



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**

February 2017 News from the International Biochar Initiative for Members and Supporters

From the Chairman:

It's an exciting time to chair the International Biochar Initiative. More people are making and using biochars and joining the biochar conversation. We see more producers, more products, more techniques and technologies, more research, more positive policy incentives, more interest in agriculture, forestry, organic recycling, and remediation, and more demonstrations of how biochar can improve productivity in poor and degraded soils.

We are a member-supported organization. As we grow we need volunteers to help tell the biochar story. You can help. Write about biochar research and use for publication in newsletters, factsheets, on the web and through social media. Translate and tell those stories in local languages. Help build regional biochar networks so we can learn from each other. We can only do as much as we are all willing contribute. Whatever your interests - research and education, farming, production, marketing or policy - tell us how you would like to contribute. Contact us at info@biochar-international.org

Tom Miles

Chairman, IBI Board of Directors

New Discounts on Biochar Books for IBI Members

IBI has secured discounts for IBI members on two new biochar books listed below. Members can obtain the 20% discount codes at the [IBI Member's Only Page](#).

[Biochar: A Guide to Analytical Methods](#), Editors: Balwant Singh*, Marta Camps, Johannes Lehmann. IBI members will receive a 20% discount.

[Biochar: A Regional Supply Chain Approach in View of Climate Change Mitigation](#), Editor: V. Bruckman et al. IBI members are eligible for this discount until the end of April 2017.

Upcoming Webinars

The next IBI Biochar Educational Webinar topic will be held on March 27th from 4:30 – 6:00pm EST. The topic will be *Biochar Analytical Methods*. Dr. Balwant Singh, lead editor for the upcoming book on *Biochar: A Guide to Analytical Methods**, will present information on the proper way to obtain and analyze biochar samples. Analysis techniques to be covered include: proximate & elemental analysis, as well as testing of pH, electrical conductivity, liming potential, and cation exchange capacity. This webinar will be of interest to biochar producers, researchers, laboratories and more. Further information on the webinar will be coming out shortly. In the meantime, IBI members may want to take advantage of ordering the book using their 20% discount!

Additional webinars planned include: April - Carbonizing urban green waste; May - Biochar building materials & Composites; June – Sewage sludge & biochar.

Previous webinars are accessible to IBI members for free via the Members Only page. Non-members that would like to view previous 2017 webinars, may pay a one-time fee of \$40. Further information available on our [Webinars Series page](#).

New and renewing organizational & business member spotlight

Note: corporate bios below were provided by members and not written by IBI

Renewing business member: AirEx Energy, Canada



Airex Energy is a technology provider of biomass carbonization systems and a producer of high quality biochar. Based in Quebec, Canada, Airex has developed a proprietary technology called CarbonFX, which allows the production of biochar, activated biocarbon, and biocoal. The company started operation of a full commercial plant in the fall of 2015, with a production capacity of 15,000 tons/year. Airex is selling biochar under its own brand name BiocharFX and is also supplying third parties who are commercializing pure and blended biochar under their brand. Airex Energy is involved in numerous biochar R&D initiatives with Canadian research centres and industry partners, namely FPInnovations, CTRI, Innofibre, Laval University, and Agriculture Canada.



Airex Energy is a spin-off of Airex Industries, an established manufacturer of dust collectors and industrial ovens, and includes investors like Cycle Capital Management and Desjardins Capital de Risque. Airex Energy is also supported by the Canadian government through Sustainable Development Technology Canada (SDTC), and the Quebec government through Technoclimat and Investissement Québec. For more information and for biochar sales, please contact Sylvain Bertrand (sbertrand@airex-energy.com).

Renewing business member: Wakefield Biochar, United States

Wakefield Agricultural Carbon LLC, a U.S. based company, supplies a premium quality biochar, as a USDA certified soil conditioner, that gives your plantings the best opportunity for success because it helps create a healthier soil. Wakefield Biochar is a 100% organic amendment that quickly improves soil and has a long lasting positive impact on the soil. Wakefield Biochar delivers biochar solutions for retail and industrial use. Finding innovative ways to reduce our global carbon footprint and improve the abundance of great farm fresh food, beautiful garden flowers and a healthier environment for everyone to enjoy. Visit www.wakefieldbiochar.com to watch us grow!



Renewing organization member: International Center for Biosaline Agriculture (ICBA) –

The International Center for Biosaline Agriculture (ICBA) is an international, non-profit agricultural research center. Based in Dubai, the U.A.E, the center conducts applied research and development programs focused on improving agricultural productivity and sustainability in marginal and saline environments.

Established in 1999, ICBA takes innovation as one of its core principles and adopts a multi-pronged approach to addressing the closely-linked challenges of ensuring water, environment, income, food, and nutrition security.

