



Welcome to

**Joint International Workshop between
United Kingdom and China**

“Influence of Biochar on Soil Processes and Fertility”

Place: Beijing, China

Date: 2009.10.18 - 20

Conference Notice

on

“Influence of Biochar on Soil Processes and Fertility”

1. Background

IT was known several thousand years ago that charcoal increased soil fertility in tropical Amazon soils. Wim Sombroek, a Dutch soil scientist, first discovered large patches of *terra preta do indio* (Amerindian dark earths) along the Amazon river. This started a multinational research collaboration to investigate the role of humans in its formation and function. The presence of *terra preta* is indicative of previous human habitation, dating from before the arrival of the Europeans. It may form a layer more than six feet deep. It is still uncertain how, when, or to what extent, the native Indian's incorporation of charcoal into the soil became a genuine management practice, rather than the consequence of incidental disposal of household wastes. But clearly a significant proportion of the material has a long mean residence time in soil, of several centuries or longer (**National Geographic**, 2008, 214, 80-107), similar to that of smaller amounts which accumulate naturally in ecosystems subjected to wildfire (Lehmann *et al.* **Nature Geoscience**. 16 Nov. 2008).

PART of the value of *terra preta* may be to fundamentally and beneficially modify the growth and turnover of soil micro-organisms, collectively the soil microbial biomass. The soil microbial biomass is the agent of breakdown of all organic materials that enter soil, mineralising them to the simple inorganic compounds that plants can use again. The entire global cycling of carbon and nutrients thus depends upon the correct functioning of this vital soil population.

CARBON-RICH and charcoal-like, biochar is becoming more available as a by-product of the pyrolysis of plant material to produce liquid biofuels or synthesis gas for power generation. There is growing evidence that this material increases soil fertility in the same way(s) as *terra preta* (Lehmann, **Nature**, 44, 10 May 2007, 143–144). For example, it may permit better establishment of soil microbial communities, or certain key micro-organisms and increase the efficiency of mycorrhizal infectivity. Biochar also helps to sequester carbon, removing it from the global carbon cycle, and so contributes to decreasing the large soil-derived components of other greenhouse gases, including methane. It may also help to increase plant nutrient availability by improving soil structure, water holding capacity and fertilizer use efficiency. Consequently there is now beginning worldwide scientific research into Biochar as a soil amendment. However, little work is being done in China. In order to rectify this, and to enable future priorities for research to be identified, this workshop is both necessary and timely.

2. Workshop Aims

To discuss the importance of Biochars as soil additives to improve soil physical, chemical and biological properties and to mitigate climatic change by carbon sequestration.

Specific topics will include:

- Soil aggregation and other physical properties.
- Soil resilience.
- Soil phosphorus fixation.
- Soil microbial functioning.
- Plant nutrient cycling.
- Crop growth responses.
- Carbon sequestration, greenhouse gas emission and global climate change.

3. Workshop Objective

The ultimate objective is to provide evidence to the Research Councils that a joint Chinese-UK Responsive Mode Research Grant should be funded and based upon the research priorities which are decided upon during our Workshop.

4. Workshop Structure

Sunday, October 18

Arrive and registration

Monday, October 19

9.00 -9.15 Welcome and Introduction

9.15 -10.00 Keynote lecture 1

10.00-10.45 Keynote lecture 2

10.15 – 10.30 Coffee

10.30 -12.00 Voluntered lectures (20 mins)

12.00 – 13.30 Lunch

13.30 – 15.00 Volunteered lectures (20 mins).

15.00 -15.15 Tea

15.15 – 17.00 Rotating Round-Table Discussions

17.00 -18.00 Group Discussion.

19.30 Group dinner/social evening.

Tuesday, October 20

9.00 – 10.40 Volunteered lectures (20 minutes)

10.40 – 11.00 Coffee
 11.00 -12.00 Voluntered lectures (20 mins)
 12.00 – 13.30 Lunch

13.30 – 16.00 field tour: visit CAU biochar field experiment
 16.00 -17.00 Group discussion and future collaborations.
 17.00 Finish

5 Host organizations

China Agricultural University (CAU)
 Natural Science Foundation Committee (NSFC) of China

6 Conference cost and registration fee

The host organisations provide accommodation for foreign participants during their stay in Beijing, including airport pickup and send off, room and all dinners cost.

7 Contact persons

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Return receipt

(please send back by Email before 31, August, 2009)

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