

Internship / bachelor or master thesis offer - Understanding and promoting the role of Functional AgroBiodiversity in agroecology

This research takes place within the agronomy department of the University of Liège 'Gembloux Agro-Bio Tech', in the 'Biodiversity and Landscapes' research team.

Summary of the research

Among the major challenges faced by agriculture today lies the reduction of synthetic pesticides and the need to reduce energy-intensive ploughing used to control pests and weeds. In the light of this challenge, interest is shifting from a fuel-intensive agriculture to an agro-biodiversity-intensive agriculture to restore ecological functions such as natural pest and weed regulations. The present project aims at investigating the potential of organic and conservation agriculture, but also their combination, as innovative agroecological practices potentially mobilizing functional agro-biodiversity as compared to conventional agriculture. More specifically, the project focuses on carabid beetle communities in these four types of farming systems and depicts how these ensure the roles of pest (aphids and slugs) and weed seed regulation.

Potential internship activities (to be defined jointly with the student according to his needs, affinities as well as the period and duration of the internship)

- Sampling and identification of carabid communities in the four types of agricultural systems (conservation, organic, conservation and conventional agriculture) using different types of traps;
- Field measurements to assess the provision of ecosystem services provided by beetles. Concomitant to beetle sampling, aphids, slugs and weeds are sampled to assess their abundance and diversity and to provide an overview of their regulation services by beetles;
- Analysis of the correlations between carabid communities and the abundance and diversity of slugs, aphids and weeds in order to determine the role played by carabids in this regulation;
- Clarification of the causal link between the beetle community and the abundance and diversity of pests and weeds by detailing the ecological predation functions performed by beetles using laboratory experiments (dietary behaviour analyses);

Note: The internship cannot be paid, but the costs incurred for the research (e.g. travel to the field) will be reimbursed. The working language can be French or English. Dates: to be discussed between March and December 2020.

For more information or questions, contact f.boeraeve@uliege.be (if interested, send a CV and a reference contact)