

# Bachelor Thesis

## Nitrogen mineralization potential in agriculturally managed organic soils

Organic soils store large amounts of organic matter. Long-term agricultural use of these soils results in subsidence, peat decomposition and mobilization of nitrogen. The released N is of great importance for plant nutrition but also bears the risk of high N losses. To counteract subsidence, Swiss farmers begin to cover their organic soil with layers of mineral material. The changes in biogeochemical conditions of the surface soil induced thereby may affect soil N cycling.

In our research group in Zurich we study these processes on farm and now plan to apply isotopically labeled  $^{15}\text{N}$  fertilizer to trace the N transformation. In the BSc-Thesis, additionally lab incubations with surface soil (0-30 cm) from the experimental site will be carried out to examine changes in soil N mineralization potential in response to mineral soil cover and N addition. We plan to use different treatments, encompassing drained organic soil with and without mineral soil cover in combination with the application of two different  $^{15}\text{N}$  labeled fertilizers. In your work you will carry out lab incubation experiments to quantify the mineral N ( $\text{NH}_4$  and  $\text{NO}_3$ ) release from the soils during incubation to understand how mineral soil cover changes the N mineralization potential of drained organic soils.

### **Start and end month of Thesis:**

Should be six months in 2020 and 2021, ideally October 2020 – March 2021

### **Contact**

**Jens Leifeld, Climate and Agriculture Group, Reckenholzstrasse 191, 8046 Zurich**

e-mail: [jens.leifeld@agroscope.admin.ch](mailto:jens.leifeld@agroscope.admin.ch)

phone: 058 468 7510

[Climate and Agriculture Group](#)