



## October 2010 News from the International Biochar Initiative

29 October 2010

### IBI Participates in the International Symposium on Environmental Behavior and Effects of Biomass-derived Charcoal Hangzhou, China

An international symposium focusing on the environmental behavior and effects of biochar was held in Hangzhou, China, from October 9–11, 2010. Approximately 80 people attended this conference, coming from China, Japan, North America, New Zealand, Australia and Europe. IBI Board Vice Chairman Stephen Joseph and IBI Executive Director Debbie Reed both attended, and made presentations at the symposium.



The main objective of this symposium was to provide a platform for people involved in biochar research and development and commercialization to exchange information and ideas in areas relating to environmental science, geochemistry, biology, soil science, policies related to utilization of biochar to mitigate the negative effects of climate change, and biochar technology development. An equally important objective was to promote further worldwide research collaboration and enhance communication among those in the biochar community, and to develop sustainable carbonization technology for biochar production.

The host organizations were the College of Environment and Resources, Zhejiang University; China National Research Center of Bamboo; China Key Laboratory of Non-point Source Pollution Control, Ministry of Agriculture, the People's Republic of China; and the State Key Laboratory of Soil and Sustainable Agriculture, Chinese Academy of Sciences, the People's Republic of China. The conference was sponsored by the China National Science Foundation and the Blue Moon Fund.

Topics covered during the conference included:

--Biochar production and new products: biomass sources, residues and co-products recycling; efficient and low-consumption carbonization technology for biochar;

--Biotic and geochemical behavior of biochar: physico-chemical characterization (structural recalcitrance and functionalities); biological properties; biotic and abiotic oxidation of biochar in soil; biochar quantification in the environment;

--Carbon trading and convention on climate change: carbon sequestration; greenhouse gas accounting and emissions trading; commercialization and related policy issues;

--Environmental effect of biochar on soil ecosystems: agronomic evaluations and effects on soil C dynamics; biochar effects on soil nutrient transformations and leaching; sorption of organic compounds.

To read the remainder of this story, and see papers and posters as they are made available by their authors, please see:

[www.biochar-international.org/china2010](http://www.biochar-international.org/china2010).

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## Practitioner Profile: All Power Labs LLC and the Biochar Experimenter's Kit

All Power Labs is an incubator of open-source technology for gasification and pyrolysis. APL manufactures and distributes a Biochar Experimenter's Kit (BEK) and a Gasifier Experimenter's Kit (GEK), offered in several versions ranging from a package of cut sheet steel parts ready for welding to completely assembled units with full instrumentation. True to their open-source claims, All Power Labs also makes the CAD (Computer Aided Design) files for the parts available for free downloading.

The company is housed at an artist work space called "the Shipyard" in an industrial area of Berkeley, California (United States), and borrows its open source philosophy from the culture of information technology. Using 21st century desktop manufacturing technologies like a computer guided plasma cutter, they perform what company founder Jim Mason calls "DIY power hacking." Computer modeling of combustion processes remains such a complex problem, Mason said, that it is faster and easier to just cut new parts out of metal and try them in fast build and test cycles. The design advances quickly because all the information is open source, and anyone can participate and offer improvements. People can be authors of their own power systems similar to the way that desktop publishing and the Internet created the information revolution.



For the remainder of this story, please see:

<http://www.biochar-international.org/AllPowerLabs/BEK>

*Photo: BEK Unit at All Power Labs; courtesy of Kelpie Wilson*

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## Biochar 10-10-10 Report



On October 10, 2010, citizens from around the globe organized and participated in Global Work Party events to find solutions to the climate crisis. These events were coordinated by [www.350.org](http://www.350.org). More than 25 Biochar 10-10-10 events were organized around the world. Some of the highlights include educating a high school in India about biochar soil amendments and stoves; planting mango trees with biochar in Ghana; demonstrations of pyrolysis in Australia, Brazil, Germany and the US; and a globe-spanning webinar that discussed all aspects of biochar. Please read all the reports and see all the pictures at <http://www.biochar-international.org/Biochar10.10.10Reports>.

