

MAY 2019



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**

Highlights from this Month's News

[Robert Gillett](#), Editor

In this month's edition, look for news, ideas and trends like these:

- ❖ *Going global with nexgen biochar*
- ❖ *"Bio-" ⇒ Carbon*
- ❖ *A pillar in the Asia/Pacific Rim community*
- ❖ *Abundant feedstock from C & D*
- ❖ *Coming to HBO: Ice on Fire*

News of the Initiative

The [IBI Biochar World Congress](#), hosted by Korea Biochar Research Center and Korea University, will be held 10 – 14 November 2019 with the expectation of a paradigm shift towards the development of the next generation of biochar. Past IBI World Congresses have been oriented to the science of biochar, but in this congress more attention will go towards enhancing the biochar global market. The Congress will provide a unique platform for sharing knowledge on all aspects of biochar among a broad international scientific community, policy makers and industrial personnel.

We would be delighted to have you on this momentous occasion to share your scientific ideas and celebrate with us!

Chairing this year's Congress is Professor Yong Sik Ok, whose academic background covers waste management, bioavailability of emerging contaminants, and bioenergy and value-added products such as biochar. Prof. Yong Sik Ok also has experience in fundamental soil science and remediation of various contaminants in soils and sediments. Together with graduate students and colleagues he has published over 600 research papers, and has been recognized as a [Web of Science 2018 Highly Cited Researcher](#). The professor maintains a worldwide professional network through his service as a Co-Editor-in-Chief for *Critical Reviews in Environmental Science and Technology*, as an Associate Editor for *Environmental Pollution* and *Bioresource Technology*, and as a Member of the Editorial Boards of *Chemosphere*, *Journal of Analytical and Applied Pyrolysis*, and several other top journals.



Yong Sik Ok

Welcome to Our New Corporate Members ...



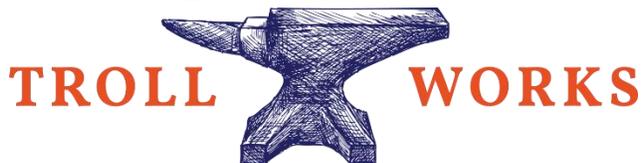
BIOENERGY EVENTS AND SERVICES (BEES) SAS

BUSINESS

- Lyon, France
www.bees.biz

BEES is an independent company operating within a network of international strategic partnerships to actively raise the profile and uptake of bioenergy worldwide.

... and Especially to our Renewing Members!



THE TROLLWORKS - A Foundry for Earth-Mending Technologies

BUSINESS

- Silver City, New Mexico
<https://www.troll.works/>

EQUIPMENT-MANUFACTURER

Trollworks manufactures transformative technology systems addressing some of the most pressing challenges of our time. These systems are designed to achieve triple bottom line benefits — economic, social and environmental — with compelling financial returns.

Trollworks integrates decades of experience in biomass and bioenergy systems development to offer a unique approach to BioEnergy + Carbon Capture & Sequestration (BECCS) that integrates all three of the known approaches to carbon sequestration.

The Big Picture

Biochar is an inherent part of the “bioeconomy.” The idea of a bioeconomy is not new. In Europe, for example, nine countries have their own bioeconomy strategies supporting an overall [EU Bioeconomy Strategy](#). The latest revision to that strategy seeks to strengthen and scale up the bio-based sectors, unlocking investments and markets, and deploying local bioeconomies rapidly across the whole of Europe. Outside of Europe, this month the Canadian government also released its first national [bioeconomy strategy](#). Several [other countries and transnational organizations](#) have extant strategies supporting their bioeconomies.

Aligning to a bioeconomic model primes countries with working strategies for the type of innovations being pursued by biochar researchers and entrepreneurs. The prospective major role of the burgeoning biochar industry in these vast bioeconomies is a central theme in the book, *Burn: Using Fire to Cool the Earth* (2019), by Albert Bates and Kathleen Draper. The many biochar-ready industries examined in their virtual whirlwind tour include energy, paper, plastics, concrete, asphalt, electronics, and countless others. This month, listeners were treated to an IBI webinar by Albert and Kathleen. To get an overview of the book (a good synopsis of the many new directions biochar is headed) the webinar and presentation are still available on [our website](#) (free to members, \$40 for non-members).

However much we strategize and conceptualize, there is still quite a bit of convincing needed. The political obstacles can be formidable. Michael Carus, CEO of nova-Institute (Hürth, Germany), thinks the [plastics industry transition to bio-based inputs](#) will require not only upending the dominance of fossil fuels, but also enculturating a new appreciation of “renewable carbon” from recycled material, biomass, and CO₂. According to Carus, “to replace fossil carbon in the entire petrochemical industry, a new approach is needed. The biobased economy must become part of an overarching renewable carbon strategy, in which it represents a crucial pillar.”

