

WANTED: Master student for thesis in Soil Physics

In the context of the RhizoTraits project, we are aiming to investigate whether key rhizosphere traits (e.g., root hairs, exudates, soil structure, mycorrhization) can explain increased resistance and resilience of crops to drought to secure future yields. A maize field experiment conducted in summer 2022 was one step towards exploring this question. We evaluated the performance under field conditions of 12 different maize genotypes expressing differences in drought responsiveness and rhizosphere traits. Drought stress was induced by sheltering half of the plots from rain (see image below).

To understand the mechanisms behind the differences in performance, we would like to apply a mechanistic agro-ecological model called **DAISY** (www.daisy.ku.dk). Very briefly, Daisy is a mechanistic model describing the main physical, chemical and biological processes taking place in agriculture systems (e.g., water flow, mineral and organic N transport, organic matter turnover, crop growth, etc). Ultimately, we would like to simulate transpiration for at least two contrasting maize genotypes and compare it to the transpiration rates measured in the field with sap flow sensors.

Therefore, we are searching a motivated master student looking for a thesis topic, who is enthusiastic about (and in the best case, experienced in) modeling, willing to dive deep into DAISY and able to work independently. All input data will be provided as well as the training in DAISY and individual supervision.



For more information or expressing interest, please contact:

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