The center's research innovations focus on assessment of natural resources, climate change adaptation, crop productivity and diversification, aquaculture and bio-energy, and policy analysis. ICBA contributes to

achieving the global [Sustainable Development Goals](#) (in particular SDGs 1, 7, 12 and 13) by working on a number of technologies and innovations, including the use of conventional and non-conventional water such as saline, treated wastewater, industrial water, agricultural drainage, and seawater; water and land management technologies; and remote sensing and modeling for climate change adaptation.

Improving the generation and dissemination of knowledge is one of ICBA's strategic objectives and the center is committed to establishing itself as a knowledge hub on sustainable management and use of marginal resources for agricultural production and environmental protection in marginal environments.

ICBA's work reaches many countries around the world, including the Gulf Cooperation Council countries, the Middle East and North Africa, Central Asia and the Caucasus, South and South-East Asia, and Sub-Saharan Africa. For more information about ICBA, please visit www.biosaline.org.

Conference & Event Updates

2017 Renewable Energy & Biochar Workshop

By Wei Cheng, National University of Singapore

The 2nd Renewable Energy and Biochar workshop, organized by the [CREATE E2S2](#) program, was successfully held at the CREATE Tower of the National University of Singapore (NUS) on 19 January 2017. The workshop featuring five distinguished academic speakers in the area of renewable energy and biochar (Prof Ruzhu [Wang](#), Prof Yong Sik [Ok](#), Prof Chi-Hwa [Wang](#), Prof Yanjun [Dai](#) and Prof Tianshu [Ge](#)) attracted about 40 participants with quite a number of biochar industry players. The industry panel discussion session in the workshop has also served as a good platform to promote dialogue between researchers in Institutes of Higher Learning (IHLs) and industry for potential collaborative opportunities.

In the workshop, Prof Ok from the Korea Biochar Research Center (KBRC), Kangwon National University talked about the research trend in biochar in a presentation titled "SMART biochar technology? A shifting paradigm towards advanced materials and energy/environment research". He shared how the initial research on using biochar for soil improvement and carbon dioxide sequestration, has expanded and found new applications in engineering, health care and life sciences. The increasing number of research publications over the past few years shows that the biochar topic is getting more popular. While biochar in general is accepted as being harmless to the environment, he cautioned that the source of the feedstock for the production of biochar may give rise to PAHs (Polycyclic Aromatic Hydrocarbons) and should be tested for toxicity. Last but not least, he also showcased his biochar related research work in a diverse spectrum of applications, as well as his industry collaborative projects with some of the biggest companies in Korea.

Apart from biochar experts in the academia, the workshop has attracted a number of active biochar or charcoal manufacturers in Southeast Asia. For instance, Mr Bryan Lee, a charcoal manufacturer from Sepatang, Malaysia shared a little with us on his charcoal manufacturing facility and the fields in which his charcoal is being utilized in. Mr Balathandautham Tam from [Moringa Village](#) also shared his coconut plantation planning in Palembang, Indonesia that involves the setting up of coconut oil production and conversion of coconut shells to charcoal. Besides Indonesia, he also has some plans for plantation in Johor Bahru, Malaysia.

More interestingly, big multi-national companies such as Sembcorp Industries Ltd, a leading energy, water, marine and urban development group, has also shown deep interest in biochar development in the region. Additionally, the workshop has also drawn the attention of an investment group that is interested in our integrated technology that handles both wet and dry waste, and yet capable of producing biochar. Last but not least, Mr Trevor Richards from the International Biochar Initiative (IBI) also shared a little about IBI and the upcoming plan of a 3-day practical biochar workshop in Thailand toward the end of February 2017, covering both production and applications.

2017 ASA-CSSA-SSSA Biochar Community Meeting, Tampa, Florida

By Dr. Gilbert C. Sigua, 2017 Chair, ASA Biochar Community

In 2017, the Biochar: Agronomic and Environmental Community will continue to facilitate scientific data exchange, spur collaborations and provide a forum to share and extend the impact of biochar by coordinating multi-location research efforts among its current and future members. October 22-25, 2017 is the "Save the Date" for the 2017 annual meeting of the Tri-Societies – Agronomy Society of America-Crop Science Society-Soil Science Society of America (ASA-CSSA-SSSA) in Tampa, Florida, as well as the annual "show me the science" gathering of the ASA Biochar Community members.

