

April 2010 News from the International Biochar Initiative



28 April 2010

IBI 2010: September 12 - 15, Rio de Janeiro, Brazil

Conference organizers from IBI and Embrapa are busy planning the 3rd International Biochar Conference, IBI 2010, to be held September 12 - 15, 2010 in Rio de Janeiro, Brazil. We received over 185 abstracts for presentations which the science committee will use to form the conference agenda to be announced early June; in addition, seven keynote session speakers have confirmed:



Prof. Antony Bridgwater, Aston University, UK: Biochar production and new products. Biomass sources, residues and co-products recycling. Management of emissions, wastes, and byproducts from biochar

Prof. Heike Knicker, IRNAS-CSIC, Sevilla, Spain: Characterization of fresh and aged biochars. Physico-chemical characterization of structural recalcitrance and functionalities

Dr. Evelyn Krull, Scientist, CSIRO Land and Water, Australia: Biochar quantification in the environment

Dr. Beáta Madari, Scientist, Embrapa Rice and Beans, Goiânia, Brazil: Biochar amendments to soils. Agronomic evaluations and effects on soil carbon dynamics

Dr. Luca Montanarella, Action Leader in SOIL European Commission - Joint Research Centre, Institute for Environment and Sustainability Land Management/SOIL action: Sustainability, certification and legislation

Prof. Saran Sohi, University of Edinburgh, Scotland: Climate change mitigation value and potential

Prof. William Woods, University of Kansas, USA: Terras Pretas de Índios: state of the art

Poster Abstract Submissions Extended: The conference organizers have decided to keep open the submission for poster presentations. If you have not yet submitted an abstract and wish to do so for a poster presentation, please see: www.IBI2010.org for more information.

Registration will open soon with special discounts for IBI members. Be sure to register by July 15, 2010 to get an early discount registration price.

Sponsorship: We are pleased to announce that the conference already has 5 confirmed sponsors (to be announced soon). If your organization is interested in sponsoring the conference, please see www.IBI2010.org for more details.

Excursion to the Amazon to visit Terra Preta Sites: The conference organizers are investigating a number of different options for a technical excursion planned immediately after the conference. We are looking for your input in planning this event. Please take a short 2 minute survey to provide us feedback:
www.surveygizmo.com/s/287040/technical-excursion-ibi-2010

Practitioner Profile: World Stove: Transforming Haiti and the World

WorldStove founder Nathaniel Mulcahy has just completed two months of work in Haiti, setting up a pilot project that will provide biochar-producing stoves and jobs for the Haitian people. The project was featured in an [Earth Day press release](#) from the UN Special Envoy to Haiti (former President Clinton) as an example of "building back better" by incorporating environmental sustainability in the recovery effort.

Before WorldStove, Mulcahy was an award-winning industrial designer creating consumer products for large corporations like Emerson Appliances. Eight years ago, while lying in bed recovering from a life-threatening accident, he realized that he needed to focus his energies on innovative designs to improve the quality of life for people who were less fortunate. The result was his invention of the fuel efficient, low emissions LuciaStove, named after the canine companion who saved his life.

The original breakthrough that set the LuciaStove apart from similar gasifier stoves was Mulcahy's patented design which uses Bernoulli-principle-driven venturis to create a negative pressure while a flame cap based on Fibonacci spiral geometry prevents oxygen from entering the pyrolysis chamber (this is the shape emblazoned in the World Stove logo). The combination delivers better air control for cleaner combustion of the gases produced from the biomass it uses as fuel. It also produces a nitrogen gas charged biochar (the stove excludes oxygen but not nitrogen) that has a nearly neutral pH (7-7.5) making it ideal for many agricultural applications. To read the remainder of this profile, please see: www.biochar-international.org/profiles/worldstove.



Photo: The blue flame indicates that the Haiti Lucia stove is burning cleanly and efficiently; courtesy of World Stove

Julie Major's Presentation at the World Peoples' Conference on Climate Change and Mother Earth Rights - Cochabamba Bolivia, April 19 - 22, 2010

On Thursday April 22, IBI Extension Director Julie Major took part in the side event, "Necessary steps to save the planet", with a presentation on biochar as a way to remove carbon dioxide from the atmosphere while gaining benefits to agriculture. IBI's preliminary analysis shows that biochar has the potential to remove a gigatonne or more of CO₂ per year from the atmosphere while adding much-needed carbon to soil. Julie explained that soils throughout the world already contain varying amounts of biochar from natural sources such as grassland and forest fires and that historically, agriculture has depleted soils of carbon. Putting carbon back in soils in the form of biochar will help mitigate climate change, but the greatest agricultural benefit will be realized if biochar is added to soils that are lowest in carbon.