So, while biochar may inherently belong to the bioeconomy, it also belongs to an even greater cause, i.e. valuing carbon, a common element in all lifeforms, as something that must be preserved, not casually discarded or used up. To quote from *Burn*, “... carbon is something we should all love and cherish. Carbon is life. Out of balance, carbon suppresses life. In the right balance, carbon provides life.”

Regional Briefs

Eastern Asia

The Association of Pacific Rim Universities (APRU) along with Korea University have launched [the Sustainable Waste Management program](#) under the leadership of [Professor Yong Sik Ok](#). Biochar/compost production and application is one of the seven pillars of the program. Sixteen APRU universities are supporting the program, along with members from other universities, industry, and professional organizations. In addition to chairing the upcoming IBI World Congress, the Professor will be one of the [speakers](#) at the July USBI/BANR conference on Biochar and Bioenergy at Colorado State University.

Africa

In a captivating and picturesque article, Warm Heart Worldwide takes us to [East Africa](#), where Sister Miriam Paulette is leading the organization's efforts to teach farmers how to make and use biochar. Noting the need to speed the adoption of biochar in Africa, Sr. Paulette describes several ways to kick the campaign into higher gear.

North America

A new Washington-based organization representing the Nutriculture Movement has launched its [website](#). Carbon smart, nutrient dense food are the quality metrics that take nutriculture beyond organic agriculture. Nutriculture soil management is based on biocarbon, mineral and microbial soil amendments, of which biochar is credited as "our best strategy to sequester carbon." The organization has published a [white paper](#) by David Yarrow on The Soil Carbon Sink, offering rationale for storing soil carbon along with a grassroots action plan offering direction for citizens willing to help fend off climate mayhem.

Speaking to the solid waste, recycling and organics industry at [WasteExpo](#) and at the Construction & Demolition Recycling Association's [C&D World](#), IBI Chairman Tom Miles found both groups to be interested in biochar as a way of reducing the volume of clean wood they receive, and for neutralizing odors, contaminants, or excesses of everyday materials like gypsum that go into landfills.

The Biochar Research Advisory Group under the California Governor's Office of Planning and Research created an [open access database](#) of expert responses to questions raised in the formulation of policies for the state's strong support of biochar in forest management and carbon sequestration.

The Illinois Biochar Group, affiliated with the University of Illinois Urbana-Champaign, has been meeting since at least 2011, but now they have a [website](#) made possible through the generous donations of Eric Pollitt and [Global Hemp](#), who are hosting the site, and James Schoner, who is maintaining it as webmaster.

Eight U.S. states have established healthy soils programs and Connecticut, Illinois, Iowa, Massachusetts, Nebraska, New Mexico, New York, Oregon, Vermont, and Washington are all deliberating [bills pertaining to healthy soils](#) initiatives. Several others are considering proposals.

[Park City, Utah](#) won a \$10 K grant from the National League of Cities to continue its efforts to use biochar as a means of wildfire fuel management, helping it toward its community goal of net zero emissions by 2032. The NLC's Leadership in Community Resilience program will share lessons learned through the project with other western cities facing similar climate risks.

The Great Plains Biochar Initiative under the Nebraska Forest Service will move on to phase II of its work under a new US Forest Service wood innovation grant. This phase will seek to model Supply & Demand for a Biochar as a Cattle Feed Additive. The other biochar-related wood innovation grant went to [Wallowa Resources Community Solutions](#) in Enterprise, Oregon. The purpose of this grant is to support combined heat, power, and biochar production at their 0.1 MW biomass plant.

After three years of joint trials, Cool Planet has an agreement with The J.R. Simplot Company to supply [Cool Terra](#) biochar-based soil amendment to farms in the [Central Coast of California](#).

In a film focusing on ways to stymie climate change, producer Leonardo Di Caprio's latest documentary, [Ice on Fire](#), will air on HBO on June 11 (8:00-9:35 p.m. ET/PT). Co-produced by his father, George Di Caprio and Mathew Schmid, producer of numerous documentaries such as [Carbon](#), the film includes a visit to a biochar demonstration project in the Usal Redwood Forest of California. For its sweeping cinematography of a world worth saving, *Ice on Fire* was nominated for a Golden Eye award at the 2019 Cannes Film Festival. The [trailer](#) shows why the film is so highly acclaimed.

