



News from the International Biochar Initiative

IBI is a non-profit organization supporting researchers, commercial entities, policy makers, farmers & gardeners, development agents and others committed to sustainable biochar production and use.

Help put the Earth **Back in the Black**

30 November 2011

Thanks to All Who Commented on the IBI Guidelines for Specifications of Biochars

The 4-week public review and comment period for the most recent draft version of the IBI Guidelines for the Specifications of Biochars closed on November 15. This phase of the guideline development process, which began in September, 2010, has encompassed a formal process of drafting and revising Guidelines to define and specify the material properties of biochar, and laboratory tests for these properties. The Guidelines are intended as voluntary, international guidelines that can be used by any local, national, or regional body that wishes to adopt them as the basis for any regulatory or standards regime to advance the commercialization of biochar by providing market and consumer confidence and certainty in the biochar product.

IBI received more than 50 comments and suggestions from individuals and groups of reviewers during this latest public comment period. This input is a critically important part of the process of developing the Guidelines in a manner that is global, inclusive, and transparent, and helps to ensure that they will be useful in building broad public acceptance of biochar as a well-understood material that is safe to apply to soil for agricultural purposes.

Currently, IBI and its consultant, Leading Carbon, Ltd, are compiling and categorizing the many excellent comments and suggestions that were submitted, and summarizing the technical and structural issues that must be resolved in order to produce a revised Guidelines document. We are very thankful for the thoughtful and in-depth work that reviewers have put into their comments to date, which are likely to result in significant changes to the draft Guidelines document.

Due to the nature of the comments and the proposed changes to the Guidelines, we anticipate the need for an additional public comment period before finalizing the Guidelines. This, together with the upcoming December holiday period in many countries, will effectively extend the timeline for completion of this work. We anticipate sending the compiled comments to technical working group experts this week, to help resolve some of the technical and structural issues brought up in the most recent review process, and intend to issue another draft document in January 2012, for a final round of public comment. Upon conclusion of that comment period, a final draft of the Guidelines will be issued for a final vote by IBI members on adoption of the Guidelines; this will likely occur in February 2012.

To read the latest draft of the guidelines and a more in-depth history of the process, see: <http://www.biochar-international.org/characterizationstandard>.

Please make sure that you can participate in the balloting by ensuring that your IBI membership dues are up to date. If you have any questions about your membership, [please contact Lourdes Haro](#).

Are You Interested in Joining the IBI Advisory Committee?

The IBI Advisory Committee is a voluntary group of IBI members that helps IBI ensure that we put out the most relevant, timely, and accurate information on biochar. The Advisory Committee is a review board for IBI materials and Advisory Committee members are available to answer specific questions from IBI staff and reporters doing biochar stories. Advisory Committee members also serve as advocates for IBI. We usually reach out to the Advisory Committee members once every two months on average with a review request, all of which are strictly voluntary. Advisory Committee members serve a term of 18 months; the next term will be from January 1, 2012 to July 1, 2013.

If you are interested in joining the IBI Advisory Committee, please submit your name, email, institution, institution size, gender, country, language(s) spoken, committee focus (see below) and brief bio to [Thayer Tomlinson](#), IBI Communications Director, by December 10, 2011. Committee focus areas allow us to tailor our review requests to Committee member specialty areas and include (you may choose as many as you like): Biochar Policy; Biochar Production/Technology/Classification; Biochar Utilization/Use in Soils; Biochar Commercialization; and Socio/Economic Evaluation.

Please note, you must be a current dues-paying IBI member (or a developing country professional member) to serve on the Advisory Committee. For more information on joining IBI, please see:

www.biochar-international.org/join.

Profile: Sustainable Biochar in the Pacific Northwest Region of the US

A commercial fisherman, organic farmer and inventor, John Miedema first came across biochar about five years ago when he was researching better ways to clean up effluent from a dairy manure digester. Miedema grew up around dairy farms and he remembers how the manure cesspools would foul the streams. He wanted to do things differently and he figured charcoal would work well as a filter and perhaps also serve as a substrate for beneficial microbes that would help retain nutrients. Researching “charcoal” and “manure,” he found that native Amazonians had discovered this technique thousands of years ahead of him.



