

Update

January - March 2016 (No 26)

SAIN (China) held annual meeting

SAIN China annual meeting (2015) was held on 21-23 January. The meeting was attended by Mr Wang Jinbiao, Director, Division of European Affairs, Department of International Cooperation, Ministry of Agriculture; Mr Zhao Yaogui, Director, Division of Technology and Facilities, Department of Science, Technology and Education, Ministry of Agriculture, as well as SAIN Working Groups and Secretariat members.

Mr Wang highlighted the recent development and emerging opportunities in the UK China cooperation in agricultural sciences and technologies. He praised SAIN's achievement in the previous years, and said SAIN is to be upgraded as part of the UK China Joint Commission of Agricultural Cooperation, therefore SAIN needs to reorient itself in order to fit in the new cooperation mechanism between the two countries.

Mr Zhao introduced the new procedures of project application and encouraged SAIN Working Groups to link up with the Ministry's priority programmes when developing further research projects.

The Working Groups and Secretariat reported the activities carried out in 2015. The meeting was chaired by Mr Wang Jinbiao and Prof Tong Yanan.



UK and China Have Launched Two Joint Virtual Centres in Agricultural Nitrogen

Funded by BBSRC through the Newton Fund, two major new Centres between the UK and China officially started on 1st January 2016. The two Centres bring together the leading UK and Chinese researchers to tackle one of the most pressing issues for China's sustainable agriculture intensification and long term food security - improving nitrogen use efficiency (NUE) and reducing environmental impact.

The two Centres will work in partnership with SAIN to disseminate best practices of improved agricultural nitrogen management to a wide range of audiences.

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The Centre for Improved Nitrogen Agronomy (CINAg)

CINAg is led by Dr. Tom Misselbrook at Rothamsted Research (North Wyke) and Prof Fusuo Zhang of China Agricultural University (CAU), with the other UK partner institutes of Bangor University and the Centre for Ecology and Hydrology, and the Chinese research institutes include CAU, Chinese Academy of Agricultural Sciences (CAAS), and Chinese Academy of Sciences (CAS).



CINAg aims to increase the adoption of sustainable nitrogen management practices in China and the UK through: the development of novel indicators of nitrogen use efficiency (NUE) based on metrics of soil health and quality (an improved fundamental understanding of N cycling); the use of these indicators and other emerging knowledge and tools to test practices and systems leading to sustainable intensification (e.g. innovative fertilisers, novel sensors, crop varieties, manure management); the translation of these developments to farmers (e.g. through guidance documents, decision support systems, phone apps).

A number of thematic groups have been established for collaborative research between the UK and China partners including:

1. *Manure management*
2. *Soil health and nitrogen transformations*
3. *Modelling and upscaling*
4. *Innovative fertilisers*
5. *Crop improvements*
6. *Knowledge exchange*

The CINAg receives approximately £3 million from BBSRC and £5 million in co-funding from Chinese sources.

For further information about CINAg, please contact Dr Tom Misselbrook:

tom.misselbrook@rothamsted.ac.uk

N-Circle - Virtual Joint Centre for Closed-Loop Cycling of Nitrogen in Chinese Agriculture



The N-Circle Centre is led by the Prof Pete Smith of the University of Aberdeen, Prof Hongbin Liu of Chinese Academy of Agricultural Sciences (CAAS) and Prof Xiaotang Ju of China Agricultural University (CAU), with UK partners from the University of Cambridge, SRUC, ADAS and the University of East Anglia, as well as nine leading partner institutions from China: Chinese Academy of Agricultural Sciences (Institute of Agricultural Resources and Regional Planning and Agro-Environmental Protection Institute), China Agricultural University, Chinese Academy of Sciences, Nanjing Normal University, Nanjing Agricultural University, Beijing Normal University, Capital Normal University and Zhejiang University.

The N-Circle Centre emphasises on recycling of nitrogen resources and closing the nitrogen cycle. It will create a dynamic and lasting multi-disciplinary hub, with a clear vision, to attract, integrate and harness the relevant skills and expertise from the UK and China, to create infrastructure to

UK-China Sustainable Agriculture Innovation Network (SAIN)

deliver tight agricultural N cycling in China. In particular, environmental, biological and genetic scientists will combine with specialists in agronomic extension to form teams that share and develop a multi-scale approach, implemented through the Cool Farm Tool (CFT) for both commercial and scientific purposes.

