中英可持续农业创新协作网(SAIN)

UK-China Sustainable Agriculture Innovation Network

简报

2014 年 7-9 月 (总第 20 期)

工作进展

协作网流域科学研讨会在英召开

中英流域科学学术交流研讨会于 9 月 10-11 日在英国湖区召开。来自中国农业部天津环境保护科研监测所，中国农业大学，西北农林科技大学， 伦敦大学亚非学院，兰卡斯特大学，英国地质调查局，东英吉利大学，植物营养咨询，Defra 流域示范秘书处等机构的二十多位代表参会。

参会代表就流域政策与管治、流域尺度物质输移分析、养分与流域科学、农业面源污染防治途径、流域科学中的诊判方法、日光温室养分管理、面源污染防治的技术与制度制约等方面交流了最新的研究进展。代表们还就下一阶段的合作和学术交流充分交换了意见。

中方代表在会后参观了 Eden 示范流域监测站， 访问了英国地质调查局。

本次研讨会是协作网《中英可持续集约化农业养分管理和水资源保护》 课题组的活动之一。这项研究由中国农业部和英国环境、食品和农村事务部（Defra）共同资助。

生物碳课题组会议召开

由赵立欣教授带队， 协作网生物碳课题组成员于 7 月 8-9 日访问英国, 并与英方课题组长 John McDonagh 博士举行会谈。

课题组成员评估了课题的进展状况， 并对下一步的活动进行了安排。赵立欣一行还参观了东英吉利大学的热电联产系统。

这次访问是协作网《生物碳：社会经济与生物环境匹配》课题组的活动之一。这项研究由中国农业部和英国国际发展部共同资助。

论文发表

David Powlson, David Norse, David Chadwick, Yuelai Lu, Weifeng Zhang, Fusuo Zhang, Jikun Huang, Xiangping Jia, **Contribution of improved nitrogen fertilizer use to development of a low carbon economy in China,** *Word Agriculture Vol. 2, No. 2, pp 10-18*

The use of nitrogen (N) and other fertilisers has been one of the keys to achieving food security in China. Grain production almost doubled in China between 1980 and 2010, yet total fertiliser use increased more than four-fold in the same period. This disparity is partly due to changes in cropping, with a large increase in the area devoted to horticultural crops (vegetables and fruit trees) that are given large rates of fertiliser, especially N. But it also reflects the extremely high rates of N application given to a wide range of crops, including cereals. There is overwhelming evidence that rates of N applied to many crops in many regions of China are greatly in excess of the rates required to achieve maximum economic yield. These excessively high rates, combined with inappropriate fertiliser management practices such as timing and method of application, have led to very inefficient use of N and considerable losses to water and air with numerous adverse environmental impacts. A key reason for much of the inappropriate fertiliser management is that many farmers are part-time, with more lucrative income from off-farm work. Thus farm operations are given a low priority, with little incentive to change practices if these involve additional costs, or labour, that interferes with the off-farm work. In this article we review the current situation regarding N ertiliser in China, with an emphasis on the reductions in greenhouse gas emissions that are achievable through changes in both manufacturing and agricultural use. We argue that, although technical innovations have a role, these are only likely to be widely adopted in practice if policy changes are implemented to promote changes in fertiliser manufacturing and on the farm. Necessary changes in policy include changes to the subsidy, originally developed to make fertilisers affordable to farmers in the period before rapid economic development in the country. At the farm level, policies to promote greater professionalism in farming through increasing the size of farms will facilitate more rational use of N. This is possible as large numbers of former farmers move to other work in cities; the Chinese government has policy initiatives in this area through changes in land rental arrangements. Another welcome change would be measures to promote more farmer-oriented approaches to the delivery of technical advice such as the farmer field-school approach, and development of a contractor sector for fertiliser application.

Shelagh Kell, **中国植物多样性对全球粮食安全至关重要**， *中外对话，2014 年 9 月 17 日*

现代农业技术和生产技术、消费者需求以及大型零售业等因素都助长了农作物的单一化发展。而这种发展的负面影响就是减少了基因多样性，作物更容易遭受病虫害和环境压力的影响。

参考先前出版的中国植物学著作（即《中国高等植物名录》和《中国生物多样性红色名录》），再运用先前欧洲研究获得的数据和知识，我们的研究已经列出了 800 多种中国本土野生植物。利用这些物种可以对 28 种在中国乃至全球都非常重要的粮食作物进行改良，使其能够抵御气候变化的不利影响。

值得注意的是，其中 42%的物种是中国独有的，至少有 17%的物种遭受到来自农林间作、基础设施发展以及栖息地丧失和退化的严重威胁，其中 16 种作物属野生近亲。作为中国独有的野生物种，一旦濒危将带来全球性的影响。

中国拥有比欧洲还要丰富的植物种类，而且拥有全球重要粮食作物的 CWR。作为可提供作物改良植物基因资源的国家，中国对于全球具有非常重要的意义。我们已经确定了中国的优先作物野生近缘种以及它们生长的一些热点地区，中国有关部门和利益相关方应尽快制定落实保护战略保证未来的粮食安全。

会议通知

第五届露地蔬菜生产生态施肥策略国际研讨会(ISHS2015)，2015年5月18-22日，北京

会议内容

- 作物生长、营养生理和养分供应；
- 土壤测定与推荐施肥
- 有机物料、土壤肥力及环境健康
- 施肥与作物品质
- 施肥与生态环境
- 根区调控与水肥一体化
- 有机废弃物循环利用及可持续性发展

了解会议详细内容，请登录：
http://ishs2015beijing.csp.escience.cn