Highlights from this Month’s News

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

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WELCOME NEW CORPORATE MEMBERS

CARBONFUTURE GMBH
https://carbonfuture.earth
Freiburg, Germany
(*Upgrade to Sustaining Membership)
Carbonfuture provides a platform for end-to-end documentation, verification, certification and trading of carbon sinks.
Hybrid Energy Australia

https://www.hea.systems/
Melbourne, Victoria, Australia

Founded by a group of industry specialists, Hybrid Energy Australia (HEA) has a specific mandate to develop and deliver projects to: create cost-effective carbon-neutral solutions and products that improve the agricultural production of marginal land deficient in carbon. HEA offers a single point of responsibility for project delivery that covers the entire development and implementation lifecycle, providing projects with end-to-end integration.

HEA VISION:
Creation of cost-effective carbon neutral solutions.

HEA MISSION:
Delivery of economic, social and environmental impact through provision of unique green investment opportunities and employment transition prospects through sustainable initiatives.

ETIA Group

https://etia-group.com
Compiegne, France

We decarbonize industrial processes by converting waste and biomass into renewable carbon materials and fossil-free energy.

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From the Executive Director

At least ten IBI members, board members and staff will be attending the upcoming Climate Conference in Glasgow from November 1 through the 15. Each of us attending will be spreading information about biochar and its highly valued properties as a carbon drawdown technology. Biochar is one of a small number of similar means by which the greenhouse gas emissions can be reduced and carbon can be removed from circulation in the earth’s carbon cycle. No one doubts the fact that utilization of fossil fuels cause carbon-based emissions that raises the earth’s global surface temperatures. If we have any hope of reversing current trends, we must reduce those emissions and utilize drawdown technologies to pull carbon out of this cycle faster than new usage of fossil fuels will continue to spew out these emissions.

We will need all of the promising carbon drawdown technologies we can use effectively. Biochar is one such technology that is scalable and proven.
Biochar can be engineered with the purpose of improving soils, increasing crop productivity, providing filtration and odor mitigation services, for use in construction materials for roads and buildings and many other positive and beneficial results.

However, we must also exercise caution to keep our enthusiasm for this extraordinary product to overtake our reason. We have an astonishing opportunity to put biochar at the center of the drawdown movement. Let us make sure that we do not try to “oversell” our product with claims that are not proven by sound science. We must place the highest standard of integrity to the actions we take from how we promote the product to the business standards and practices we employ in capitalizing on the financial and environmental promise that biochar presents.

So, while we at IBI will be promoting biochar enthusiastically at COP26 in Glasgow next week, we will base our “pitch” on solid science and proven experience delivering this technology for the myriad uses that it can fulfill. Those of us representing IBI will reach as many COP26 attendees as possible with our messaging. You can help as well by informing us of individuals or delegations that you would like us to try to reach. If there are biochar supporters or those that need to be convinced of the merits of this technology, please let us know and we will do our best to connect with them.

We may only have one chance to protect our planet for future generations by addressing the excessive carbon in our atmosphere. We know that biochar is part of the solution, so let’s make sure that we position ourselves and our product using unassailable science, logic and truth to protect biochar’s opportunity to drive success in our mission to protect the earth from humans’ destructive effect on our environment.

Rob Nooter, Executive Director
International Biochar Initiative

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IN THE NEWS

https://www.whitehouse.gov/briefing-room/presidential-actions/2021/10/15/a-proclamation-on-national-forest-products-week-2021/

THE WHITE HOUSE, BRIEFING ROOM
A Proclamation on National Forest Products Week, 2021
“We are proposing investments in sustainable and innovative uses for wood waste materials to produce advanced biofuels, biochar, .......”
JOSEPH R. BIDEN JR.
[2021.10.15 Emphasis added. –Ed.]

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https://earthshotprize.org/london-2021/the-earthshot-prize-winners-finalists/air/
A biochar company wins Prince William's inaugural Earthshot Prize: Takachar has developed a cheap, small-scale, portable technology that attaches to tractors in remote farms. The machine converts crop residues into sellable bio-products like fuel and fertilizer. More at https://www.takachar.com/

REGional briefs

Australia

Carbon farming: applying biochar to increase soil carbon.

Opportunities in using biochar: Applying biochar is an activity covered in the Measurement of soil carbon sequestration in agricultural systems method, and is a restricted activity (section 12:4) in the legislation. The requirements for a project to claim carbon credits from the Emissions Reduction Fund are very detailed. Applying biocahr [sic] could be one component of a farming system that results in increased carbon sequestration.


