
工作进展

协作网课题团队在国际刊物发表论文

Greenhouse gas mitigation in Chinese agriculture: Distinguishing technical and economic potentials, *Global Environmental Change* 26 (2014) 53–62

Abstract

China is now the world's biggest emitter of greenhouse gases with 7467 million tons (Mt) carbon dioxide equivalent (CO₂e) in 2005, with agriculture accounting for 11% of this total. As elsewhere, agricultural emissions mitigation policy in China faces a range of challenges due to the biophysical complexity, heterogeneity of farming systems, and social-economic barriers. Existing research has contributed to improving our understanding of the technical potential of mitigation measures in this sector (i.e. what works). But for policy purposes it is important to convert these measures into a feasible economic potential, which provides a perspective on whether agricultural emissions reduction (measures) are low cost relative to mitigation measures and overall potential offered by other sectors of the economy. We develop a bottom-up marginal abatement cost curve (MACC) representing the cost of mitigation measures applicable in addition to business-as-usual agricultural practices. The MACC demonstrates that while the sector offers a maximum technical potential of 402 MtCO₂e in 2020, a reduction of 135 MtCO₂e is potentially available at zero or negative cost (i.e. a cost saving), and 176 MtCO₂e (approximately 44% of the total) can be abated at a threshold carbon price \leq ¥ 100 (approximately €12) per tCO₂e. Our findings highlight the important cost-effectiveness of nitrogen fertilizer and manure best management practices, and animal breeding practices. We outline the assumptions underlying MACC construction and discuss some scientific, socioeconomic and institutional barriers to realizing the indicated levels of mitigation.

From rhetoric to reality: farmer perspectives on the economic potential of biochar in China, *International Journal of Agricultural Sustainability*, DOI: 10.1080/14735903.2014.927711

Abstract

Biochar has garnered much attention for its potential to improve farming productivity and sustainability by amending soil, enhancing crop yields, improving fertilizer use efficiency and sequestering carbon. However, few publications consider farmer perspectives on whether biochar is attractive as an agricultural input. This paper therefore investigates the micro-economics and social suitability of biochar in four contrasting Chinese agricultural systems, using linear optimization models and qualitative contextual data. Results demonstrate that commercially produced biochar is uneconomic as an independent farming input, whilst farm-produced biochar shows promise in just one of four case-study sites. This suggests that biochar research in China should shift away from on-farm production and application of pure biochar, towards combined biochar-inorganic fertilizer products.

协作网成员信息

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Dominic Moran 教授近日接替阿伯丁大学 Pete Smith 教授担任协作网气候变化减缓与适应工作组组长。在此感谢 Pete Smith 教授过去五年中对协作网及气候变化工作组的奉献。

Dominic Moran 教授是农业经济学家，就职于苏格兰农学院。他专长农业环境政策的费用效益分析，动物健康和动物福利的非市场评价，政策改革的公众偏好，效益转移的应用等领域。Dominic Moran 教授的最近研究关注农业温室气体减排经济学。



关于 Dominic Moran 教授的更多信息请登录：<http://www.sruc.ac.uk/dmoran>

会议信息

第四届农业土壤固碳与气候变化国际学术研讨会将于 2014 年 9 月 21-24 日在陕西杨凌西北农林科技大学召开。

会议议题

- (1) 不同土壤生态系统温室效应气体释放与减排
- (2) 长期定位试验与土壤碳库转化
- (3) 人为土及固碳作用
- (4) 养分管理与土壤固碳
- (5) 新仪器及方法在土壤碳、氮转化中的应用

关于会议详细信息，请与周建斌教授联系（jbzhou@nwsuaf.edu.cn）。

The 3rd Asian Conference on Plant-Microbe Symbiosis and Nitrogen Fixation (3APMNF) will be held in 28-31 October, 2014, in Chengdu, China.

The sessions of the conference include:

- Bioresource and Genomics
- Plant-Microbe interaction
- Plant Nutrition Associated with Microbial Symbiosis
- Nitrogen Fixation and Nitrogen Cycles
- Legume and Rhizobial Symbiosis
- Biological Control
- Applications for Sustainable Agriculture and Environments
- Entrepreneur: Current R & D of Diverse Inoculation Technologies and Multifunctional Inoculants

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