



News from the International Biochar Initiative

IBI is a non-profit organization that provides a platform for fostering stakeholder collaboration, good industry practices, and environmental and ethical standards to support biochar systems that are safe and economically viable.

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

September 2017 News from the International Biochar Initiative

Biochar related jobs, scholarships, and volunteer opportunities

[Divisional President](#), Advanced Biochar Products, State College, PA USA. Requires significant sales and marketing experience to start up a new product line to be produced out of existing production facilities which are based in Pennsylvania and North Carolina.

[Researcher](#), Libera Università di Bolzano, studying optimization of wood gasification chain in South Tyrol to produce bio-energy and other high-value green products to enhance soil fertility and mitigate climate change in an interdisciplinary project dealing, among other subjects, with the study of biochar as possible soil amendment in viticultural systems. Apply by: October 12, 2017.

[Scientist I](#) - IRRI – Philippines. Develop and supervise strategic direction of research team conducting research on sustainable use of rice straw as an alternative to open-field burning practices of farmers in Asia and Southeast Asia, including carbon footprint analysis of alternative rice straw management against baseline GHG emissions from straw burning, carbonization of straw (biochar) as a pioneering approach for lowering the footprint and increasing incomes.

IBI Volunteer Opportunity: Fundraiser on the IBI Board of Directors

IBI is looking to appoint an experienced Board Member at Large that is interested in spearheading IBI's Fundraising efforts. This person should have experience with identifying and obtaining grants related to agriculture, renewable energy and/or climate change on behalf of either non-profit or academic institutions. No geographic preference is required, although a very strong capability in verbal and written English is necessary. For those interested, please send a letter of interest as well as an outline of relevant experience to info@biochar-international.org.

Experience Backwoods Biocharring alongside a Large Team of Volunteers

The Drew Biochar Project on the Umpqua National Forest in Oregon is scheduled to start on Monday, October 16. If you are available to contribute one or several days to help char 100 tons of biomass, detailed information on how to join in this demonstration project can be found [here](#).

Biochar Webinar Series

The September IBI biochar webinar highlighted the benefits of feeding biochar to cattle and using dung beetles as a low cost, highly effective means of delivering biochar deeper into the soil profile. More than 120 members from 26 countries registered for the event – a new record!

Dr. Stephen Joseph reviewed the state of feed char research and described how a cow's rumen system benefits from biochar. Though there were some technical difficulties with our second presenter, Doug Pow, Doug will be recording his portion of the presentation in the near future which will be made available to all IBI members and those non-members that paid to attend the webinar.

Previous webinars are accessible to IBI members for **free** via the Members Only page a few days after the Webinars take place. Non-members that would like to view previous 2017 webinars, may pay a one-time fee of \$40 per webinar or can join IBI as a member and have full access to all historical webinars. Further information is available on our [Webinars Series page](#).

MARK YOUR CALENDARS: The October IBI biochar webinar will focus on the synergies between using biochar in anaerobic digestion (biogas) operations. Dr. Manuel Garcia-Perez will present this webinar on Monday, October 30th from 3:30 – 5:00pm EDT. Further details & registration information will be coming out shortly.

BIOCHAR STUDY TOUR

After our June webinar which highlighted the Stockholm Biochar Project (SBP), several members indicated that they would like to learn more and perhaps even visit the pilot plant and see some of the urban landscape success stories. Working with the SBP project manager, Mattias Gustaffson, Stockholm tree officer Bjorn Enbrem, and KTH University Professor Cecilia Sundberg, we were able to quickly put together an engaging agenda which covers not only the SBP, but also highlights other regional biochar projects and initiatives.

While registration for the October study tour will be closed soon after circulation of this newsletter, IBI is considering organizing more biochar study tours in 2018. The idea for these tours is to focus on successful projects and end uses of biochar, showcasing them to others interested in replicating these models. Potential focus areas include: wastewater treatment, mine land reclamation, livestock farming or biochar used in particular cropping scenarios (e.g. vineyards, orchards, coffee, etc.). If you have a suggested location, project or subject area for a future biochar study tour, please contact Kathleen Draper at webinars@biochar-international.org. All study tours will need local collaborators, so please indicate who the local collaborators would be for any suggestions.

