



Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Soil and Environment
Erik Karlton

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MSc thesis project: Chemical stability of biochar

Biochar is a solid, charcoal-like residue that can have positive effect on soil fertility in some cropping systems. Biochar can also contribute to negative greenhouse gas emissions in the form of long-term carbon storage. We are currently running a project, funded by the Swedish Energy Agency, where the aim is to learn more about the stability of biochar in soils. The long-term stability of biochar is an important property that we need in schemes that pay farmers for carbon sequestration. To be credible, public and private investments in biochar carbon sequestration need to be built on scientific evidence.

We are looking for a student that is interested to do a thesis where the aim is to find which chemical methods that gives the best approximation of the stability of biochar. The long-term stability of biochar in soil is time and resource consuming to validate by laboratory incubations or field studies. Therefore, we want to find fast but reliable chemical methods that can give a good approximation of biochar stability. Within the project, around ten different biochars will be studied by four to five different chemical treatment methods. The results will be compared with those of more advanced chemical characterization methods and results from long-term incubations of biochar in soils.

The candidate should be interested in experimental chemistry and have some laboratory experience. You will work in a multi-disciplinary research group and interact with researchers with different expertise. We envisage that the job is carried out during spring 2024.

Contact person: Erik Karlton, erik.karlton@slu.se, 070-6901277