Miedema quickly realized that biochar could not only make a dairy operation more sustainable, it could also help with climate change. The reality of climate change had come home to him years earlier when he was working as a commercial fisherman. “We started catching some really strange fish – I could see that the ocean was changing,” he said.

In 2009, Miedema started the Pacific Northwest Biochar group and organized a meeting at Oregon State University followed by a conference at the Pacific Northwest National Lab, which brought many researchers and biochar entrepreneurs together to share information and ideas. Because sustainability is his number one concern (“I have children who need to have a future,” he said), Miedema and his wife, Tracy, started drafting Sustainability Protocols for biochar. Tracy serves on the National Organic Standards Board (NOSB), giving her a strong background for this effort. The current version of this document is posted on the [IBI Sustainability page](#).

[Click here for the remainder of this story.](#)

Photo: John Miedema and his 100 pound per hour, biomass-powered biochar retort system installed at Thompson Timber Company in Philomath, Oregon, USA; courtesy of John Miedema.

Biochar Briefs: News Roundup for November

We update the website daily with new articles on biochar. For more information, please see: <http://www.biochar-international.org/newsbriefs>

Australia

[The Australian government is expected to announce \\$2 million in competitive funding grants for biochar research](#) as part of the Carbon Farming Initiative in support of the new carbon trading scheme that has now been successfully passed through both houses of the Australian parliament. Federal Agriculture Minister Joe Ludwig said the Biochar Capacity Building Program (BCBP) would support research and identify opportunities for landholders to generate credits that can be sold in domestic and international carbon markets.

Brazil

[A group of agronomists in Brazil found eight sites of Indian black earth \(Terra Preta do Indio\)](#) in the Arc of Deforestation, a region of the Amazon that covers Acre to Maranhao. The discovery was made during the collection of soil samples for a study of land suitability in the southern state of Amazonas. The team hopes to provide information to assist in strategic planning of land use of natural fields in the Amazon region.

Canada

[11 Virgin Earth Challenge finalists were announced](#) at the Global Clean Energy Congress 2011 in Calgary, Canada. Three of the finalists are biochar companies: Biochar Solutions, Full Circle Biochar, and Black Carbon.

Germany

[The Bernstorff family is the largest forestland owner in Northern Germany and they are planning a large biochar field experiment](#) as part of a comprehensive program to return the land to ecological production without using pesticides or synthetic fertilizers.

[The European Commission \(EC\) approved funding for 183 new projects under the LIFE+ program](#), including the AlternativeBiomass4Energy project in Germany that will investigate a new approach for converting digester wastes into biochar.

[Winemakers in the Ihringen region of Germany will be importing a mobile pyrolysis unit](#) from Australia to convert waste from the vines to biochar to improve the vineyard soils.

[The Rheinhessen juwi group works with all kinds of renewable energy](#) including wind, sun and bioenergy. They are also a partner in the much talked about Palaterra biochar pilot project.

Ghana

[Agricultural experts in Ghana are calling on their government](#) to explore ways to involve local agriculture in the global carbon market. Dr Edward Yeboah said that greater use of biochar could help to retain soil nutrients, increase soil aggregate stability and increase grain yield.

Italy

[The south of Italy has great potential for both bioenergy](#) and for restoring its carbon depleted soils with biochar. "Biochar is 'the weapon of the new agriculture,' but it has much in common with the methods of our grandparents," says Nunzio Ingiusto.

[The Bebi Project in Italy, a partnership](#) between universities, research centers, and NGOs, led by the University of Udine, is designing and testing pyrolytic cook stoves for Togo, Sierra Leone. and Ghana.

United Kingdom

[Andreas Hornung, head of the European Bioenergy Research Institute](#) based at Aston University in the UK, has been honored as a Green Leader. Professor Hornung is overseeing the development of new £16.5m engineering laboratories at Aston University to showcase and develop renewable low carbon technologies including projects that will produce biochar.

United States

[University of Minnesota researchers are working with master gardeners](#) through the school's extension service to test the viability of biochar as a commercial product for home gardeners. The program is funded as part of a five-year, \$25 million multistate grant from the USDA's National Institute of Food and Agriculture.