The Morrison government wants to suck CO₂ out of the atmosphere. Here are 7 ways to do it.
[#2 is Biochar. –Ed.]

INDIA

https://www.pureecoindia.in/social-enterprise-oorja-will-convert-agriwaste-into-energy/

Oorja helps offgrid rural communities to turn biomass into energy

“Each plant will have an installed capacity of 40-75 kW of energy and will produce up to 70 tonne of biochar per year, serving 4-5 villages within a radius of 2-5 km. Oorja will provide savings of over 500 tonne of CO₂ per village per year. .............. Oorja is a social enterprise offering a comprehensive technological solution, training and technical assistance to deploy off-grid decentralised biomass-to-energy plants in India. Its mission is to sustainably utilise agricultural waste of rice husk to co-produce reliable and affordable energy, as well as, a natural soil amendment product called biochar, in a decentralised and easy-to-operate, biomass-to-energy plant for off grid communities in rural India. The social enterprise will simultaneously address the challenges of energy poverty, soil fertility and global warming.

EUROPE AND UK

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Solving the Carbon dilemma. Biochar as the new economical carbon sink solution for any industry

Despite countless government mandates, multinational groups, and grassroots initiatives dedicated to reducing the amount of carbon in our atmosphere, every year we are seeing more and more of it released. This is the dilemma we are currently facing – and the sheer scale of this carbon dilemma means we must attack it from multiple angles. ... For example, Microsoft, Shopify, and Stripe have all recently invested in biochar as a part of their sustainability strategies.

Agrovista partners with Carbon Gold as UK distributor

Agronomy and crop protection firm will distribute Carbon Gold’s enriched biochar products in England, Scotland and Wales. ... “Agrovista has access to that wider market, and the team’s experience and technical knowledge made them the best fit to take us to the next level of growth.” (Carbon Gold commercial director James MacPhail)

A newsletter from Pro-Natura describes the history of terra preta dos indios and its modern successor, biochar:

“From Conquistadors to soil scientists, the evolution of terra preta into biochar is a bizarre and intriguing story. Research from the past decades is leading to this very exciting opportunity in the fight against global warming.

Click this link to see the relevant Newsletter.”

Betting on biochar in Bonner

“But [biochar’s] potential still isn’t widely appreciated, at least not in the United States. Tom Miles, a Portland, Oregon-based agriculture and energy consultant who directs the US Biochar Initiative, said its potential is starting to gain recognition in agricultural and environmental circles, but it remains off the broader public’s radar.”

[The article refers to edaphic attributes of biochar as well as its ability to sequester carbon of atmospheric origin. –Ed.]
Mechanical Engineering Professor Gerardo Diaz, Ph.D., and his team, and Professor Rebecca Ryals, Ph.D., are turning agricultural by-products into a versatile substance known as biochar and studying the effects on climate change.

Read more: [https://abc7news.com/biochar-wildfires-agriculture-methane/11062106/](https://abc7news.com/biochar-wildfires-agriculture-methane/11062106/). [A video clip refers to agriculture and reducing fuel loads in forests, making biochar and co-application with manure as fertilizer. –Ed.]

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**Africa**

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**Women entrepreneurs are unlocking value in Africa’s overlooked agrifood resources**

“Climate change is already here [in Africa], affecting people in negative ways, such as hunger caused by drought and floods,” said Joyce Kamande, co-founder of Safi Organics, ... . What’s more, Safi’s technology helps **decentralize biochar production**, “making it feasible to be implemented in local villages,” Kamande says.


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**Amending Soil With Biochar From Available Agricultural Wastes to Improve Sustainability of Cotton Production in Mali:**

Improving the sustainability of cotton production in Mali can be achieved by returning organic matter and nutrients to degraded soils. Amendment with biochar prepared from locally available feedstocks has been suggested as a pathway to sustainability. A greenhouse study was conducted to evaluate the effect of biochar prepared from two feedstocks readily available in Mali, cotton field residue and rice hulls, on cotton plants grown to six weeks.

