



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**

November 2013 News from the International Biochar Initiative

IBI Approves First IBI Certified Biochar: Cool Planet Energy Systems' Cool Terra™ Biochar

IBI is pleased to announce the certification of the first biochar material in our recently launched [IBI Biochar Certification Program](#). [Cool Planet Energy Systems](#), a California-based developer of small-scale bio-refineries for the conversion of non-food biomass into biofuels and biochar, can now utilize the *IBI Certified Biochar Seal™* on its Cool Terra™ biochar product.

To achieve certification, Cool Planet submitted an application for Cool Terra™ biochar that met all of the conditions of the *IBI Biochar Certification Program*, including passing all of the physicochemical testing requirements specified by the [IBI Biochar Standards](#)—the foundation for IBI Biochar Certification. The approval of Cool Planet's biochar signals that leading industry organizations recognize the market value in providing assurances to biochar end-consumers through the display of the *IBI Certified Biochar Seal™*. "This is a key milestone in the fledgling biochar industry, and an important step in IBI's development of standards and certification of biochars to promote market certainty," said IBI's Executive Director, Debbie Reed.

IBI's certification program—the first of its kind globally—is a voluntary, self-certifying program created and administered by IBI. It enables biochar manufacturers to certify that their product meets industry-accepted standards and is safe and effective for use as a soil amendment. The *IBI Biochar Certification Program* is fully automated and accessible via IBI's website, allowing biochar manufacturers to register, apply, and submit all required documentation online.

Phase 1 of the *IBI Biochar Certification Program* is being implemented with biochar manufacturers in the United States and Canada. IBI is actively exploring the expansion of the *IBI Biochar Certification Program* to other regions in the future and we will keep our membership abreast of developments.

For further information on Cool Terra™ biochar and Cool Planet Energy Systems [please click here](#).

Upcoming Public Comment Period on Policy Revisions to *IBI Biochar Standards*

As reported in last month's newsletter, IBI is working towards the first policy revision of the *Standardized Product Definition and Product Testing Guidelines for Biochar That Is Used in Soil* (aka the *IBI Biochar Standards*). In addition to technical program revisions in the upcoming Version 2.0 of the *IBI Biochar Standards* made by IBI staff, we solicited and received significant input on several potential policy revisions from an expert panel comprised of biochar researchers and laboratory testing professionals. We are now compiling expert comments and, based on consensus of the panel, will be adjusting existing or formulating new policies for issues related to

biochar sampling, post-processing and weathering. IBI will be requesting input from the public on these issues during a 30-day open comment period which we will announce widely in the coming weeks.

Business and Organization Member Profiles

A listing of all current IBI [Business](#) and [Organization](#) Members can be found on our website. For more information on membership opportunities and benefits, or to join, please see: <http://www.biochar-international.org/join>. Please note, Business and Organization descriptions are submitted by each individual entity, and are not developed or written by IBI.

Business Member Renewal: Carbon Gold

Carbon Gold is the world's leading biochar company. We supply value-added biochar products, biochar-making kilns, and project expertise internationally. Sales of our biochar-based 'GroChar' products are increasing year-on-year. Our expanding range of economical biochar-making kilns are designed for mobility, high efficiency, and ease of use. Our unique low-temperature charring process can transform a wide variety of feedstocks into high-value biochar or charcoal with attractive yields. The kilns recycle and burn the charring gases so emissions are greatly reduced compared to ring or pit kilns. Please get in touch to discuss how we could help with your project.



For more information, please contact Simon Manley or Seb Burn at info@carbongold.com or see www.carbongold.com. Follow us on Twitter @CarbonGold.

New IBI Jobs Position: Member Services Coordinator

Are you interested in biochar? Are you looking for a rewarding, impactful job from home? Do you have a strong background in database management and significant experience using web-based content management tools along with some basic writing and proofreading skills? Do you enjoy communicating with others? If so, please take a look at an exciting new job with the International Biochar Initiative: Member Services Coordinator. This position will be responsible for maintaining a responsive and positive relationship with IBI's members and helping them use the IBI social network and get access to IBI member benefits.

If this sounds like a good fit for you, please email us a cover letter describing your experience in these three areas (listed in order of importance):

1. database management
2. customer or member relations
3. content review and layout (any experience with writing, proofreading, graphics, layout, design)

Tell us why you would be a good fit for this job. Send the cover letter and your resume to Shiva Scotti at 4IBIJobs@gmail.com by **December 1** and [click here for a full job description](#). Please note, cover letters **MUST** be included—any resume submitted without a cover letter addressing all 3 of the points above will not be considered.

