

Department: Agronomy

## Master Thesis

### **Topic:**

Impact of mechanical weed control on N<sub>2</sub>O-emission and nitrogen mineralization in arable soil.

### **Rationale and Responsibilities:**

Mechanical weed control seems to be an environmental-friendly alternative to herbicide application. However, the effect of hoeing on mulch coverage, soil erosion, nitrogen mineralization, earthworms and insects has not been clarified yet. The ongoing project, EvaHerb aims at evaluation and balancing the risks of mechanical and chemical weed control in sugar beets. The goal of this master thesis is to measure the N<sub>2</sub>O fluxes and N-mineralization rate in soil under chemical and mechanical weed control in sugar beets. Field measurements have to be conducted from April till end of June 2021 on a field near Nörten-Hardenberg. Closed-chambers method will be used for gas sampling. N-mineralization will be measured by in-situ field incubation of soil monoliths. A driver`s licence is required for conducting field measurements. The analytical determination of N<sub>2</sub>O concentration in gas samples and NO<sub>3</sub><sup>-</sup> and NH<sub>4</sub><sup>+</sup> in soil eluates will be done by a commercial laboratory /by a cooperation partner and is not included in the responsibilities of the master student. The data collection will take max. 3 months. Finally, the statistical evaluation (preferably with R-Software), interpretation and documentation of the results is required.

By interest please contact Olga Fishkis per email [fishkis@ifz-goettingen.de](mailto:fishkis@ifz-goettingen.de)

**Start:**

01.04.2021

**End:**

01.10.2021

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30.11.2020