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Bachelor's/Master's Thesis

Topic: *Alternative Fertilizers for Organic Vegetable Production*

Project description:

Organic vegetable farming is highly specialized and usually does not involve livestock farming. As a result, these farms are heavily dependent on external commercial fertilizers, which are often derived from conventional agriculture. European organic sector aims to reduce this dependency and is seeking sustainable alternatives.

As part of the EU project "Upscaling efficient alternatives for contentious inputs in organic farming" (abbreviated: "SCALE-it"), the Center for Organic Farming (309) at the University of Hohenheim is conducting a multi-year scientific vegetable trial in the field.

This main objective of the research project is to evaluate how biological nitrogen fixation (BNF) can be improved through a diverse crop rotation with cabbage, lettuce and onions. It is further tested how nutrient mobilization can be increased growing faba bean (*Vicia faba*) as a winter cover crop and using alternative fertilizers, including biogas digestate, insect frass, and tofu whey.

The focus of this thesis will be on lettuce as main crop.

Objectives of the work

- Investigation of the fertilization effect of alternative fertilizers (insect frass, biogas digestate, and tofu whey) in organic lettuce cultivation.
- Analysis of the carry-over effect of the winter cover crop faba bean (*Vicia* faba) into the following growing season with regard to biological nitrogen fixation.

Location of the trial

- Research station "Kleinhohenheim", University of Hohenheim (https://oeko.uni-hohenheim.de/en/66107), near the campus and easily accessible by bicycle or bus

Time frame:

- Start: Spring 2026
- Main working phase: spring + summer 2026

Requirements

- Interest (and experience) in field work and organic farming
- Reliable and concentrated work
- Availability during the summer months

We offer

- Participation in an international research team
- Insights into a current EU research project