Highlights from this Month’s News

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

- Founding a New Carbon Economy
- China Surging Further Ahead
- An Underground Zine
- The Down Under Scene

Welcome, New Corporate Members:

**BC BIOCARBON LTD**

McBride, BC, Canada

http://www.bcbiocarbon.com

BC Biocarbon uses biorefinery technology based on pyrolysis and gasification processes to manufacture biogenic products including biochar, biocoal, wood vinegar, natural chemical liquid products, industrial heat, and producer gas. Our technology can process most types of carbonaceous feedstock materials giving us operational and economic flexibility. We provide synergistic solutions to a variety of sectors such as farming, forestry, and municipal waste disposal operations that have by-product waste streams. Our products offset fossil fuels and other hydrocarbon-based products, providing lower emission alternatives to industries ranging from cement and steel manufacturing to food additives. The process is carbon neutral and therefore there is no net release of CO2 into the atmosphere.
Current Members

CORNELL UNIVERSITY
CUMMINS, INC
EARTH SYSTEMS CONSULTING
ECOERA
ECOTOPIC AB
HUSK VENTURES SL
ICHAR ITALIAN BIOCHAR ASSOCIATION
INTEGRITY INDUSTRIAL SERVICES
INTERNATIONAL BIOREFINERIES, LLC
K&S INDUSTRIES
KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH (KISR)
LENZ ENTERPRISES INC
LECHENMUeller CONSULTING
METZLER FOREST PRODUCTS LLC
NATIONAL CARBON TECHNOLOGIES
NO FOSSIL FUEL, LLC / CLEAN POWER
NORTH SUBURBAN TREE SERVICE
NORTHERN CALAMIAN FARMING INC.
NOVOCARBO
NPO KITAKYU CLEAN ENVIRONMENT
OREGON BIOCHAR SOLUTIONS
POLYTECHNIK
PURE LIFE CARBON INC.
PYREG GMBH
RAINBOW BEE EATER PTY LTD
SENeca FARMS BIOCHAR LLC
SIMEKEN INC.
SLB GROUPE (CAMPOS VERDES, SYLVA FERTILIS)
SOILTEST FARM CONSULTANTS
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STANDARD BIO AS
SUMITOMO SHI FW
SYNCRAFT
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Current Members

UPM UMWELT-PROJEKT-MANAGEMENT GMBH
VANMANDER SL
WAKEFIELD BIOCHAR
WOOD GROUP USA
WOODCO RENEWABLE ENERGY LTD
YORK REGION ENVIRONMENTAL ALLIANCE
In the Holocene, pyrogenic carbon left on the landscape was often beneficial to an ecosystem. In the Anthropocene, however, elevated atmospheric CO$_2$ from too much burning is putting our existence in jeopardy. The imbalance occurred when we stopped merely burning extant biomass and started burning carbon from earlier geological ages as well. Now driven by necessity to end our dependence on fossil fuels, we are fortunate that science and technology have enabled us to also use biomass in nature-enhancing, climate-positive ways. Through pyrolysis, for example, we preserve remnants of once-living matter, honoring its life and allowing it to help preserve our own.

To acknowledge the life that once burned within these remnants, we prefix the name we give it with “bio” (from βίος, the ancient Greek word for “life”). Biochar is a generic term given to carbonized organic material. Depending on its characteristics (which can be diverse depending on its source), biochar lends itself to virtually any form of agriculture, as well as innumerable other disciplines. Agricultural methods that might incorporate biochar include grazing, agroforestry, alley cropping, silviculture, organic farming, conservation agriculture, regenerative agriculture, aquaculture, hydroponics, horticulture, forest gardening, and even row cropping.

*Burn by Albert Bates and Kathleen Draper* offers dozens of other applications for biochar and IBI members who receive our monthly compilation of research highlights see new possibilities conceived every month. With potential applications innumerable as what we can imagine, should we be surprised that biochar is even being evaluated as a covid-19 capture and kill coating for fabrics? Stand-by for more developments on this.

IBI promotes biochar not because it can do everything better, but because it can do so many things well. At this stage, we can put aside debates of quality vs. quantity because enormous biochar quantities of various grades are needed in the emerging new carbon economy. The most prodigious use is expected to be in construction applications using industrial grade char.

The other main reason we promote biochar is because long-term carbon sequestration starts the moment biochar is made. Whether it is then used to make cosmetics, livestock feed, or flash graphene is not critical in solving the climate crisis. To draw down atmospheric carbon, we need to exponentially increase the quantity of biochar produced.