[Download PDF]

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**Biochar Training at Mikuyu Prison Farm, Zomba, Malawi (Global Giving / Warm Heart)**

Our team in Malawi has been working on putting together a biochar training program for the Mikuyu Prison Farm in Zomba, Malawi for a few years. The prison grows as much of its own food as possible. Both inmates and officials joined in the training.
Demo of trench method

Read more: https://www.globalgiving.org/donate/34071/warm-heart-worldwide-inc/reports/

Dr. Steven Machado, agronomist, Oregon State University Extension, presenting certificates to the prisoners. Dr. Machado provided technical assistance to the Warm Heart Malawi Biochar Project during his visit as a Fulbright scholar. He has taken the trench method for maize stalks and TLUD method for cob feed biochar to Zimbabwe. IBI facilitated his Fulbright scholarship so that he could assist Warm Heart Malawi and study biochar in Zambia, Malawi and Zimbabwe.
In this month’s update on the biochar situation in Latin America, I interviewed Joe Koechlin who is the president and CEO of Inkaterra. He established Inkaterra in 1975, pioneering ecotourism and sustainable development in Peru. It focuses on preserving Peru’s nature and cultures and sharing them with the world. That’s how The World Tourism Organization (UNWTO) celebrates Inkaterra’s initiative to turn Machu Picchu into the world’s first Carbon Neutral Wonder. Inkaterra’s recent project is included in UNWTO’s sustainable tourism program, OnePlanet, which promotes tourism policies and practices that contribute to reducing pollution, biodiversity loss and climate change. It also supports the transition towards a circular economy as a way for the sustainable development of the tourism industry. Through a strategic alliance that brings together various stakeholders to ensure a carbon-free future for Machu Picchu, Inkaterra joins efforts with the Municipality of Machu Picchu, Grupo AJE, and SERNANP and between the projects they’ve done to achieve this goal they opened the first Organics Waste Treatment Plant. The raw material is the organic waste from Machu Picchu district, which is converted into carbon. In the last 7 months of 2020 they turned 16107.02 kg of organic waste and produced 1737.84 kg of biochar. This biochar is used as a soil improver in the district of Machu Picchu, either in the town or in the high Andean communities of the district. This is a success story that demonstrates the achievements that can be complete when the public and private sectors work together, this initiative makes Machu Picchu the first destination in Latin America to establish a circular economy through an innovative waste management strategy. For the carbon neutrality certification of Machu Picchu, scheduled for September 2021, a collaboration has been established with GreenInitiative. This commitment aims to reduce carbon emissions to 45% by 2030, and achieve net zero emissions (carbon neutral) by 2050, according to the guidelines of the Paris Agreement.

Update by Nithin Das, National University of Singapore, Singapore.

In this month’s update on biochar work, I have been collecting data from China and India. I spoke to some researchers and professors specialised in their field and gained a deeper understanding of biochar as a whole. The difficulties I faced in obtaining data from India have also been solved where I was able to get into touch with a few people from the working biochar members group. I have also narrowed down the scope of what I was looking into and this has helped me greatly. The data I collect in the upcoming weeks will be similar to what I mentioned previously but focusing on China, Korea, Malaysia and Sri Lanka. I hope to overcome the foreseeable challenges and to ensure the accuracy of the data collected.
2021 UN Climate Change Conference (COP26) November 1-12, 2021 Glasgow, Scotland, UK. - [https://ukcop26.org](https://ukcop26.org)

Détails en français sur [www.bio360expo.com](http://www.bio360expo.com)


Biochar is a headliner topic at the event. The programme schedule will be published in early November and the detailed programme by the end of November.
NEW RESEARCH FROM GOOGLE SCHOLAR

Papers in this list are from last month’s new ‘biochar’ entries in Google Scholar. Quotes are from the papers, which are accessible through the links provided. These have been extracted by Abhilasha Tripathi PhD Candidate, Indian Institute of Technology, Kanpur to keep the length of this addendum manageable, yet informative enough to prompt further investigation by readers. Emphasis was placed on highlighting new findings leading to practical application, but with the expectation that decisions will be informed by accessing the full publication. The complete list (over 270 references this month) is accessible through the members-only portal. Visit https://biochar-international.org/join/ and https://biochar-international.org/benefits/. This month Dra. Tripathi has harvested more than 250 items. Here’s a selection. [-Ed.]

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From the Abstract: “...vermichar which is the synergy between Vermiculture (worm farming) and Biochar (porous charcoal soil improver). ....... According to our analysis, vermichar is a very good
supplement for the soil which increases the N, P, K, C, and organic content of the soil, which is followed by biochar in order to grow a healthy plant.”

https://www.sciencedirect.com/science/article/pii/S0016236121017749?casa_token=Pq5zaI4SI5MAAAAA:Xz2mAF06RTWoLudZHefaAvfP_oX6Cn59Z8GoVyZvT95zkC46kmkKcDTqYiTNG6N234b6jJfSumXDI

From the Abstract: “The cumulative biogas production in pretreated and biochar amended digesters was 73.4–98.7% higher than the control digester. Methane content in biogas improved by 9.33 – 19.8% in BC supplemented assays over control. The highest methane yield of 235 mL and VS removal (77.4%) were observed for pretreated, and biochar (1% dose) amended digester.”