New IBI Corporate Members

Note: bios below were provided by members (or from websites) and not authored by IBI



Aries Clean Energy, IBI's newest sustaining member, is a renewable energy company based in Nashville, Tennessee, specializing in developing downdraft gasification projects that enable corporate and municipal clients to cleanly convert waste into energy with positive financial returns. Deployment of Aries' patented technology also brings measurable environmental benefits, including reduction of carbon and greenhouse gas emissions, and diversion of waste from landfills. In 2014, Aries constructed and field tested the world's largest downdraft gasifier. The initial deployment of that system is now operating in the City of Lebanon, Tennessee, and converts a blend of commercial wood waste, scrap tires, and biological sludge into electric power. This project recently won the Environmental Leader Project of the Year (2017).

Aries Clean Energy was started in 2010, as PHG Energy, and funded by the owners of a multi-state Caterpillar dealership to further develop a patented gasification technology already in full commercialization and proven as a viable method of cleanly converting wood waste to synthetic fuel gas for industrial use.

Greenway Farm of Kingston, Massachusetts is a self-sustaining, all-natural vegetable farm that was started in 2013 and is staffed by a group of local teens from Sacred Heart and Silver Lake Regional School District (MA). Currently there are 3 acres of crops and 2 greenhouses. The farm is completely self-sustaining, and we make our own compost from our chickens, vegetables, and worms. Our gardens are completely natural and we fertilize the soil with our own worm farm. For more information, please see www.nofossilfuel.com and Greenway Farm's [impressive 4-minute video](#).



Titan Clean Energy Projects Corp. began in 2008 as a project developer, intending to bring groundbreaking technologies to the marketplace. In nine years, we've invested more than \$5 million and created more than a dozen products across a variety of markets from soil amendments to health and beauty ingredients.



The addition of carbon in agricultural feed has enormous potential. There has been a push for consumers and regulators alike to move away from antibiotic, hormone and steroid additives in animal feed. Studies have shown that carbon can have a positive impact on the overall health of an animal, and the potential Canadian market for biocarbon in animal nutrition at over \$2 billion.

To that end we have developed a signature product, Carbon 2M(tm). Carbon 2M has been independently tested by several Canadian universities and verified as excellent quality. With research projects underway in Ontario, Alberta, and Saskatchewan, Titan intends to lead the way with the introduction of carbon to the Canadian agricultural environment.

Titan has expanded its focus to the larger environmental picture by offering organics recycling services. This valuable material is often left to slowly decompose in landfills, contributing to greenhouse gasses and necessitating the ever-increasing expansion of these landfills.

Titan intends to divert as much biomass as possible from the waste stream and create valuable new products from organic matter. To that end, we accept wood waste from construction projects and break it down for carbon production as well as bulk absorbent and energy products. We also accept treated wood such as rail ties and power poles. This treated wood and waste material is separated and turned into products exclusively for the energy industry.

For more information, visit Titan's website at www.titan-projects.com.

Conifer Feedstocks Increasingly Abundant, Thanks to Bark Beetles

The Yale School of Forestry & Environmental Studies published an article [on the growing problem of bark beetle infestations](#) in the northern hemisphere. A few biochar companies are already focused on turning this problem into an opportunity. Companies who can leverage the [nonmarket value of increased fire protection](#) from these feedstocks, along with other multifarious benefits of biochar, should be able to greatly improve their bottom line. Transforming beetle-kill into biochar is an elegant response to the pest problem since it can help to reverse [global warming which set the conditions for beetle proliferation](#).

