

VACANCY FOR MASTER THESIS

Cocoa Biochar Project in Ghana



Biochar application has shown to have the potential to significantly increase crop yields in tropical agricultural systems. Implementation of biochar-based fertilization to smallholder cocoa (agroforestry) systems and other tropical perennial crop systems can contribute to achieving several sustainable development goals. However, no published scientific research exists about the effect of biochar-based fertilization on cocoa crop productivity using field trials. Therefore, the Institute of Tropical Plant Production and Agroecosystem Modelling (TROPAGS) of the University of Göttingen collaborates with the Ithaka Institute for Carbon Intelligence in a research effort since 2020 to deepen the understanding of the agronomic potential of

biochar application in cocoa production systems.

During an on-going field trial launched in October 2020 in Ghana, locally procured biochar was converted into a liquid biochar-based fertilizer and applied directly into the cocoa plant root zone. The trial was set up in mature cocoa plantations in two climatic zones (wet region with nutrient constraints and dry region with water constraints) in Ghana. The cocoa trees have been monitored since the establishment and results on cocoa yields from 2021 are promising.

The monitoring will be continued in the scope of a Master thesis during the main harvest season (November 2022 to January 2023). Therefore, we are looking for a highly motivated MSc student (SIA program) to perform her/his thesis within the project. The main focus of the thesis will be the analysis of cocoa yield quantity and yield quality parameters after the biochar-based fertilizer injection treatment. Furthermore, nutrient analysis of cocoa leaves and cocoa beans and fine root parameters will be measured to gather further insights on the effect of the treatments on cocoa physiology.



The project offers the opportunity to stay several months in Ghana to carry out the data collection.

A thesis specific scholarship can be arranged to support the field stay. The student will learn about cocoa agroforestry systems, cocoa bean processing and local small scale biochar production. Furthermore, the thesis offers the chance to acquire knowledge in methods of fine root assessment and foliar nutrient analysis.

Students should be highly motivated, well organized and committed to work and live in a rural environment in Ghana. Field work is planned for a period of two to three months between October 2022 and January 2023. If individual contributions or research questions arise these may be further discussed.

If this Master thesis offer sound compelling to you, please contact:

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Feel free to email us for any questions about the positions.

More information on the Cocoa Biochar Project: <https://www.uni-goettingen.de/en/636115.html>