Beesigamukama, D, B Mochoge, ... N Korir - Journal of Insects as, (2021) "Economic and Ecological Values of Frass Fertiliser from Black Soldier Fly Agro-Industrial Waste Processing.” ir-library.ku.ac.ke.  
https://ir-library.ku.ac.ke/bitstream/handle/123456789/22457/Economic%20and%20ecological%20values%20of%20frass%20fertiliser%20from%20black%20soldier%20fly.pdf?sequence=1

From the Abstract: “Feedstock amended with 20% biochar increased net income by 10-64% for black soldier fly (BSF) larvae and frass fertilizer (FF) production than other feedstocks. Production of one megagram (Mg) of dried BSF larvae (USD 900) would generate 10-34 Mg of FF worth USD 3,000-10,200. Maize grown on plots treated with FF yielded 29-44% higher net income than maize harvested from plots amended with commercial organic fertiliser.”

Figure 1. Schematic diagram of black soldier fly (BSF) circular economy production system.


From the Abstract: “This study classifies the effective types of soil microorganisms with respect to their functionality to facilitate the choice of the best compatible microbial strain(s) in order to satisfy the host environment requirements. The second part is dedicated to various inorganic and organic carriers, such
as perlite, peat, fly ash and compost, for delivering of microorganism into the soils. The role of carriers in the survival and the functional contribution of the microbes to soil–plant systems are investigated. ...

**The superior features of biochar**, for example high surface area, porosity, customizable structure, high stability, carbon sequestration and synergy, with other fertilizers are also discussed. [Emphasis added. – Ed.]

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**From the Abstract:** “Powdered biochar increases thermophilic methane rate from acidied sludge by 20–94% while, shortens thermophilic lag period of methane from sludge by 67–91%.” .... Biochar addition resulted in a rapid shift in microbial community structure associated with an increase in *Methanothermobacteraeae* (hydrogenotrophic) and *Methanosarcinaceae* archaea, as well as various volatile fatty acid (VFA)-degrading and hydrogen-producing bacteria. Biochar presents great potential to tackle VFA accumulation, abbreviate lag phase and increase methane rate, particularly at high organic loadings.

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[https://www.sciencedirect.com/science/article/pii/S0045653521025856?casa_token=MafLUpkd27gAAA:QKxciDksU5JTqV0OL5MYInvjVggA0gebBBcMa__lo8-jlyQ6idmqbefQuU7VbfEBLnN90CfxFY](https://www.sciencedirect.com/science/article/pii/S0045653521025856?casa_token=MafLUpkd27gAAA:QKxciDksU5JTqV0OL5MYInvjVggA0gebBBcMa__lo8-jlyQ6idmqbefQuU7VbfEBLnN90CfxFY)

**From the Abstract:** This research therefore aimed to describe different intriguing dimensions of biochar interactions with organic contaminants, which including: (i) an introduction of biochar preparation and the related physicochemical properties, (ii) an overview of mechanisms and factors controlling the adsorption of organic contaminants onto biochar, and (iii) a summary of the challenges and an outlook of the further research needs in this issue. ... However, some research gaps, such as dynamic adsorption, potential environmental risks, interactions between biochar and soil microbes, novel modification techniques, need to be further investigated to facilitate its practical application. This research will be conducive to better understanding the adsorption removal of organic contaminants by biochar.
https://www.tandfonline.com/doi/full/10.1080/10934529.(2021)1980309

[The following item is included because of the potential to recover valuable metals by using the technology that is usually aimed at sequestering contaminants. –Ed.]

https://www.sciencedirect.com/science/article/pii/S2213343721012653?casa_token=MVypBNWuPfkAAAAA:Dml_MEJdbKMloAhKKMYvjNzxmrQ_r1wWprfwya-wpsWlYDCY5293Ctug5-h8XNG7TjWcpvoKA

From the Abstract: “... boron-nitrogen co-doped walnut shell biochar powder (B-N-WSBP) which can be synthesized through one-step pyrolysis process. .... Experimental results showed the B-N-WSBP achieved maximum adsorption rates of Au(III), Pt(IV), and Pd(II) of 246.96 mg g−1, 108.8 mg g−1, and 44.78 mg g−1, respectively.”

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

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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/ 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

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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: _______________________________

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Thank you for your support!