



UNIVERSITÄT
BAYREUTH

Two MSc theses in Agroecology group

Mycorrhizal fungi depend on their host plants for carbon (C) while enhancing nutrient mobilization, particularly nitrogen (N). In nutrient-poor environments, their role in accelerating soil organic matter (SOM) decomposition through nutrient mining is well recognized. However, soil mineral N dynamics and uptake are expected to differ between arbuscular mycorrhizal (AM) and ectomycorrhizal (ECM) tree species. This project aims to investigate changes in mineral N (N_{min}) dynamics and N uptake among tree species with AM and ECM over the summer 2025 and to link N dynamics to root traits and turnover. The project is currently running at the **Ecological Botanical Garden (ÖBG), University of Bayreuth**, where five AM-obligate and five ECM-obligate tree species are being studied in build-in lysimeters setup under field conditions.



In this project which provides hands-on experience in **soil and plant analysis, root imaging, and plant-microbe interactions**, we are offering two MSc theses:

- 1. Soil N dynamics and uptake by trees with different mycorrhizal types: Soil and plant leave sampling will take place every month (April-September) for C and N analysis, along with microbial biomass C and N.***
- 2. Root traits and turnover of AM and ECM trees: This will be done using a sophisticated non-destructive root imaging technique via minirhizotron (MR) camera, also April-September.***

The work will cover both field measurements and laboratory analysis, so basic knowledge of lab work, plant and soil analysis are desired.

- *The MSc theses will be supervised by Dr. Khatab Abdalla and Prof. Dr. Johanna Pausch. If you are interested or need further information, please contact (Khatab.Abdalla@Uni-bayreuth.de).*
- ***Starting date is April, 2025.***