Photo: The Nubians Renewal Organization prepares to plant 50 mango trees with biochar in Bukunor-Asesewa, Ghana; Courtesy of Dr. Osires Ettu Bondy Nubians Renewal Organization.



### IBI is on Facebook

To facilitate sharing ideas and stories about Biochar 10-10-10, IBI has set up a [Facebook page](#). Please come and visit us there.

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## Biochar Briefs - News Roundup for October 2010

The Ballina Shire Council in NSW, Australia is considering building a plant to turn greenwaste into electricity and biochar using a *thermal conversion process developed by Pacific Pyrolysis*: <http://www.ballinaadvocate.com.au/story/2010/10/05/council-prepares-to-lead-the-field-in-biochar-inno/>

*Chip Energy demonstrates a biochar making furnace* in Rockford, Illinois (USA): <http://www.rstar.com/businessrockford/x241583171/Displays-at-Rockford-bioenergy-show-nurture-new-green-ideas>

*A partnership that includes Flux Farm Foundation* is using biochar to help restore old mining sites in Aspen, Colorado (USA): <http://www.aspendailynews.com/section/home/142813>

*Iowa State (USA) has a demonstration project* to pave a bike trail with a pyrolysis by-product: <http://www.sciencedaily.com/releases/2010/10/101006145049.htm>

*Borgford Bioenergy LLC has re-opened* a lumber mill in Washington State, USA where they plan to produce biochar and bio-oil: <http://www.statesmanexaminer.com/content/view/37839/1/>

*Biochar made the official US NASA website* this month with a handy Do-It-Yourself article on how to get started in biochar: <http://www.nasa.gov/topics/nasalife/features/biochar.html>

*Celebrity chefs are now using biochar* to grow tastier vegetables as reported here: [http://www.huffingtonpost.com/regina-varolli/international-chefs-congress\\_b\\_745638.html](http://www.huffingtonpost.com/regina-varolli/international-chefs-congress_b_745638.html)

*Biochar 10-10-10 events got some good news coverage including:*

*Green Pyrolyzer Gasifer demonstration* in Gainesville, Florida: [http://www.alligator.org/news/campus/article\\_50622658-d5ae-11df-b4bb-001cc4c03286.html](http://www.alligator.org/news/campus/article_50622658-d5ae-11df-b4bb-001cc4c03286.html)

*All Power Labs workshop:*

[http://www.huffingtonpost.com/kelpie-wilson/post\\_1050\\_b\\_760217.html](http://www.huffingtonpost.com/kelpie-wilson/post_1050_b_760217.html)

*Biochar BBQ demonstration:*

<http://motherjones.com/blue-marble/2010/10/barbecues-bio-char-climate-change>

We update the website daily with new articles on biochar. For more information, please see:

<http://www.biochar-international.org/newsbriefs>

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## Looking for biochar photos? Have photos you want to share?

The Biochar Photo Group on Flickr <http://www.flickr.com/groups/biochargardens/> allows users to post high quality photos for sharing. You decide how to share your photos by choosing options from full copyright to various types of Creative Commons licensing. IBI often gets requests from news reporters for high quality images -- posting your photos in the Biochar Flickr Group is a good way to make them available to news media. Check out the site now for photos from the Terra Preta field trip in Brazil, making biochar, and adding biochar to soils.

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## New IBI Intro to Biochar videos on YouTube

IBI has created and posted three short videos to serve as general introductions to biochar—focusing on technology, biochar in soils, and what constitutes biochar. They are posted on YouTube and the IBI website—we encourage you to download them and use for educational purposes. You can find the films, as well as other materials and publications, at:

<http://www.biochar-international.org/publications/IBI#videos>

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## Regional Biochar Group Updates

To read more on regional and national biochar groups, please see IBI's website at: [www.biochar-international.org/network/communities](http://www.biochar-international.org/network/communities). This month includes an update from the South East Asian Biochar Interest Group and the Illinois Biochar Group (United States).