Update on work by IBI's Biochar Definition and Characterization Workgroup

In October 2009, IBI announced the formation of a workgroup led by Julie Major to define and characterize biochar. The current list of participants in this effort includes 56 representatives from 9 countries. The goal of the workgroup is to present working documents relating to the sustainability of biochar systems on a cradle-to-cradle basis, the safety of pyrolysis units, characteristics which much be measured in biochar materials and appropriate methods to measure these characteristics. Thanks to input from the workgroup, there has been a fairly constant back and forth discussion on the definition of biochar. IBI found that the definition of biochar must be linked to a system for characterizing the material if it is to be relevant and useful to a nascent biochar industry. Based on these findings, IBI put together a funding proposal to the Blue Moon Foundation to fund ongoing work with biochar certification which has been approved.

At this time, workgroup members are discussing which characteristics must be measured in biochar materials, in order to adequately evaluate whether a biochar is safe for application to soil, whether it will sequester C on the long term, and whether it has the potential to improve soil fertility. Right now it is not possible to fully validate the value of such characteristics against field data, since no experiments have been published where several biochar materials with contrasting characteristics were tested, in various soils. IBI's plans for certifying biochar, and progress made to date, will be presented at the USBI conference in Ames, IA in June and at the IBI 2010 conference in Rio de Janeiro in September 2010.

Register now for Biochar2010: U.S. Biochar Initiative Conference



The Conference will be held at Iowa State University in Ames, IA June 27 - 30, 2010.

Check the conference website, www.biochar2010.org, for updates regarding the program, speakers, exhibitor and sponsorship opportunities.

More Results from the IBI Member Survey

Last month we reported on preliminary results of the IBI Survey of members and prospective members. This month we finish up our report with a small sample of the responses to the open ended questions below:

1. What do you feel is the most important benefit you receive or could receive from being a member of IBI?

-To be part of an international network that will share scientific and technological information in the field of biochar.

-Valid scientific information as opposed to over-hyped "success" stories and theories of what could work.

-Actual how-to information to help people, especially farmers, get started with creating biochar.

-More people contact me for biochar work.

-Access to the minds of other members - technical expertise and information about research and projects taking place around the world.

-To have a voice in the development of standards for quality in biochar production.

-IBI conferences.

-The sense of fulfillment from knowing that I am a leader in one of the most important efforts of all time.

-I don't see any particular benefit to being a member because all of the information on the website is available to everyone. However I believe that the mission of recognition of carbon negative biochar systems for carbon credits is worth supporting.

2. What do you think of current IBI activities?

The agricultural benefit for a tropical country like mine is vast. IBI bringing this to focus as an earth saving revolution is highly commendable...IBI activities are very crucial especially for food security, and water problems.

-The COP15 events were excellent with many attendants and a great panel.

-I want to see a more modern website... establish a list serve.

-I appreciate the notice of career, research, and grant opportunities regarding biochar.

-I think IBI has done great work with minimal resources so far. I hope that with more resources this will get even better. The conferences have been GREAT.

-I don't understand the emphasis on conferences. It does not seem to help me get a pyrolysis machine to use on my farm.

-Please keep it effectively "big tent" don't become a trade association

-All that you do is helpful and appreciated - I wish you were twice as big and moving twice as fast

For more information including responses to what members think IBI should engage in for 2010, please see the IBI website at: www.biochar-international.org/blog/survey

IBI Website Highlight: Biochar in the News

IBI tracks all news stories of biochar and posts article links on our website at: www.biochar-international.org/newsbriefs. We have noticed that since we started tracking articles featuring biochar, both the amount of publications and the status of articles has increased significantly.

One example is a recent Voice of America article on Senegal featuring Pro-Natura's work with biochar in rural farming communities. To read this full article, please see: www.biochar-international.org/VOA/Senegal.

Recently Published Biochar Research

IBI tracks all published research on biochar and includes it in our online bibliography: 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.