Planning for the 2017 International meeting of the ASA-CSSA-SSSA, so as the Biochar community is already in full gear (www.acsmeetings.org). The Biochar community will host one symposium, two oral sessions and a poster session. As a part of the poster session, the Biochar: Agronomic and Environmental Uses community will sponsor a Graduate Poster Competition. All graduate students working with biochar are encouraged to participate. Interested graduate students should submit abstracts online through the normal abstract submission process and mark that they wish to enter into the graduate student competition. Posters will be judged based on the quality of the poster presentation, originality and importance of the research, interpretation of experimental results, and how well the presenter communicates his or her findings to the judges. The top three posters will be announced at the community planning and business meeting following the symposium session. Winners are expected to be present at the meeting to receive their monetary award and certificate.

The 2017 Biochar Community-sponsored sessions are as follows:

1. Symposium Session : "Growing Relationships: Biochar Connections to Global Sustainability of Soil, Food, Energy and Environment";
2. Topical Oral Session #1: "Amending degraded soils with biochar to promote revitalization: The chemistry, physics and biology of biochar mediated soil revitalization";
3. Topical Oral Session #2: "Biochar Production and Technology: Global Advancement, Risks and Success"; and
4. Poster Session: "Where the Rubber Meets the Road: Production, Novel and Real World Uses of Biochars (Part 2)" – (including graduate students' competition).

For volunteer abstract submissions, authors may submit their abstracts by internet only (ASA Environmental Quality Section; Biochar Community; www.acsmeeting.org) on or before May 23, 2017. Speakers and presenters will automatically receive an email confirmation of the submission.

Volunteer Writers Needed for IBI

IBI is looking for volunteer Copy Editor and Writers to help us promote more biochar success stories. We have a need for a newsletter editor as well as writers willing to craft articles about various biochar projects and technologies from around the world. This position will benefit volunteers by connecting them to other individuals helping to make biochar successful. If you have a background in writing or editing and would be interested in helping, please send an email to info@biochar-international.org. Excellent English is required.

The IBI Online Biochar Training Course is Ongoing

Gain in-depth knowledge on biochar and biochar systems. Register for IBI's online course, Biochar Training for Environmental Sustainability and Economic Development. This ten week, ongoing course provides participants an intensive training series on all aspects of biochar, presented by leading biochar experts. Learn about best-science updates on biochar, biochar production and use, how to overcome the barriers to commercialization. 19 separate lessons-each with a subject overview, a recorded audio/video presentation lasting 30 - 45 minutes and quizzes to test comprehension and retention. An optional introductory presentation on the basics of biochar allows participants to start the course with a common understanding. Course materials are presented in a user-friendly online format. Participants can access the course at their convenience over ten weeks and will receive a certificate of completion at the conclusion of the course.

Course materials are based on presentations from the June 2014 in-person biochar training course titled, "Biochar for Environmental Sustainability and Economic Development," hosted by the University of Santiago de Compostela, Spain, and developed and presented by IBI and collaborators. For more information on member and non-member pricing and registration, please see: www.biochar-international.org/online_course

Upcoming Calendar Events

- [BIOCYCLE EAST COAST17](#) Baltimore, Maryland Turf Valley Hotel, **April 4 - 7, 2017**, [Call For Papers Open Now](#)
- Carbon Farming & Biochar Workshop, Boathouse Beer Garden, Romulus, NY May 20, 2017.
- Building with Biochar & Filtration Workshop, June 12 – 16, 2017, Summerville, TN
- [Biochar: Production, Characterization & Applications](#), Alba, Italy, Hotel Calissano, **August 20-25, 2017**; [Call for Abstracts](#) Deadline: Feb. 28, 2017
- [International Symposium on Growing Media, Soilless Cultivation, and Compost Utilization in Horticulture](#), **August 20-25**, in Portland OR. Attendees are welcome to submit abstracts and requests to give talks/presentations (or posters) during the meeting as well if desired.
- [International Bioenergy \(Shanghai\) Conference and Exhibition](#), April 20 – 21, Shanghai, China
- Carbon Farming & Biochar Workshop, May 20th, Boathouse Beer Garden, Romulus, New York. Registration details will be available soon.
- Building with Biochar + Biochar Filtration Workshop, June 12 – 16. Hosted by [The Farm](#), Summertown, TN. Registration details will be available soon.
- [European Biomass Conference & Exhibit EUBCE](#) June 12 - 15 2017 Stockholm Sweden,
- [Australia New Zealand Biochar Conference](#) August 10 – 12, 2017, Tweed, Australia. The aims and objectives of ANZBC17 are to bring together Scientists & Growers to bridge the gap between

fundamental science, applied science & commercial applications, to unite the various Biochar groups from each State in Australia & New Zealand, to showcase the very latest technology to match the biomass source, value added bio-products, methods of applications and scientific results and commercial trial methods and results. Conference themes include: Technology & Production for matching sustainable biomass sources; Value added Bio-Products; Applied Science (Discoveries & Results); Commercial Applications (Methods & Results). Additional info can be found

at: <https://www.facebook.com/biocharfest/> and <https://www.facebook.com/events/945697935562027/>