The theory of diffusion of innovation posits that at around a 16% market penetration level, a tipping point occurs triggering a landslide of new customers. While we want to see biomass put to its highest available use, IBI looks forward to the day when global biochar demand, from whatever sector of the green economy, crosses this threshold.

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Regional Briefs

Northern Asia

By far the largest producer in the world already, the Chinese biochar industry is beginning a new surge of growth. With impressive results from the use of biochar-based fertilizers since scaling up the program in 2017, the Ministry of Agricultural and Rural Affairs has extended its commitment to biochar as one of the top ten technologies in green agriculture under the new 5-year plan. One of the top priorities for green agricultural development in China is reduction of mineral fertilizer use, which will be largely realized using biochar-based fertilizers. The amount of biochar production that will be placed online to achieve the shift by 2025 will position China to lead in creating the greater new carbon economy which IBI enthusiastically advocates.

Australia and the Pacific

An Australian company that produces eucalyptus oil is moving into making biochar from the mountain of wood residue on hand.

The IBI looks forward to continuing collaboration with the new Australia/New Zealand Biochar Industry Group (formerly ANZBI) whose Board is chaired by Nigel Murphy of Earth Systems. Don Coyne stays on as the organization’s Executive Director. ANZBIG’S new Code of Practice recognizes nine grades of biochar.

Africa

A poem in this video brings out the reasons biochar is loved by women who derive from it better quality of life.

North America

The New Jersey Department of Environmental Protection is helping to fund a project on Lake Hopatcong to reduce algal blooms by simply laying biochar-filled bags across outfalls. Biochar adsorbs polluting nutrients like Nitrogen, but Phosphorus may require a more targeted product. Washington State University is making progress on treating biochar to better take up Phosphorus.

With a new $500K grant, the University of Nebraska–Lincoln will be conducting multi-year trials on three large sites including sandy, sloped, and carbon-deficient soils to evaluate biochar effects on soil, crops, and water.

Kelpie Wilson offers several success stories and resources for farmers interested in making their own biochar.
California is seeking new management practices for healthy soil to add to its current list of 27 practices. Proposals are due by August 28, 2020.

CAL FIRE has enlisted the Climate Action Reserve (CAR) to develop a methodology that will allow biochar to earn carbon removal credits in California.

A British Columbian start-up that makes eco-friendly bioluminescent light wands is researching biochar as a compostable packaging material.

South Asia

The Economist reported on a new initiative to char pine needles for fuel management and Pb removal from waterways.

Three years of government-funded research has led to a method to produce biofuels and biochar from sawdust and agricultural residue under N or Ar gasses which will soon be presented to the government of India.

Biochar-related opportunities, jobs, and education

An entire issue of the Canadian Journal of Soil Science will be dedicated to biochar soil amendments in temperate environments. Manuscript submissions are being accepted through September 30, 2020.

A new underground zine targeting general readers titled “A Cool, Black Earth” is about to be published with art, poetry, short essays, and comics on the topic of biochar. Long essays will be available through the online version only. Artists and writers should have submissions in by August 15, 2020.

With the cancellation of so many conferences due to the pandemic, having access to the recorded livestream of the ANZBI Conference and Study Tour can fill that hole in your schedule and awareness. Featuring presentations and updates by several IBI Corporate Members including Woodco, Earth Systems, carbonfuture, Rainbow Bee Eater, and many luminaries in the biochar space, the recorded sessions are available in various packages at affordable prices.
Calendar

**PYRO 2020**
Nov 29 – Dec 4, 2020 Ghent, Belgium
23rd International Conference on Analytical and Applied Pyrolysis.

**COMPOST 2021**
Jan 26 – 29, 2021 Ontario, Clifornia
https://compostconference.com/

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New Research

Here are some papers selected by IBI staff out of the roughly 200 articles included in the latest monthly list available on your IBI Member homepage. These are compiled by Abhilasha Tripathi to bring you the technical side of the biochar news. If you really want to know what is in the works, exploring this list every month will give you a much fuller picture than you get by reading this newsletter. You can automatically receive the full research paper list by e-mail every month by joining IBI.

- **Subterranean Soil Salve:**
  [https://www.sciencedirect.com/science/article/pii/S0016706119319834?casa_token=ofoUMQsrWd5AAAAAA:6LhJW90vfxnY0j4O8B-9RRa-tlFKUdXWRA_mUIRFvxsuGB-M4zubMBnagI0rQ0XmCJersz23xox](https://www.sciencedirect.com/science/article/pii/S0016706119319834?casa_token=ofoUMQsrWd5AAAAAA:6LhJW90vfxnY0j4O8B-9RRa-tlFKUdXWRA_mUIRFvxsuGB-M4zubMBnagI0rQ0XmCJersz23xox)
  From the Abstract: “…mixing biochar into soil significantly slowed initial soil drying and increased seedling biomass by 70% compared to unamended soil.”