[Iowa State University researchers working on biofuels and bio-based products](#) such as biochar are building a new Biorenewables center that is a complex of several buildings; additionally, they are receiving an influx of research funding from several different sources.

[A 33-member National Panel for a Carbon Negative Economy](#) has been established by researchers at Iowa State University. The panel recently met for the first time in Chicago. Participants represented universities, companies, federal agencies, and NGOs, including the Massachusetts Institute of Technology, ConocoPhillips, the National Renewable Energy Laboratory and the International Biochar Initiative.

[Biochar Solutions, a Colorado company](#), has been chosen as a finalist in the Virgin Earth Challenge.

[Scientists at the U.S. Department of Agriculture \(USDA\)](#) are leading the way in learning more about biochar and will soon know enough to develop “designer” biochars targeted for specific soils.

[Save the Redwoods League is working with partners](#) to protect 50,635 acres of redwood forest in a remote coastal area of northern California. The group intends to sell carbon credits and set up an experimental biochar site in the forest.

[Students in Virginia are building biochar kilns for local farmers](#) as part of their senior thesis project. This year’s project will integrate heat for a greenhouse as part of the design.

[2011 ASA/SSSA/CSSA Meeting Report Highlighting Biochar Presentations](#)

By Dr. James Amonette, Pacific Northwest National Laboratory

[The 2011 ASA/SSSA/CSSA](#) (American Society of Agronomy/Soil Science Society of America/Crop Science Society of America) annual meeting held October 16-19, 2011 in San Antonio, TX featured nearly 60 presentations and posters that involved biochar. More than half of these were concentrated in three oral biochar-focused sessions and 20 presentations were recorded and are available on-line at the meeting website (specific links are embedded below).

[The first oral session represented the debut of the “Biochar Community”](#) within the recently restructured American Society of Agronomy and was held on Tuesday October 18th. Twelve speakers covered a variety of topics ranging from impacts of biochar on soil physical properties (compaction, water infiltration) to sorption of chemical species (soil nutrients, heavy metals, and pesticides). There was a talk on the impacts of weathering on soil GHG potentials. In addition, there were a few talks that focused on the varying biochar chemical and physical properties as a function of feedstock and production conditions. Overall, the session was well attended with an average of 70-80 participants.

[The first business meeting of the ASA Biochar Community](#) was held immediately following the above mentioned morning session.

[Click here to read the remainder of this conference report.](#)

Opportunities in Biochar

Opportunities in Biochar showcases announcements for the public to apply for funding, jobs, publications, conferences, etc. These announcements are also posted on the IBI website in two places: Biochar Updates and the Member Bulletin Board.

- Host the next Asia Pacific Biochar Conference; Nominations **due December 1**. For more information, please see: <http://www.biochar-international.org/node/2898>.
- Call for Award Nominations: National Resources Defense Council (NRDC) Growing Green Awards: Nominations open until **December 9**. For more information, please see: <http://www.biochar-international.org/node/2945>
- Submit Abstract for Conference: 2012 Biochar Workshop: from Science to Stakeholders (New Zealand); deadline **December 16**. For more information, please see: <http://www.biochar-international.org/node/2905>.
- Letter of Intent of Grant: US DOE SBIR Funding Opportunity for Clean Biomass Cookstove Technologies; the letter of intent is due **December 20**. For more information, please see: <http://www.biochar-international.org/node/2918>
- Submit Abstract for Conference: 20th European Biomass Conference and Exhibition (June 2012, Milan Italy): Paper submission deadline **Jan 30, 2012**. For more information, please see: <http://www.biochar-international.org/node/2953>
- PhD Student Opportunity: Australian Agency CSIRO has a PhD scholarship opportunity in "Enhancing fertility in sandy soils using Biochar and Protected Diffusion Zones". For more information, please see: <http://www.csiro.au/partnerships/SAF-Postgrad-Scholarships.html>.
- PhD Student Opportunity: Japan Society for the Promotion of Science is looking for Ph D. students to work in Japan. For more information, please see: <http://www.jsps.go.jp/english/e-fellow/postdoctoral.html#short>
- Submit Abstract for Conference: The European Geosciences Union General Assembly 2012 will have a session on biochar for soil remediation and global warming mitigation (Vienna, Austria from 22 – 27 April 2012). For more information, see: <http://www.biochar-international.org/node/2904>.