Report from 2013 Bari, Italy Biochar Conference

The BCD2013 International Conference (Biochars, Composts, Digestates)/2013 International Biochar Conference held October 17 – 20, 2013 in Bari, Italy recorded 224 participants from 44 countries. Overall, the event had 14 separate oral presentation sessions with over 90 oral presentations and 110 poster presentations. The conference program in full is available on the IBI website at: http://www.biochar-international.org/sites/default/files/Bari_2013_final_program.pdf. At this time, there are no presentations available for download, but a group of volunteers is working with IBI to collect conference presentations to make them available to the public on the IBI site. Once these are available, IBI will post an announcement.

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

Australia's Northern Territory contains large plantations of African mahogany and Indian sandalwood, and also, thousands of hectares of land infested with woody weeds. Those working in the area believe biochar may be an excellent solution to create a beneficial by-product for the plantation's trimming wastes as well as an opportunity to utilize the woody weeds in the area. Says environmental scientist, Azain Raban: "Woody weeds are a huge problem in the Territory, and because we now have mobile biochar machines, you could take the machine to where the weeds are and utilise them on site." (link to: <http://www.abc.net.au/news/2013-11-06/turning-weeds-into-biochar/5071570>)

Tasmania is well known throughout Australia for using mainly water and wind to power businesses and homes. The state is also looking at adding biofuels to its energy mix by converting food crop residues, weeds and sewage into liquid or gaseous fuels for transport, electricity, and heat. Strategists are suggesting that if biofuel production is developed, biochar be incorporated to a large extent to improve croplands in the area. (link to: <http://www.abc.net.au/news/2013-11-22/agribusiness-biochar-tas/5111096>)

United States

The United States Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA) recently announced that Cool Planet Energy Systems and the Bioenergy Alliance Network of the Rockies will receive a \$10 million grant to develop feedstocks for bio-refineries from pine bark beetle-killed wood in the Rocky Mountains. It is estimated that pine bark beetles have infested more than 42 million acres of timber with more than half of the infestation being in Colorado, Idaho, Montana, and Wyoming. (link to: <http://www.pollutiononline.com/doc/usda-bioenergy-alliance-network-rockies-receive-biofuels-wood-0001>)

The Sonoma Ecology Center and its partners have received a grant from the USDA and additional funds from the Sonoma County Water Agency to launch a biochar project. The \$75,000 Conservation Innovation Grant (CIG) from the USDA will be matched by the Sonoma County Water Agency to provide enough funding to purchase an Adam Retort to create biochar. (link to: <http://www.sonomanews.com/sonoma-ecology-center-gets-biochar-project-grant/>)

Opportunities in Biochar

- New job postings can be accessed at: <http://www.biochar-international.org/network/jobs>. New jobs have been recently posted with IBI as well as Carbon Gold.

- Looking for potential grant funding? Check out the Terra Viva Grants Directory which develops and manages information about grants for agriculture, energy, environment, and natural resources in the world's developing countries at: <http://www.terravivagrants.org/Home>.
- Submit a presentation abstract to a Biochar Symposium entitled “*Biochar Soil Amendment for Environmental and Agronomic Benefits*” at the 20th World Congress of Soil Science: due November 30th. For more information, please see: <http://www.biochar-international.org/node/4493>.
- Submit a presentation abstract to the 2nd Mediterranean Biochar Symposium: due November 30th. For more information, please see: <http://www.meditbiochar.org/index.html>.

Upcoming Calendar Events

- January 16 - 17, 2014: 2nd Mediterranean Biochar Symposium. Location: Palermo, Italy. For more information: <http://www.meditbiochar.org/the-symposium.html>.

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 the 55 regional and national biochar groups, please see IBI's website (link to: <http://www.biochar-international.org/network/communities>). This month includes updates from the South East Asia Biochar Interest Group—specifically the ECHO Asia Impact Center in Thailand.

The [ECHO Asia Impact Center](#) in Chiang Mai, Thailand has been researching and promoting biochar since 2011 for its potential role in soil improvement. Biochar seems especially well-suited to offer positive soil building properties and climate change mitigation strategies for smallholder farmers in Asia.

In August of 2012, ECHO Asia began conducting a 3-year randomized complete block field experiment to test the effects of biochar on plant health and growth at the ECHO Asia Seed Bank in Mae Ai, Thailand. Four raised beds (8m X 90cm) made out of cement bricks and filled with local soil were utilized, and experimental units (four per bed, measuring 1.5m X 90cm with 50cm buffer space) were physically separated with plastic lined cement bricks to prevent migration of nutrients, biochar, and earthworms.

