

Effects of semi-natural habitats on pest insects and natural enemies: the role of habitat quality and spatial distribution

Principal organizers

[Claire Lavigne](#) (INRA-Avignon)

[Armin Bischoff](#) (IMBE)

Session description

Semi-natural habitats in agricultural landscapes provide food resources and shelter to many different arthropod groups. Since several important predators of crop herbivores benefit from these habitats a contribution to biological control as an important ecosystem service seems to be likely. Accordingly, several European countries support the (re-)creation and management of semi-natural habitats through agri-environment schemes. However, the well documented positive effects of semi-natural habitats on the abundance and diversity of natural enemies are not always accompanied by a decrease in crop herbivory. In order to improve ecosystem services a better mechanistic understanding of relations between such non-crop habitats and regulation processes within crop fields, in particular on the relevant spatial scales, is required.

The speakers of the symposium will analyse the role of semi-natural habitats at both field and landscape scale in favouring important predator communities as natural enemies of crop herbivores. Based on studies of populations, communities and interaction networks, they will evaluate how abundance, reproduction, movement and traits of pest and predator groups are affected by features of semi-natural habitats in agricultural landscapes. The analysed habitat features include plant species composition, plant functional groups and spatial distribution patterns. The presented results are obtained by field –based research and modelling approaches. They are crucial to improve agri-environment schemes involving habitat creation and management that will be discussed during the symposium.

Speakers

- [Felix Bianchi](#) (Wageningen University, The Netherlands) Pest–natural enemy interactions in a landscape context – Keynote
- [Philippe Jeanneret](#) (Agroscope Zurich, Switzerland) Predation rate of pests and natural enemies in crops across nine European case studies: the role of semi-natural habitats
- [Aude Vialatte](#) (INP-ENSAT Toulouse) Landscape potential in pollen provisioning for beneficial insects favours biological control in cereal fields
- [Anna Pollier](#) (Agocampus Ouest, Angers) The effect of field margin vegetation on the regulation of crop herbivores in two winter crops
- [Antoine Gardarin](#) (AgroParisTech, Paris/Grignon) Interest of a trait-based approach to understand plant–arthropod interactions in agroecosystems and implications to improve conservation biological control
- [Sandrine Petit](#) (INRA Dijon) Relations between landscape structure, crop management and control of pest insects and weeds
- [Claire Lavigne](#) (INRA-Avignon) Landscape composition and farming practices affect the abundance of the codling moth and its predation and parasitism in apple orchards