Regional Updates

Europe: The Norwegian government has introduced a [capital investment subsidy](#) within their bioenergy programme which includes biochar pyrolysis plants. Up to 45% capital subsidy is available to Norwegian farmers and forestry owners. This subsidy is expected to be a great incentive for kick starting implementation of

biochar in Norway. Currently there is one pilot plant as part of research project “Capture +”, but this could lead to dozens of new facilities within a matter of years. Biochar equipment manufacturers may send details of their company and available technology to Adam O’Toole adam.otoole@nibio.no of the Norwegian Biochar Competence Center (www.bioforsk.no/biochar) for prospective Norwegian customers who often seek the Center’s advice in biochar related matters.

Southern Asia: Farming trials of an [organic fertilizer containing 15% biochar](#) are in their second year in Bangladesh. Developed by the Bangladesh Rice Research Institute (BRRI), the organic mix eliminates the need for triple super phosphate and reduces urea requirements by 30% in the country’s paddy fields.

Canada: Ontario is evaluating an application for a biochar production facility to be set up in the [Haliburton Forest](#). Plans are for the biochar to be used within the 80,000-acre forest as part of [new sustainable forest management practices](#) that will generate 75,000 tonnes per year of additional GHG reductions over the long-term.

United States: Having successfully rolled out big box store versions of biochar-laced potting mix and garden soil earlier this year, Kellogg Garden Products, an organic garden soil maker covering West, Midwest, and Southeast U.S. regions, is now [adding biochar mixes to their independent retail store line, Gardner & Bloome](#).

Seven years following start-up, [Ag Energy Solutions of Spokane, Washington has pivoted](#) from making bio-fuel equipment to making biochar their principal product. Currently operating three containerized 700 lb/day production machines, the company projects enough biochar demand to require 19 machines by 2020.

A new website containing case studies of biochar use for various crops, recent research articles, a regional atlas of biochar producers, and several decision support tools for farmers and gardeners in the Pacific Northwest is live now at <http://www.pnwbiochar.org/>.

PPD of WV One, LLC has big plans for biochar in West Virginia. Their first plant, a [Proton Power](#) biofuels system developed over the past twelve years, [may be coming to Greenbrier county in 2018](#). PPD’s leader, Jason Perry expects to build several such plants that can produce 7.2 million gallons of diesel and 7,200 tons of biochar per year. Proton Power is also exploring graphene co-products.

Upcoming Calendar Events

- [6th Biennial ECHO Asia Agriculture and Community Development Conference](#), 3 – 6 October, 2017, Chiang Mai, Thailand covering practical techniques for smallholder farmers and gardeners.
- [Stockholm Biochar Project study tour](#), 9 – 11 October, 2017, Stockholm, Sweden. IBI has worked with Mattias Gustafsson, Project Manager and Bjorn Embren, Stockholm’s Tree Officer to put together a 2½ day program that will provide attendees with more insight on the project that was briefed in the [June IBI webinar](#). Last day to register: September 29, 2017.
- [Biochar School](#) covering the principles of biochar and its horticultural uses, 12 – 13 October, Florence, Italy.
- [2nd Second Global Soil Biodiversity Conference](#), October 15-19, 2017, Nanjing, China. Topic 15 is the *Biochar for soil biota and biodiversity* session. Session contact for abstract questions is: Dr. Genxing Pan. Email: panggenxing@aliyun.com; gspan1@hotmail.com
- [Défis industriels et environnementaux de la filière du biochar](#) au Québec (*Industrial and Environmental Challenges of the Biochar Sector in Quebec*) Oct 16 – 17, 2017 ; Trois Rivieres, Quebec, Canada