Bamboo char was made from *Dendrocalamus strictus* using a 55-gallon drum TLUD. Treatments were: 1) control soil without amendments, 2) soil with compost added; 3) soil with biochar added; and 4) soil with biochar added (equal parts of biochar and hog manure compost left to age for 3 months). For more information on this project, please see: [http://www.biochar-international.org/sites/default/files/ECHO Asia Biochar Initiatives.pdf](http://www.biochar-international.org/sites/default/files/ECHO%20Asia%20Biochar%20Initiatives.pdf).



Photo: Biochar from *Dendrocalamus strictus*, courtesy of ECHO

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 infringement laws, 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](#).

Ahmad, Mahtab; Sang Soo Lee; Jung Eun Lim; Sung-Eun Lee; Ju Sik Cho; Deok Hyun Moon; Yohey Hashimoto; Yong Sik Ok (2013). Speciation and phytoavailability of lead and antimony in a small arms range soil amended with mussel shell, cow bone and biochar: EXAFS spectroscopy and chemical extractions. Chemosphere.

Bayabil, Haimanote K.; J.C. Lehmann; Birru Yitferu; C. Stoof; T.S. Steenhuis (2013). Hydraulic properties of clay soils as affected by biochar and charcoal amendments. Rainwater management for resilient livelihoods in Ethiopia;
<http://cgspace.cgiar.org/bitstream/handle/10568/33929/NBDCtechReport5.pdf?sequence=1#page=104>.

Beneski, Valentina Machinas (2013). Evaluation of Biochar for Reduction of Nitrogen Compounds in Stormwater Remediation Systems. A thesis submitted to the Faculty of the University of Delaware;
http://udspace.udel.edu/bitstream/handle/19716/12813/Valentina_Beneski_thesis.pdf?sequence=1

Betts, Aaron Raymond; Ning Chen; Jordan Graeme Hamilton; and Derek Peak (2013). Rates and mechanisms of Zn²⁺ adsorption on a meat and bonemeal biochar. Environ. Sci. Technol.

Case, Sean Daniel Charles (2013). Biochar amendment and greenhouse gas emissions from agricultural soils. The University of Edinburgh; <https://www.era.lib.ed.ac.uk/handle/1842/8049>.

Chen, Jie; You Yang Wang; Jun Hui Wu; Hui Ping Si; Kai Yan Lin (2013). The Research of Biochar Adsorption on Soil. Applied Mechanics and Materials (Volumes 448 - 453).

Do, Xuan-Huong; Byeong-Kyu Lee (2013). Removal of Pb²⁺ using a biochar–alginate capsule in aqueous solution and capsule regeneration. Journal of Environmental Management. Volume 131.

Hottle, Ryan Darrell (2013). Quantifying the impact of biochar on plant productivity and changes to soil physical and chemical properties on a maize soybean rotation in the US. Doctor of Philosophy, Ohio State University, Environmental Science;
https://etd.ohiolink.edu/ap:10:0::NO:10:P10_ACCESSION_NUM:osu1374064522.

Islami, T.; Kurniawan, S.; Utomo, W. H. (2013). Remove from marked Records Yield stability of cassava (*Manihot esculenta* Crantz) planted in intercropping system after 3 years of biochar application. American-Eurasian Journal of Sustainable Agriculture. Vol. 7 No. 4 pp. 349-355.

Jaiswal, Amit Kumar; Yigal Elad; Ellen R. Graber; Omer Frenkel (2013). Rhizoctonia solani suppression and plant growth promotion in cucumber as affected by biochar pyrolysis temperature, feedstock and concentration. Soil Biology and Biochemistry.

Jiang ZX; Zheng H; Li FM, Wang ZY (2013). Research progress on biochar carbon sequestration technology. 34(8):3327-3333.

Junna, Sun; Wang Bingchen; Xu Gang; Shao Hongbo (2014). Effects of wheat straw biochar on carbon mineralization and guidance for large-scale soil quality improvement in the coastal wetland. *Ecological Engineering*. Volume 62, Pages 43–47.

Kong, Lu-Lu; Wei-Tao Liu; Qi-Xing Zhou (2014). Biochar: An Effective Amendment for Remediating Contaminated Soil. *Reviews of Environmental Contamination and Toxicology*. Volume 228, pp 83-99.

Li, Feiyue; Xinde Cao; Ling Zhao; Fan Yang; Jianfei Wang; Shuwei Wang (2013). Short-term effects of raw rice straw and its derived biochar on greenhouse gas emission in five typical soils in China. *Soil Science and Plant Nutrition*.

Li Y; Li FM; Zhang XW; Wu ZF; Yu H (2013). Effects of biochar covering on the release of pollutants from sediment. *34(8):3071-3078*.