### The South East Asian Biochar Interest Group

The School of Sustainable Agriculture, Universiti Malaysia Sabah has begun a research project titled "Maize Response to Soil Amended with Biochar and Inorganic Phosphorus Fertilizer". The primary objectives of this study are (i) to examine the effect of rice husk biochar on the growth and yield of maize grown on a Malaysian mineral soil fertilized with triple super-phosphate fertilizer and (ii) to determine maize phosphorus uptake. This is a final year research project by Thien Nyuk Yen under the supervision of Dr Mohamadu Boyie Jalloh. For more information on this project, contact Dr. Jalloh directly ([jallohmb@yahoo.com](mailto:jallohmb@yahoo.com)).

As part of the 'Enabling Bio-innovations for Poverty Alleviation in Asia Project', funded through IDRC-CRDI ([www.bioinnovationpolicies.ait.asia](http://www.bioinnovationpolicies.ait.asia)); a workshop will be held on Biochar Production and Uses, Monday 22nd - Tuesday 23rd November 2010, at Angkor Village Resort, Siem Reap, Cambodia. The meeting will discuss the current state of biochar production and use in Cambodia, and will explore the potential for development of new technologies – both large and small scale, with a particular focus on gasification cook stoves. Issues for consideration to policy makers, and prototype guidelines for sustainable biochar deployment as an agricultural soil amendment will be discussed. Day 1 will be discussions and presentations, and day 2 will be optional field trips to biochar agricultural field trials, a commercial gasification unit, and a visit to a biochar stove production area including demonstrations. For more information on this event and to register, please see: <http://www.biochar-international.org/node/2029>.

### **The Illinois Biochar Group (United States)**

The Central Illinois Biochar group recently reorganized and is now known as the Illinois Biochar Group. The new coordinator is Nancy Holm, who is the Sponsored Research Coordinator at the Illinois Sustainable Technology Center (ISTC) at the University of Illinois in Urbana-Champaign. The new website for the group <http://www.biochar.illinois.edu/> is currently under construction.

The Illinois Biochar Group encourages research in the production and use of biochar. For example, research and development is needed to establish standardized biochar production methods and to understand how to produce biochar suitable for agricultural use so that it is beneficial and does not have any adverse effects on crops or the environment. Further research is needed to assess the impact of biochar on soil ecology and processes. We also hope to inform and educate others about biochar and its potential for applications in agriculture and site remediation and in carbon sequestration as well as about bio-oils which are produced in the pyrolysis process of making biochar. For more information, please see: <http://www.biochar-international.org/regional/illinois>.

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## **Upcoming Calendar Highlights**

31 October - 2 November - 2010 Geological Society of America (GSA) Annual Meeting; including biochar symposium; Location: Denver, CO, USA; More information: <http://www.geosociety.org/meetings/2010>

9 November – 2nd Annual Summit: Climate Change: Agricultural Solutions, Adaptation and Mitigation; Location: University of Illinois Urbana-Champaign, USA; More information: <http://www.biochar-international.org/node/2065>

10 – 12 November - The Quivira Coalition's 9th Annual Conference: The Carbon Ranch: Using Food and Stewardship to Build Soil and Fight Climate Change; Location: Albuquerque, New Mexico (USA); More information: <http://www.biochar-international.org/node/1813>

17 – 18 November - International Conference on Standards for Sustainable Agriculture and the Mitigation of Climate Change; Location: Bern, Switzerland; More information: <http://www.biochar-international.org/node/1981>

19 November – Online Workshop: Biochar's Role in Biomass Power Generation; More information: <http://www.biochar-international.org/node/2045>

22 - 23 November – Workshop on Biochar - Production and Uses; Location: Angkor Village Resort, Cambodia; More information: <http://www.biochar-international.org/node/2029>