N-Circle will deliver its objectives through 8 interlinked working packages:

1. *Systems modelling to develop closed-loop N cycling strategies for Chinese agro-ecosystems*
2. *Enhancing recovery of applied N, both fertiliser & manure.*
3. *Reducing GHG emissions due to N applications*
4. *Maximising legume N fixation and uptake*
5. *Reducing crop N demand*
 - a. *Predicting canopy N demand*
 - b. *Maximising C & N fixation & harvest*
 - c. *Minimising grain N demand*
6. *Reducing end-user demand for N and N excretion*
7. *Optimising land management strategies*
8. *Dissemination.*

The N-Circle receives just under £3 million from BBSRC and over £4 million in co-funding from Chinese sources.

For further information about N-Circle, please contact Prof Pete Smith: pete.smith@abdn.ac.uk

Publication

Journal paper

SAIN project findings were published in *Science of the Total Environment*.

Xiaoyu Liu, Jufeng Zheng, Dengxiao Zhang, Kun Cheng, Huimin Zhou, Afeng Zhang, Lianqing Li, Stephen Joseph, Pete Smith, David Crowley, Yakov Kuzyakov, Genxing Pan (2016): Biochar has no effect on soil respiration across Chinese agricultural soils, *Science of the Total Environment* 554–555 (2016) 259–265. <http://dx.doi.org/10.1016/j.scitotenv.2016.02.179>

Abstract

Biochar addition to soil has been widely accepted as an option to enhance soil carbon sequestration by introducing recalcitrant organic matter. However, it remains unclear whether biochar will negate the net carbon accumulation by increasing carbon loss through CO₂ efflux from soil (soil respiration). The objectives of this study were to address: 1) whether biochar addition increases soil respiration; and whether biochar application rate and biochar type (feedstock and pyrolyzing system) affect soil respiration. Two series of field experiments were carried out at 8 sites representing the main crop production areas in China. In experiment 1, a single type of wheat straw biochar was amended at rates of 0, 20 and 40 t ha⁻¹ in four rice paddies and three dry croplands. In experiment 2, four types of biochar (varying in feedstock and pyrolyzing system) were amended at rates of 0 and 20 t ha⁻¹ in a rice paddy under rice-wheat rotation. Results showed that biochar addition had no effect on CO₂ efflux from soils.

Conference presentation

Yuelai Lu & David Norse, Policy priorities for science in agriculture in China, *Science and policy in food and agriculture, Westminster Food & Nutrition Forum*, 27 January, 2016, London.

Forthcoming event

Newton Agritech Network+ Workshop AN+农业技术需求分析研讨会

Dates: April 28-29, 2016 日期: 2016年4月28-29日

UK-China Sustainable Agriculture Innovation Network (SAIN)

Venue: China Agricultural University, West Campus, Haidian District, Beijing College of Resources and Environmental Sciences, Yuanmingyuan Xi Lu Nr.2

地点: 北京市海淀区圆明园西路2号 中国农业大学西校区资源与环境学院

Organiser主办方: Global Tech IP (GTIP)

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Vacancy

Programme Manager - Agri-Tech Newton Network + In China

Rothamsted Research is seeking a self-motivated and organised programme manager who is up for a challenge. You will help manage the UK-China Agri-tech Newton Network+ which aims to apply UK capability in satellite imaging, remote sensing, smart sensors and modelling to support the development of new solutions for Chinese agriculture under the auspices of the STFC-Newton Fund.

The role will be both challenging and complex as the Network+ aims to reach a wide variety of stakeholders both in the UK and in China. You will help manage the funding of research, training, capacity building and innovation activities (to be undertaken by UK organisations); supervise the work of partners and sub-contractors responsible for building a bilingual online knowledge hub to raise awareness of the needs of the agri-tech sector in China; identify opportunities for UK capability to meet these needs and support the commercialisation of innovations developed through the programme.

Closing date: 29/04/2106

Please read further details at: <http://www.rothamsted.ac.uk/jobs/1493>

For more information about SAIN, please visit: <http://www.sainonline.org/English.html>

If you have any further enquiries, please contact Yuelai Lu at: y.lu@uea.ac.uk