Ma, J., Wilson, K., Zhao, Q., Yorgey, G., & Frear, C. (2013). Odor in Commercial Scale Compost: Literature Review and Critical Analysis. Washington State Department of Resources; <https://fortress.wa.gov/ecy/publications/publications/1307066.pdf>.

Oleszczuk, Patryk; Izabela Josko; Barbara Futa; Sylwia Pasieczna-Patkowska; Edward Palys; Piotr Kraska (2013). Effect of pesticides on microorganisms, enzymatic activity and plant in biochar-amended soil. *Geoderma*.

Paz-Ferreiro, Jorge; Shenglei Fu; Ana Méndez; Gabriel Gascó (2013). Interactive effects of biochar and the earthworm *Pontoscolex corethrurus* on plant productivity and soil enzyme activities. *Journal of Soils and Sediments*.

Rees, F.; M. O. Simonnot; J. L. Morel (2013). Short-term effects of biochar on soil heavy metal mobility are controlled by intra-particle diffusion and soil pH increase. *European Journal of Soil Science*.

Rousk, J.; D. N. Dempster; D. L. Jones (2013). Transient biochar effects on decomposer microbial growth rates: evidence from two agricultural case-studies. *European Journal of Soil Science*.

Rutigliano, F.A.; M. Romano; R. Marzaioli; I. Baglivo; S. Baronti; F. Miglietta; S. Castaldi (2014). Effect of biochar addition on soil microbial community in a wheat crop. *European Journal of Soil Biology*. Volume 60, Pages 9–15.

Sanvong, Chintana; Tawadchai Suppadit (2013). The Characteristic of Pelleted Broiler Litter Biochar Derived from Pilot Scale Pyrolysis Reactor and 200-Liter-Oil-Drum Kiln. *Journal of Energy Technologies and Policy*.

Smith, Cameron R; Rachel L Sleighter; Patrick G. Hatcher; James Weifu Lee (2013). Molecular Characterization of Inhibiting Biochar Water-Extractable Substances using Electrospray Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectrometry. *Environ. Sci. Technol.*

Sun, Yining; Bin Gao; Ying Yao; June Fang; Ming Zhang; Yanmei Zhou; Hao Chen; Liuyan Yang (2013). Effects of feedstock type, production method, and pyrolysis temperature on biochar and hydrochar properties. *Chemical Engineering Journal*.

Winter, Erika; Lowe, Stephen; Campbell, Lachlan (2013). Biochar applications in a King Valley Vineyard. *Australian and New Zealand Grapegrower and Winemaker*. Issue 597.

Xu, Gang; JunNa Sun; HongBo Shao; Scott X. Chang (2014). Biochar had effects on phosphorus sorption and desorption in three soils with differing acidity. *Ecological Engineering*.

Yang, Xue Jun; Zhen Kun Lin; Jie Chen; Jun Hui Wu; Hui Ping Si; Kai Yan Lin (2013). Research Progress of Biochar, Pyroligneous Acid and Organic Fertilizer Mixture and its Components in Agricultural Production. *Applied Mechanics and Materials* (Volumes 448 - 453).

Zeng, Wei Qing; Ling Jun Zhu; Qi Wang (2013). Steam Gasification of Biochar Derived from Fast Pyrolysis for Hydrogen-Rich Gas Production. *Advanced Materials Research* (Volume 830).

Zhang, Lei; Ji Shi Zhang (2013). Biochar from Sewage Sludge: Preparation, Characterization and Ammonia-Phosphorus Capture. *Advanced Materials Research* (Volume 830).

Zhang YuanYing; Liu GuoShun; Liu HongEn (2013). Effects of biochar application on petroleum ether extract and aroma constituent of flue-cured tobacco leaves. *Acta Agriculturae Jiangxi*. Vol. 25 No. 5 pp. 96-100.

Zhao, Xu; Shenqiang Wang; Guangxi Xing (2013). Nitrification, acidification, and nitrogen leaching from subtropical cropland soils as affected by rice straw-based biochar: laboratory incubation and column leaching studies. *Journal of Soils and Sediments*.

Zhao, Xu; Xiaoyuan Yan; Shenqiang Wang; Guangxi Xing; Yang Zhou (2013). Effects of the addition of rice-straw-based biochar on leaching and retention of fertilizer N in highly fertilized cropland soils. *Soil Science and Plant Nutrition*.

Zhou, Yanmei; Bin Gao; Andrew R. Zimmerman; Hao Chen; Ming Zhang; Xinde Cao (2013). Biochar-supported zerovalent iron for removal of various contaminants from aqueous solutions. *Bioresource Technology*.