- [2nd Second Global Soil Biodiversity Conference in Nanjing](#), October 15-17, 2017, Nanjing, China. [Call for Abstracts](#) for *Biochar for soil biota and biodiversity* session, deadline April 1, 2017. Session contact: Dr. Genxing Pan. Email: pangenxing@aliyun.com; gxpan1@hotmail.com

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

Recently Published Biochar Research and Resources

- [Biochar for Home Gardeners: A Guide to Producing, Charging, and Applying Biochar to Dramatically Improve Soil and Plant Health](#) by Jeff Fry
- FYI Warmheart [Brochure](#)
- Nguyen, TTN; Xu, CY; Tahmasbian, I; Che, RX; Xu, ZH; Zhou, XH; Wallace, HM; Bai, SH *Effects of biochar on soil available inorganic nitrogen: A review and meta-analysis*; GEODERMA 2017, 288, 79-96
- Hurtado, C; Canameras, N; Dominguez, C; Price, GW; Comas, J; Bayona, JM *Effect of soil biochar concentration on the mitigation of emerging organic contaminant uptake in lettuce* JOURNAL OF HAZARDOUS MATERIALS 2017, 323, 386-393
- Li, Y; Wang, ZW; Xie, XY; Zhu, JM; Li, RN; Qin, TT *Removal of Norfloxacin from aqueous solution by clay-biochar composite prepared from potato stem and natural attapulgite* COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS 2017, 514, 126-136
- Hossain, MA; Ganesan, P; Jewaratnam, J; Chinna, K. *Optimization of process parameters for microwave pyrolysis of oil palm fiber (OPF) for hydrogen and biochar production* ENERGY CONVERSION AND MANAGEMENT 2017, 133, 349-362
- Deng, H; Feng, D; He, JX; Li, FZ; Yu, HM; Ge, CJ *Influence of biochar amendments to soil on the mobility of atrazine using sorption-desorption and soil thin-layer chromatography* ECOLOGICAL ENGINEERING 2017, 99, 381-390
- Chen, J; Zhang, D; Zhang, H; Ghosh, S; Pan, B *Fast and slow adsorption of carbamazepine on biochar as affected by carbon structure and mineral composition* SCIENCE OF THE TOTAL ENVIRONMENT 2017, 579, 598-605
- Vu, TM; Trinh, VT; Doan, DP; Van, HT; Nguyen, TV; Vigneswaran, S; Ngo, HH *Removing ammonium from water using modified corncob-biochar* SCIENCE OF THE TOTAL ENVIRONMENT 2017, 579, 612-619
- Oustriere, N; Marchand, L; Lottier, N; Motelica, M; Mench, M *Long-term Cu stabilization and biomass yields of Giant reed and poplar after adding a biochar, alone or with iron grit, into a contaminated soil from a wood preservation site* SCIENCE OF THE TOTAL ENVIRONMENT 2017, 579, 620-627
- Yu, ZH; Qiu, WW; Wang, F; Lei, M; Wang, D; Song, ZG *Effects of manganese oxide-modified biochar composites on arsenic speciation and accumulation in an indica rice (Oryza sativa L.) cultivar* CHEMOSPHERE 2017, 168, 341-349
- Cai, R; Wang, X; Ji, XH; Peng, B; Tan, CY; Huang, X *Phosphate reclaim from simulated and real eutrophic water by magnetic biochar derived from water hyacinth* JOURNAL OF ENVIRONMENTAL MANAGEMENT 2017, 187, 212-219

- Koltowski, M; Charmas, B; Skubiszewska-Zieba, J; Oleszczuk, P Effect of biochar activation by different methods on toxicity of soil contaminated by industrial activity ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY 2017, 136, 119-125
- Sun, ZC; Sanger, A; Rebensburg, P; Lentzsch, P; Wirth, S; Kaupenjohann, M; Meyer-Aurich, A Contrasting effects of biochar on N₂O emission and N uptake at different N fertilizer levels on a temperate sandy loam SCIENCE OF THE TOTAL ENVIRONMENT 2017, 578, 557-565
- Liu, PF; Zhu, MM; Zhang, ZZ; Leong, YK; Zhang, Y; Zhang, DK Rheological behaviour and stability characteristics of biochar-water slurry fuels: Effect of biochar particle size and size distribution FUEL PROCESSING TECHNOLOGY 2017, 156, 27-32

We encourage all those that have yet to renew their membership, to do so now via the [IBI website](#).

International Biochar Initiative www.biochar-international.org info@biochar-international.org

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