22 - 23 November – National Consultation on Biochar and Carbon Emission Reduction (NC - BCER); Location: Pune, India; More information: <http://www.biochar-international.org/node/2044>

29 November - 10 December – United Nations Climate Change Conference, COP 16; Location: Cancun, Mexico; More information: <http://unfccc.int/2860.php>

2 - 3 December – Biomass Renewable Energy Conference; Location: Miami, FL (USA); More information: <http://www.biochar-international.org/node/2031>

See the [IBI Calendar page](#) for more events. To add an event to the calendar, send the information to [info@biochar-international.org](mailto:info@biochar-international.org).

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## Australian Journal of Soil Research Publishes Biochar-Specific Edition

Sixteen papers on biochar have been published this month in the Australian Journal of Soil Research by CSIRO Publishing. This special journal issue (Volume 48, number 6&7) contains proceedings from the 1st Asia-Pacific Biochar Conference, held May 2009 in Gold Coast, Australia. The papers in the Special Issue cover a wide scope of biochar topics, including biochar characterization, application in the field and impacts on crop productivity, estimation of C sequestration potential, effect of biochar on contaminants, and processes occurring in the soil-biochar interface. For a full list of papers and more information, including a link to the preface, please see:

<http://www.publish.csiro.au/nid/84/issue/5422.htm>

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## Recently Published Biochar Research

IBI tracks all published research on biochar and includes it in our online bibliography: [www.biochar-international.org/biblio](http://www.biochar-international.org/biblio). The following articles were added in the last month. Please visit the website bibliography for more information on any of these articles. Due to copyright, we cannot provide full copies of articles unless we have permission from the publisher. If you have published work that is not included, please email us at: [info@biochar-international.org](mailto:info@biochar-international.org).

Blackwell, P., Krull, E., Butler, G., Herbert, A., Solaiman, Z., 2010. Effect of banded biochar on dryland wheat production and fertiliser use in south-western Australia: an agronomic and economic perspective. *Australian Journal of Soil Research* 48, 531-545.

Chen, Y., Shinogi, Y., Taira, M., 2010. Influence of biochar use on sugarcane growth, soil parameters, and groundwater quality. *Australian Journal of Soil Research* 48, 526-530.

Chia, C.H., Munroe, P., Joseph, S., Lina, Y., 2010. Microscopic characterisation of synthetic Terra Preta. *Australian Journal of Soil Research* 48, 593-605.

Dharmakeerthi, R. S., Chandrasiri, J. A. S., and Edirimanne, V. U. 2010. Use of charcoal as a soil amendment in rubber (*Hevea brasiliensis*) plantations: Effectiveness in young budding polybagged plants, In: *Proceedings of the Third Symposium on Plantation Crop Research - Stakeholder Empowerment through Technological Advances* (Eds. R. S. Dharmakeerthi and A. M. W. K. Senevirathna). Sept. 30-Oct. 01, 2010, Colombo, Sri Lanka, Rubber Research Institute of Sri Lanka. 179-188.

Fuertes, A.B., Arbestain, M.C., Sevilla, M., Macia-Agullo, J.A., Fiol, S., Lopez, R., Smernik, R.J., Aitkenhead, W.P., Arce, F., Macias, F., 2010. Chemical and structural properties of carbonaceous products obtained by pyrolysis and hydrothermal carbonisation of corn stover. *Australian Journal of Soil Research* 48, 618-626.

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Jansson, C., Wulfschleger, S.D., Kalluri, U.C., Tuskan, G.A., 2010. Phytosequestration: Carbon Biosequestration by Plants and the Prospects of Genetic Engineering. *Bioscience* 60, 685-696.

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- Krull, E., Singh, B., Joseph, S., 2010. Preface to Special Issue: Proceedings from the 1st Asia-Pacific Biochar Conference, 2009, Gold Coast, Australia. *Australian Journal of Soil Research* 48, I-iv.
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