

BSc / MSc thesis or student's job

Experimentelle Bestimmung von Pollenzahl und Pollenvitalität bei der Ackerbohne

Experimental estimation of pollen number and pollen viability in faba bean

*Sprache entsprechend der im entsprechenden Studiengang gültigen Vorgaben
Language according to the valid requirements of the respective study program*

Faba bean (*Vicia faba* L., German: Ackerbohne, Dicke Bohne, Saubohne) is a grain legume that produces protein-rich seeds of high protein quality. It has a positive effect on pollinators and soil fertility and provides optimal soil conditions for the following crop. The German Government's protein crop strategy aims to increase the share of protein crops, especially legumes, in crop rotations from <3 % to over 10 %. However, faba bean suffers from abiotic stresses that affect yield levels and yield stability. Combined heat and drought stress during flowering has a negative impact on yield – a scenario that is likely to become more frequent with climate change. Despite its high yield potential, faba bean is currently not sufficiently attractive and increased breeding efforts are needed to develop climate-resilient faba bean varieties.

As part of the multidisciplinary FABALOUS project (expected start: March 2025), we will grow 24 genotypes of faba bean under irrigated and drought stress conditions, and simultaneous heat stress, in rainout shelters located at the Reinshof experimental station.

The objectives are to estimate the effects of abiotic stress on pollen traits using high-throughput phenotyping.

- Does combined heat and drought stress affect pollen number and pollen viability in faba bean?
- Do the genotypes differ in their stress response to heat and drought in terms of pollen characteristics?



Tasks include:

- Pollen collection and sample preparation (May to June 2025)
- Measurement with impedance flow cytometer (May to June 2025)
- Data analysis (R, Plabstat)

If you are interested in this thesis, please contact:

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