Organic gardener [Donna Balzer](#), co-host of the internationally aired HGTV show "Bugs & Blooms," considers biochar to be one of the three secret ingredients that will give soil a boost. (Compost and worm castings are the other two).

[Nursery Management Magazine](#) talked to several biochar aficionados and reported that using biochar in one's growing substrate is an improvement over conventional peat-based mixes, especially for nutrient management.

South America

Terra Preta de Índio is seen by ecologists as vital to preservation of river ecosystems [in the Amazon](#) rain forest. Though Amazonian dark earth is recognized to be man-made, e.g. using biochar, researchers have not definitively rediscovered the constituents and process for making more.

Europe

The Finnish Ministry of the Environment is studying sludge derived biochar produced by a [pyrolysis plant in Turku](#). The research also covers the impacts of the pyrolysis process on harmful organic substances, heavy metals and microplastics found in sewage sludge.

A [Cypriot company](#) is making electricity and biochar from waste timber and agricultural residues. They have support from the Green Party and the local community to expand into making premium timbers, veneers and essential oils.

Southern Asia

[Priyanka Sarkar](#), a PhD Candidate at Assam University in Silchar, India is studying the question of whether biochar can increase carbon sequestration in wetland projects. The work is being supported by a fellowship through the Society of Wetland Scientists, sending her to Drexel University in Pennsylvania.

Australia and the Pacific

The final draft of the ANZ Standards for Biochar will soon be posted to the [ANZBI website](#). Hear a 2-hour discussion at the third ANZBI Conference in October. In early 2020, the Standards will be submitted to Standards Australia. They are also geared to adoption by New Zealand.

News You Can Use

Air curtain burners that have no char removal feature can still yield enough biochar to make [recovery](#) worthwhile. However, the manual process is avoided and more char is recovered when using an [ROI](#) machine featuring automatic, in-process biochar removal.

Biochar-related opportunities, jobs, and education

The Land Degradation Neutrality Fund (LDN Fund), co-promoted by the UNCCD, is a first-of-its-kind fund that invests in profit-generating sustainable land management and land restoration projects that contribute to SDG 15.3. The LDN technical assistance facility (TAF) can provide grants for projects that have the potential to receive funding through the LDN Fund and can be investment-ready within twenty-four months. [Pre-investment assistance](#) focuses on enhancing technical, operational and financial design and structures, as well as provide project preparedness support that considers broader social and environmental impacts.

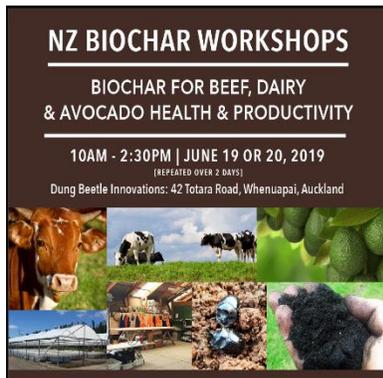
The U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Coastal Plains Soil, Water and Plant Research Center located in Florence, South Carolina has a position

open for a U.S. citizen to work as a [Soil Scientist](#) researching the use of poultry manure biochar for P control. Doctoral degree required. Anticipated appointment date is August 1, 2019.

A free USDA NRCS [webinar](#) will be held on Jun 12, 2019 2:00 pm US/Eastern covering “Biochar Formulation as a Soil Amendment in the Agricultural, Forestry, and Environmental Sectors.” Participate to learn about the history of biochar usage, current production methods, and its impact on soil health improvement and pollutant remediation. Emphasis will be placed on how to identify salient physio-chemical properties of biochars that allows for their matching to specific soil fertility deficiencies, heavy metal abatement, and pollutant binding in waste streams. Specific examples will be presented from collaborative agricultural and environmental projects between the USDA-ARS and US EPA.

The [Sun Grant Program](#), a U.S. [National Institute of Food and Agriculture](#) grant opportunity for land grant universities in North-Central, Southeastern, South-Central, Western, and Northeastern regions, and a Western Insular Pacific Subcenter to join hands in work with biobased technologies, is taking applications for the estimated \$2.7 million in program funds until June 27, 2019.

Calendar



NZ BIOCHAR WORKSHOPS
BIOCHAR FOR BEEF, DAIRY
& AVOCADO HEALTH & PRODUCTIVITY
10AM - 2:30PM | JUNE 19 OR 20, 2019
(REPEATED OVER 2 DAYS)
Dung Beetle Innovations: 42 Totara Road, Whenuapai, Auckland

The poster features a collage of images including a cow's head, a herd of cows, avocados, a biochar production facility, and a biochar product.