New job opportunities and PhD postings are updated at:

<http://www.biochar-international.org/network/jobs>

Upcoming Calendar Events

- December 5 – 9: Pyrogenic Carbon: Modern cycling and Paleo-environmental applications session at the 2011 Fall AGU meeting, San Francisco, CA, USA; more information: <http://www.biochar-international.org/node/2661>.
- December 8 – 9: 2011 International Symposium on Biochar for Climate Change Mitigation and Soil and Environmental Management; location Biochar Research Center (BRC) at Kangwon National University, Korea; more information and conference agenda at: <http://www.biochar-international.org/node/2837>.
- December 10 – 11: Hands on Biochar Workshop; location Dunedin, New Zealand; more information: <http://www.biochar-international.org/node/2796>.
- January 16 – 18, 2012: Pacific West Biomass Conference & Trade Show, San Francisco, CA, United States; more information: <http://www.biochar-international.org/node/2691>.

- February 9 – 10, 2012: 2012 Biochar Workshop: from Science to Stakeholders; location Massey University Palmerston North, New Zealand; more information: <http://www.biochar-international.org/node/2905>.

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

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 features a new regional group, UBI Siam (Thailand), and includes updates from SeaChar (United States), Biochar Northeast (United States) and the Pioneer Valley Biochar Initiative (PVBI) (United States).

UBI Siam (Thailand)

UBI Siam is a new group in Thailand that is a sib-project of the UBI concept that is testing and adapting biochar's potential to aid in sustainable rural development in the particular culture/environment types in Thailand. The work is done in consultation with local community members as part of their programs. After an initial period of testing selected adaptations of biochar production and application under local conditions, the program will transition to a communities-mentoring-communities phase.

A number of entities, including Raitong Organics Farm, the Thai Biochar Initiative, ECHO Asia, Upland Holistic Development Project, International Sustainable Development Studies Institute and UB International have joined together in this informal consortium. Some of the entities have already begun aspects of this work and UBI Siam welcomes all other entities that would join in these efforts or programs of their own. For more information, please see: http://www.biochar-international.org/regional/UBI_Siam.

SeaChar (United States)

SeaChar's Estufa Finca Project in Costa Rica has been very busy training promoters, installing stoves, and most excitingly buying back biochar from cooks who use our stoves! Thanks to a generous grant from National Geographic the project has an opportunity to take this mission to a whole new level and build something that can save lives and restore the local and global environment.

The 2011 Global Giving Winter Challenge is a way to be directly involved in supporting this work. This is a contest from now to December 31st and the more donations that SeaChar is able to raise, the more rewards they qualify for—including bonus money. For more information on this Challenge, please see: <http://www.biochar-international.org/node/2975>.

Biochar Northeast (BCNE) (United States)

BCNE has recently unveiled a new website to highlight its programs and services, specifically conducting public education and professional training activities; helping growers adopt the technology and incorporate biochar into their practices; educating biochar users and producers and the general public about biochar issues; and working with partners to promote, develop and

improve methods that achieve successful, ethical biochar production and use. For more information, please see: www.biocharnortheast.org.

Pioneer Valley Biochar Initiative (MA, United States)

The PVBI is working with a graduate student, Nataliya Kulyk, to write a study on biochar including a survey of local farmers. Additionally, forestry biochar trials on a local woodlot are underway, and PVBI is distributing samples from a large delivery of Canadian biochar to local users for evaluation and plot trials. They are awaiting delivery of an Adam retort from New England Biochar in order to start production work. For more information on the PVBI, please see: <http://pvbiochar.org>.



Recently Published Biochar Research

IBI tracks all published research on biochar and includes it in our [online bibliography](#). 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](#).

