





Uncovering the mechanisms behind pest pressure reduction in intercropped fields of winter oilseed rape.

Background:

Winter oilseed rape (WOR) is a very important crop and accounts for about 1/4th of vegetable oil consumption in Switzerland. As this crop grows for nearly an entire year, it has to face many threats and is subjected to many different insect pests throughout its development. Many of these insects have developed an array of resistance mechanisms against insecticides and thus represent a far bigger problem as ever before.

Early testing in Agroscope (Swiss center of excellence for agricultural research) highlighted the potential of cover cropping and intercropping with other plant species as "environmentally friendly" ways to reduce insect pest pressure in WOR fields. The mechanisms underlying such effects are not well-understood and more research should be done, which is where this project comes in place.

Question:

How does intercropping influences oilseed rape metabolome and further affects plant insect interactions?

Techniques / What to expect:

- Secondary metabolite extraction and analysis
- Volatile collection of plants and further analysis using GC-MS (Gas chromatography-mass spectrometry).
- Behavioral assays with insects to uncover potential host choice differences based on the metabolome.

Where:

Agroscope research center, route de Duilier 50, Nyon. Free housing can be provided upon request.

Timeline:

Field work spreads throughout mid-august until mid-may. Ideally the student should start from the beginning of august.

Litterature:

Breitenmoser, S., Steinger, T., Baux, A., & Hiltpold, I. (2022). Intercropping winter oilseed rape (Brassica napus L.) has the potential to lessen the impact of the insect pest complex. *Agronomy*, *12*(3), 723. Zheng, X., Koopmann, B., Ulber, B., & von Tiedemann, A. (2020). A global survey on diseases and pests in oilseed rape current challenges and innovative strategies of control. *Frontiers in Agronomy*, *2*, 590908.