

PhD position in Scotland:

EASTBIO: Management changes to mitigate greenhouse gas emissions to reduce climate change impacts on croplands: Theory and implementation

Weblink: <https://www.findaphd.com/search/ProjectDetails.aspx?PJID=135431>

About the Project

The ongoing climate change crisis increases the pressure on humankind to adapt and mitigate for these changes. Agriculture is one of the most critical sectors, as changes will affect food production, which is key considering an increasing world population, contributes with about 10 % significantly to the global greenhouse gas emissions and shows a great potential for negative emissions. Even though that this topic was addressed in several recent studies, there are still knowledge gaps for most suitable strategies, especially for the transition from theoretical understanding to the implementation of the strategies.

Available studies focus on a small number of crops, rarely consider side effects (e.g. impacts on biodiversity), do not consider combined implementation of different management changes, hardly analyse long-term effects and rarely consider a range of target variables (e.g. SOC changes, GHG emissions and yield together with impacts on other environmental variables). Additionally, there is a gap between described measuring, reporting and verification (MRV) protocols and their actual implementation. Finally, there are no solutions for tackling the permanence of strategies, leakage and baseline comparisons for monitoring and controlling impacts of implemented management changes. Therefore, the PhD project will address these gaps and provide solutions for an actual implementation and monitoring of improved management to mitigate climate change. Three aims will be the basis to achieve this objective:

- 1.** Providing an integrative analysis of impacts of mitigation strategies beside the major crops, including side effects (damage and benefits) of the different strategies and including combined applications.
- 2.** Calculate the mitigation potential for different strategies, using modelling approaches, which provides an integrative data set for all relevant variables, including GHG emissions, SOC changes and impacts on yield.
- 3.** Analyse available tools and provide suitable solutions for MRV systems, to close the gap between the optimum scientific solution and a practical, immediate applicable solution.

There is a very high actual interest by the public, from farmers and policy makers on this topic and there is a strong demand for solution on these issues. For the support of the here presented study, this work will be associated with different projects, that will allow international collaboration and knowledge exchange to secure state of the art solutions for the different targets. The work is crucial for using the resource soil for a secure food production and the basis for sustainable agriculture in future.

This will be a 4 year position to complete a PhD at the University of Aberdeen, Scotland (all details below).

Supervisors:

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Application Procedure:

Please visit this page for full application information: <http://www.eastscotbiodtp.ac.uk/how-apply-0>

Please send your completed EASTBIO application form, along with academic transcripts to Alison Innes at smmsn-pgrenquiries@abdn.ac.uk

Two references should be provided by the deadline using the EASTBIO reference form.

Please advise your referees to return the reference form to smmsn-pgrenquiries@abdn.ac.uk

Unfortunately due to workload constraints, we cannot consider incomplete applications