- Awad, Yasser Mahmoud, Blagodatskaya Evgenia, Ok Yong Sik, and Kuzyakov Yakov (2011). Effects of polyacrylamide, biopolymer, and biochar on decomposition of soil organic matter and plant residues as determined by ¹⁴C and enzyme activities. *European Journal of Soil Biology*.
- Barrow, C. J. (2011). Biochar: Potential for countering land degradation and for improving agriculture. *Applied Geography*, May 2012, Volume 34, p.21-28.
- Belyaeva, O. N., and Haynes R. J. (2011). Comparison of the effects of conventional organic amendments and biochar on the chemical, physical and microbial properties of coal fly ash as a plant growth medium. *Environmental Earth Sciences*.
- Eastman, Christopher Mark (2011). Soil Physical Characteristics of an Aerobic Ochracaulous amended with Biochar. *Environment and Natural Resources*. Volume Degree Master of Science, p.134.
- Ennis, Christopher J., Evans Garry A., Islam Meez, Ralebitso-Senior Komang T., and Senior Eric (2011). Biochar: carbon sequestration, land remediation and impacts on soil microbiology. *Critical Reviews in Environmental Science and Technology*.
- Hale, Sarah E., Hanley Kelly, Lehmann Johannes, Zimmerman Andrew, and Cornelissen Gerard (2011). The effects of chemical, biological and physical aging as well as soil addition on the sorption of pyrene to activated carbon and biochar. *Environ. Sci. Technol*, 11/2011.
- HARIS, Mas Rosemal Hakim MAS, WAHAB Nor Aimi ABDUL, RENG ChongWan, AZAHARI Baharin, and SATHASIVAM Kathiresan (2011). The sorption of cadmium (II) ions on mercerized rice husk and activated carbon. *Turk J Chem*, Volume 35, p.1 – 12.
- Hemings, Barker E., Ranzi E., Smith K., Bennadji H., and Fisher E. M. (2011). Kinetic Analysis of Biochar Formation During Biomass Pyrolysis. XXXIV Meeting of the Italian Section of the Combustion Institute.

- Islami, Titiek, Guritno Bambang, Basuki Nur, and Suryanto Agus (2011). Biochar for sustaining productivity of cassava based cropping systems in the degraded lands of East Java, Indonesia. *Journal of Tropical Agriculture*, Volume 49, Number 1-2.
- Jones, D. L., Rousk J., Edwards-Jones G., DeLuca T. H., and Murphy D. V. (2011). Biochar-mediated changes in soil quality and plant growth in a three year field trial. *Soil Biology and Biochemistry*. 11/2011.
- Masek, Ondrej, Brownsort Peter, Cross Andrew, and Sohi Saran (2011). Influence of production conditions on the yield and environmental stability of biochar. *Fuel*.
- Taghizadeh-Toosi, Arezoo (2011). Ammonia and nitrous oxide emissions from soils under ruminant urine patches and the effects of biochar amendment on these emissions and plant nitrogen uptake. Doctor of Philosophy, Lincoln University.
- Teixidó, Marc, Pignatello Joseph J., Beltrán José L., Granados Mercè, and Peccia Jordan (2011). Speciation of the Ionizable Antibiotic Sulfamethazine on Black Carbon (Biochar). *Environmental Science and Technology*.
- Unger, Rachel, and Killorn Randy (2011). Effect of the Application of Biochar on Selected Soil Chemical Properties, Corn Grain, and Biomass Yields in Iowa. *Communications in Soil Science and Plant Analysis*. 10/2011, Volume 42, Issue 20, p.2441-2451.
- Utomo W. H., Kusuma Z., and Nugroho W. H. (2011). Soil fertility status, nutrient uptake, and maize (*Zea mays* L.) yield following biochar and cattle manure application on sandy soils of Lombok, Indonesia, Sukartono. *Journal of Tropical Agriculture*, Volume 49, Number 1-2, p.47-52.
- Vaccari, F., Baronti S., Lugato E., Genesio L., Castaldi S., and Fornasier F. (2011). Biochar as a strategy to sequester carbon and increase yield in durum wheat. *European Journal of Agronomy*. Volume 34, Number 4, p.231-238.
- Weyers, Sharon L., and Spokas Kurt A. (2011). Impact of Biochar on Earthworm Populations: A Review. *Applied and Environmental Soil Science*.
- Yaghoubi, Poupak, and Reddy Krishna R. (2011). Characteristics of Biochar-Amended Soil Cover for Landfill Gas Mitigation. 2011 Pan Am CGS Geotechnical Conference, 10/2011.