Hossain, M. K., Strezov V., Chan K. Y., and Nelson P. F. "Agronomic Properties of Wastewater Sludge Biochar and Bioavailability of Metals in Production of Cherry Tomato (*Lycopersicon esculentum*)." *Chemosphere* 78 (9) (2010): 1167-1171

Ro, K.S., Novak, J.M., Bae, S., Flora, J., Berge, N. "Greenhouse gas emission from soil amended with biochar made from hydrothermally carbonizing swine solids [abstract]." American Chemical Society National Meeting, March 21-25, 2010, San Francisco, Cali fornia

Terrestrial Carbon Group. "Roadmap for Terrestrial Carbon Science Research Needs for Carbon Management in Agriculture, Forestry and Other Land Uses." 2010. Available at : www.biochar-international.org/terrestrialcarbonreport

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. This month includes a new regional initiative: Alaska Biochar (United States), as well as updates from New Zealand, South East Asia, and Biochar Northeast (United States).

New Zealand Biochar Research Center

In April, 2010, New Zealand hosted the first meeting of the Global Research Alliance on Agricultural Greenhouse Gas Research. This initiative arose from the COP15 discussions in Copenhagen in Dec 2009. The Alliance has 29 member countries. This meeting was the first to set priorities and divide national responsibilities. On Saturday, April 10th, 2010, Massey University including the New Zealand Biochar Research Centre hosted a tour party of delegates who were being shown some of the New Zealand research activity on agricultural greenhouse gas mitigation. For more information on the NZBRC, please see: <http://www.biochar-international.org/regional/nz>.

South East Asia

The Biochar Malaysia Workshop 2010 was held from the 25 - 26 March 2010 at Universiti Kuala Lumpur MICET (www.micet.edu.my) and co-sponsored by IBI and Kusocom Concept Farms Sdn Bhd. Participants from as far as UK (Sarah Carter from the UK Biochar Research Centre, Edinburgh (<http://biocharinnovation.wordpress.com>)) joined in to listen and discuss topics on soil and harbor sediment remediation with activated char (Dr Gerard Cornelissen and Dr Sarah Hale, NGI, Norway; www.ngi.no), biochar funding opportunities and activities in the

SE Asia region (Trevor Richards, consultant) as well as theory and practice of physico-chemical biochar characterization methods (Dr Robert Bachmann). Another highlight included first hand witnessing of biochar production using Paul Anderson's TLUD (<http://servalsgroup.blogspot.com/2009/05/tlud-gasifier-stoves-wood-stove-with.html>) and NASMECHs (www.nasmech.com.my/Product.html) carbonator.

For more information on the conference (including links to presentations), please see the [University of Kuala Lumpur website](#).

More information on the South East Asia Biochar Group is available at: www.biochar-international.org/regionalgroups/southeastasia.

Alaska (United States)

A new group has formed in the State of Alaska in the United States to focus on biochar trials in the far north. You may wonder if we can grow food in Alaska. The answer is "yes" we have a short growing season but we have very long days in the summer. Currently, we have 15 hours and 58 minutes of day light. The soil is thawing and growers are getting ready to start their planting for this growing season. Alaska soils are silty soils derived from glacial loess and glacial fed river sediment. These soils have low nutrient content and organic matter which is due to low decomposition rates because of cool temperatures. Additives to the soil are really important for plant growth and provide new ways for improving soil fertility through sustainable farming practices. This is a major interest among farmers in the state.



This summer we are going to start our first biochar trial with the University of Alaska Fairbanks in the Delta Junction area which is a major agricultural area in the state, and with a resident in the village of Ruby which is located in the interior part of the state in the Yukon-Koyuk watershed. For more information about this initiative as well as updates on the biochar trials, please see: www.biochar-international.org/regional/alaska.

Photo of wheat fields in Delta Junction courtesy of Sunny Castillo

Biochar Northeast (United States)

On April 11, 2010 the Board of Directors met and resolved to change Northeast Biochar Association, Inc to Biochar Northeast, Inc. We're pleased to announce that this name change is now official.

The Board felt the need for the name of the organization to more closely reflect our primary emphasis on Biochar, our web domain and our mission of Advancing the Ethical use and Creation of Biochar. We are building a regional organization to advance this important and hopeful work and we encourage your participation and membership. For more information on the group, please see: www.biochar-international.org/regional/northeast.