- Biochar Adsorbent for Control of Synthetic Organic Contaminants in Affordable Decentralized Water Treatment – register for a [webinar](#) by Dr. Josh Kearns, Oct 17, 2017.
- [The XII Brazilian Meeting of Humic Substances and Natural Organic Matter](#), Sinop, MT, Brazil, October 16 – 20, 2017. Pre-congress workshop on "Pyrogenic Biomass" including: Biochar and bioremediation of xenobiotics; Biochar and its mixtures in the availability of nutrients; Hydrothermal coal and its applications; CTC and CRA in biochar; Pyrolysis of agroindustrial residues; Development of analytical techniques for the characterization of pyrogenic biomass; and legislation and analytical protocols for biochar.
- Annual meeting of the [Tri-Societies – Agronomy Society of America -- Crop Science Society -- Soil Science Society of America \(ASA-CSSA-SSSA\)](#) with more than 4,000 scientists, professionals, educators, and students in Tampa, Florida, on Oct. 22-25, 2017 has the theme "Managing Global Resources for a Secure Future," as well as the annual "show me the science" gathering of the ASA [Biochar Community](#) members.
- [Washington Organic Recycling Council \(WORC\) Annual Conference](#), "Bringing Soil Back to Life," November 14 - 15, 2017, Blaine, WA, U.S.A.
- The 2nd **China- Asian Biochar Workshop** is scheduled to take place during November 18-21, 2017. The theme of the workshop will be **Biochar Production and Application for Green Agriculture-from Technology to Viable Systems**. The workshop is aimed to enhance a joint exchange and sharing of the biochar developments between China and Asian countries and beyond, and an access to novel biochar technologies and viable systems for safe recycling of bio-waste for green development. The venue of this workshop will be in **Wanda Hotel** in **Jinhua Municipality**, Zhejiang Province, China, which is a green city with a fast growing bioeconomy. Further details on the workshop can be found [here](#).
- [8th International Conference on Biofuels, Bioenergy & Bioeconomy](#), Dec 4 – 5, 2017, Sao Paulo, Brazil. Presentations from more than 30 countries and 100 organizations.
- [Biochar Production, Characterization, and Environmental Applications](#) session at the Fall Conference of the American Geophysical Union, December 11-15, New Orleans, Louisiana. Full conference details at: <http://fallmeeting.agu.org/2017/>.
- [4th Korea Biochar Research Center International Biochar Conference](#) : SMART Biochar Technology: A Shifting Paradigm Towards Advanced Materials and Healthcare Research – part of BEEM 2018, June 10 – 13, 2018; Deadline for Abstract Submission: January 31, 2018.

SAVE THE DATE: The next USBI Conference has been scheduled for August 20 – 23, 2018 and will be hosted at the Chase Center in Wilmington, DE. Further details will be forthcoming soon.

See the IBI Calendar page for more events. To add an event to the calendar, email the information to the IBI newsletter editor, [Robert W. Gillett](#).

A Selection of Recently Published Biochar-related Resources

*Citations are from last month's new 'biochar' entries in the ISI Web of Science Core Collection unless preceded by *. Check [the IBI bibliography](#) in the next few days for entries that were not able to make it in this month's newsletter.*

* Sadegh Papari and Kelly A Hawboldt, Development and validation of a **process model to describe pyrolysis of forestry residues in an auger reactor**, ENERGY & FUELS, DOI:10.1021/acs.energyfuels.7b01263

*Sandra Milena Rincon, Hernan Mauricio Romero, Wrya Moh Aframehr, Haluk Beyenal. **Biomass production** in *Chlorella vulgaris* biofilm cultivated under mixotrophic growth conditions. ALGAL RESEARCH, 2017; 26: 153 DOI: [10.1016/j.algal.2017.07.014](https://doi.org/10.1016/j.algal.2017.07.014)

*José Ferreira Lustosa Filho, Evanise Silva Penido, Patrícia Pádua Castro, Carlos Alberto Silva, and Leonidas Carrijo Azevedo Melo, **Co-pyrolysis of poultry litter and phosphate and magnesium** generates alternative slow release fertilizer suitable for tropical soils, ACS SUSTAINABLE CHEMISTRY & ENGINEERING, DOI: 10.1021/acssuschemeng.7b01935

* Martin Staš, Josef Chudoba, David Kubicka, Jozef Blazek, and Milan Pospíšil, **Petroleomic Characterization of Pyrolysis Bio-oils: A Review**, ENERGY & FUELS, DOI: 10.1021/acs.energyfuels.7b00826

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