Biochar and Bioenergy 2019

USBI/BANR Conference

June 30 – July 3, 2019. Colorado State University, Ft. Collins, Colorado. "From Biomass to Biochar & Bioenergy – Bridging Science and Opportunities."

<https://biochar2019.meetinghand.com/en/>



Bio-Char II: Production, Characterization and Applications

September 15-20, 2019 Cetraro (Calabria), Italy.

<http://www.engconf.org/conferences/energy-technology/bio-char-ii-production-characterization-and-applications/#header0>



StormCon 2019

August 18–22, 2019 Atlanta, GA.

Network with stormwater and surface water quality professionals from all over the world.

<https://www.stormcon.com/registration/>



Third ANZ Biochar Conference

October 20-26, 2019 Green Triangle Region & Melbourne Metro, Australia.

In conjunction with the first ANZBI Study Tour. Conference theme is "Mainstreaming Biochar."

<https://anzbc.org.au/>

Abstracts due 30 June 2019.



IBI Biochar World Congress 2019

Towards Biochar Global Market Development

November 10 - 14, 2019, Seoul, Korea. Sharing knowledge on all aspects of biochar among a broad international scientific community, policy makers and industrial personnel.

<http://biocharworldcongress.com/>

Abstracts due 30 June 2019.



Bois Energie

January 29 -30, 2020 Nantes, France. Wood Energy for Industry and Municipalities. Held in parallel with two other BEES exhibitions – Regen and Biogas Europe.

<https://www.boisenergie.com/en/>



An IBI Biochar Study Tour, co-sponsored by the Ithaka Institute, is scheduled for 4 - 6 September in Tampere, Finland. Topics to be included are biochar production, carbon sink trading, district heating, biochar-based materials, circular economies, and more! The first day will be conducted in Helsinki with presentations on carbon sink trading. Participants will travel by bus to Tampere for days 2 and 3 to see and hear about the many ongoing projects and gain insight on various urban uses of biochar. For more details and registration, see the IBI webpage at: <https://biochar-international.org/event/ibi-biochar-study-tour-finland/>. More details will be announced over the next few months.

New Research

Here are just a few of the papers recently published regarding biochar. These are selected by IBI staff from the 200+ articles included in the latest monthly list available on [your IBI Member homepage](#). The list contains highlights and selected quotes from abstracts to make it easy for you to find articles of interest. You can automatically receive the full research paper list by e-mail every month - just [join IBI!](#)

❖ *The Enriched get Richer:*



Bolton, L et al. "Phosphorus Adsorption onto an Enriched Biochar Substrate in **Constructed Wetlands Treating Wastewater**." Elsevier.

<https://www.sciencedirect.com/science/article/pii/S2590290319300057>.

From the Abstract: "During the 7-month study period, the wetlands containing the enriched biochar consistently reduced PO₄-P concentrations in primary treated sewage to lower levels than in the control wetlands, with an average inlet P concentration of 15.5 mg/L, to below 2 mg/L."

❖ *... and the Rich grow Denser:*

Li, J, L Zheng, et al. "Sorption Mechanisms of **Lead** on Silicon-Rich Biochar in Aqueous Solution: Spectroscopic Investigation." Elsevier.

<https://www.sciencedirect.com/science/article/pii/S0048969719315165>.

From the Abstract: "Our results suggest that [Si-rich coconut fiber biochar (CFB500)] was a promising material for the remediation of Pb-contaminated aqueous environments (e.g., wastewater)."

❖ *Build Crawlable Communities:*



Palansooriya, Kumuduni Niroshika et al. 2019. "Response of **Microbial Communities** to Biochar-Amended Soils: A Critical Review." Biochar. <http://link.springer.com/10.1007/s42773-019-00009-2>.

From the Abstract: "... chemical properties of biochar, (especially pH and nutrient content), and physical properties such as pore size, pore volume, and specific surface area play significant roles in determining the efficacy of biochar on microbial performance as biochar provides suitable habitats for microorganisms."

❖ *Create Cleansing Composites:*

Premarathna, KSD, AU Rajapaksha, ... B Sarkar - Chemical Engineering "Biochar-Based Engineered Composites for Sorptive **Decontamination of Water**: A Review." Elsevier.

<https://www.sciencedirect.com/science/article/pii/S1385894719308757>.

From the Abstract: "... this review focuses on BC composites prepared by the combination of BC with different additives including metals, metal oxides, clay minerals, and carbonaceous materials ... modification enhances the adsorption capacity of BC for most organic and inorganic compounds and ions."

www.biochar-international.org info@biochar-international.org

Follow us on [Twitter](#)  & Like us on [Facebook](#) 