- **Cast-iron Cone Kiln:**
  Kong, K. K., & Sii, H. S. Design and construction of mobile Biochar Kiln for small farmers. Iopscience.Iop.Org. [https://doi.org/10.1088/1757-899X/788/1/012075](https://doi.org/10.1088/1757-899X/788/1/012075)

- **What we learned in 2019:**
  From the Abstract: “Converting municipal wastes (e.g., sewage sludge, fallen leaves) into biochar through pyrolysis was a suitable treatment for municipal waste and became a popular topic in recent time. Moreover, the biochar produced from these municipal wastes exhibited excellent performance in the removal of pollutants from wastewater and soil.”

- **Leave an enduring legacy:**
  Haifei Lu, Rongjun Bian, Xin Xia, Kun Cheng, Xiaoyu Liu, Yalong Liu, Ping Wang, Zichuan Li, Jufeng Zheng, Xuhui Zhang, Lianqing Li, Stephen Joseph, Marios Drosos, Genxing Pan, Legacy of soil health improvement with carbon increase following one time amendment of biochar in a paddy soil – A rice farm trial, Geoderma, [https://doi.org/10.1016/j.geoderma.2020.114567](https://doi.org/10.1016/j.geoderma.2020.114567)
  From the Abstract: “…SOC storage increased by 45%, total and available nitrogen pool enhanced by approximately 30% ... A 25% increase in mean weight diameter of water stable aggregates ... microbial biomass nitrogen and enzyme activities ... enhanced ... by approximately 30% ... a moderate (32%) increase in total bacterial abundance and a significant decrease in ... fungal pathotrophs ... higher (10%) grain yield with lower yield inter-annual variability ...”

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

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Work with IBI!

**IBI offers the following options for collaboration with scientific projects. Select the package best for your organization and complete the accompanying payment form.**

- **Silver Package 1**
  - a) IBI is posting a project description on its website with contact details, links, photos; the website can be updated once per year.
  - b) IBI is sending out a project update in the monthly newsletter twice per year of the project.
  - c) Publications published by the project are guaranteed to be listed in the monthly IBI publications update.
  - d) In-depth discussion of one publication per year by a member of the IBI Scientific Committee, sent out in the monthly IBI publication update and posted on the project site of IBI.

**Costs: $1,000 per project year, payable at the beginning of the project year**

- **Gold Package 2**
  - a) Includes all services of Package 1.
  - b) Webinar on project plans, progress or outcomes with a topic appropriate for IBI audience (one-hour webinar with about 50-100 participants worldwide), moderated by IBI, advertised globally, with Q&A session). Webinar is archived on the IBI website and can be seen by IBI members (add $1,000 for open access).

**Costs: $4,000 per project year, payable at the beginning of the project year**

- **Platinum Package 3**
  - a) Includes all services of Packages 1 and 2.
  - b) IBI excursion to your project at a time when it is attractive to a diverse audience ranging from scientists to industry representatives and policy makers, typically 40 attendees, who will pay for their own travel and a registration fee (see [https://biochar-international.org/event/ibi-biochar-study-tour-finland/](https://biochar-international.org/event/ibi-biochar-study-tour-finland/) for an example of previous excursions).

**Costs: $15,000 per project year, payable at the beginning of the project year**

Packages can vary for each project year (i.e., a project may opt for Package 1 in year 1 and 2 of their project and for Package 2 in year 3). Please inquire for additional options and combination of services not mentioned above.

IBI will provide a letter of commitment that can be included in your proposal to a donor. If the proposal is approved and funded, IBI can work with purchase orders or contracts, as is easiest for the project.
International Biochar Initiative

IBI COLLABORATION WITH SCIENTIFIC PROJECTS

PLEASE PROVIDE YOUR NAME AND CURRENT BILLING ADDRESS:


Collaboration Options (Prices in U.S. Dollars)

- □ Platinum: $15,000
- □ Gold: $4,000
  - □ Optional open webinar access (+$1,000)
- □ Silver: $1,000

Total amount enclosed: $______

□ check in U.S. dollars  □ cash in U.S. dollars  □ MC/Visa number:______________________________

Exp. Date: ________ 3-Digit Security Code: ________  Name on Card: ________________________________

Email receipt to: __________________________________ / Phone #: ________________________________

Please enclose check or cash or provide credit card information, and send to the IBI Office:

by email (bschorr@ttcorp.com), fax (1-202-223-5537), or U.S. mail
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Thank you for your support!