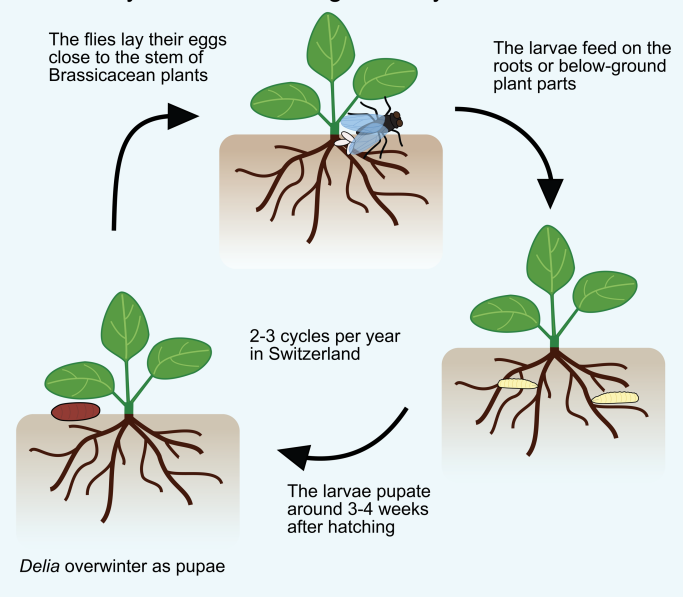
Anna Spescha¹ (anna.spescha@usys.ethz.ch), Jana Schneider¹, Pascale Flury¹, Ute Vogler², Giselher Grabenweger³, Monika Maurhofer¹

¹ Plant Pathology Group, Institute of Integrative Biology, ETH Zurich, Switzerland | ² Julius Kühn-Institut, Braunschweig, Germany | ³ Plant Protection, Agroscope, Zurich, Switzerland

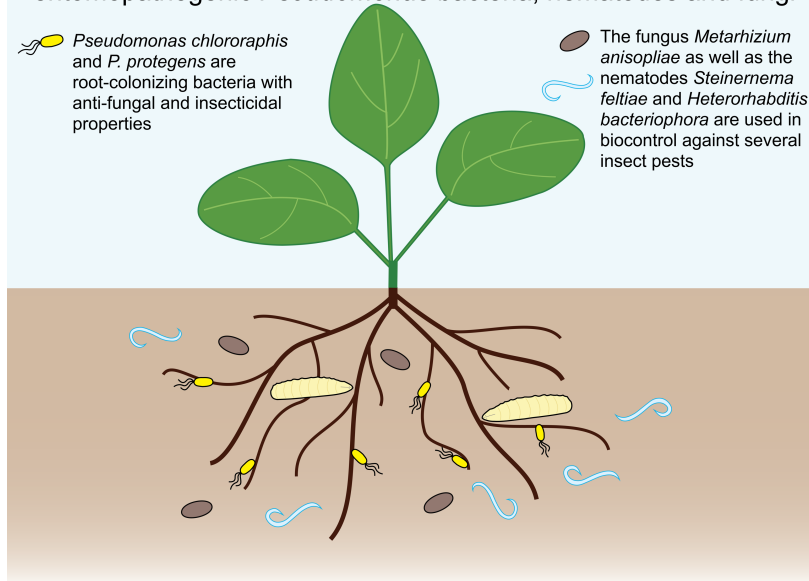
Introduction

- Below ground insect pests are difficult to control because only few effective control methods exist and suitable insecticides are or will be banned due to their negative effects on the environment
- This project aims at developing a new approach for the control of soil-dwelling insect pests compatible with organic production based on the combination of different biocontrol organisms

Life cycle of the cabbage root fly *Delia radicum*



Biological control of the cabbage root fly *Delia radicum* combining entomopathogenic *Pseudomonas* bacteria, nematodes and fungi



Project description

- The cabbage root fly *Delia radicum* causes increasing losses in the production of Brassicacean crops and so far, no satisfactory control measures exist
- The biocontrol potential of a specific group of plant-beneficial fluorescent *Pseudomonas* bacteria with entomopathogenic activity will be evaluated
- Entomopathogenic *Pseudomonas* bacteria (EPP) will be combined with entomopathogenic nematodes (EPN) and entomopathogenic fungi (EPF)

Research questions

- Do insecticidal *Pseudomonas* bacteria efficiently control *Delia*?
- Is it possible to combine *Pseudomonas* bacteria with fungi and nematodes or do they suppress each other in growth/infectiousness?
- Are there synergistic effects when combining EPP with EPN and EPF?
- Experiments in the lab and the field