Highlights from this Month’s News

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

- A Perspective on the IPCC Climate Change and Land Report
- Stockholm’s success is contagious: Minneapolis catches the biochar bug!
- New York moving out on several fronts
- Advice for applying biochar to stormwater practices

News of the Initiative

Aside from our corporate members, we heartily welcome our newest Sustaining Member, U.S. Marine veteran, businessman, author, and activist Thomas Casten, who has had a long career specializing in the field of waste heat recovery.

Welcome to Our New Corporate Member:

North Suburban Tree is the largest CLEARING & GRUBBING CONTRACTOR in Western Pennsylvania, with more than 30 years experience. Our business practice enhances the LEED Green Building initiative. We recycle all of our byproducts. We are dedicated to environmental improvements that foster a sustainable future and lead to social and economic improvements in the communities where we do business.

Using specialized forestry equipment, we are able to clear a range of project as small as a narrow easement or individual building lot to a project as large as 100+ acres. Our operation is completely mechanized. North Suburban Tree Service can work on almost any type of terrain because we have both rubber tire machines for speed and track machines for steep grades. www.northsuburbanree.com
And Welcome Again to Our Renewing Corporate Members:

Carbo Culture’s first biochar is made from 100% walnut shells. It tests clean to the highest standards of toxin tests, is certified organic, has a very high fixed carbon content and 350+ m² surface area per gram.

We carbonize biomass waste into biocarbon products for soil and environmental applications. By rapidly converting carbon to a solid and stable form, we prevent it from escaping back into the atmosphere for over 100 years.

Our products are frequently used by people and organizations across industries, in agriculture and research, who feel the same environmental accountability as us. With like-minded partners and customers, we’re building a new culture of carbon.

We believe that biochar should be made from locally available waste material and converted on the spot into a high-quality, pure and clean biochar.

That’s why we took this invention and developed it into a full-scale facility, that can be rapidly deployed into any location - on or off-grid, where we don’t need expensive transportation, power purchase agreements or virgin biomass to make our biochar the excellent consistency and organic content it is. http://carboculture.com/

Cenipalma works with palm growers to obtain better results and the services that the sector requires, to contribute to the health, productivity and sustainability of this agribusiness through research, input generation and guides for the implementation of best practices.

With science, technology and innovation, we promote the sustainable development of agribusiness and the welfare of Colombian palm growers.

We develop, appropriate, transfer, train and accompany in the implementation and adoption of specialized technologies, viable and innovative, to address opportunities and challenges of sustainable Colombian palm growing. https://www.cenipalma.org
The Big Picture

by Robert Gillett

The IPCC’s Climate Change and Land report, written by over 100 authors, includes more emphasis on biochar than previously, but the panel seems to be picking its battles when it comes to upending the high carbon lifestyles that modern societies have embraced over the past century-and-a-half. The most attention-grabbing recommendation in the report is the shift to balanced, more plant-based diets, leading to a major reduction in the amount of livestock raised unsustainably. Along with reducing food waste, the plant-rich diet recommendation aligns with the rankings issued two years ago by Project Drawdown. As we might expect, this tack has raised the ire of big meat producers.

Consuming less meat will surely help reduce greenhouse gas emissions. While there are ways to manage livestock operations so as to minimize or sequester carbon, the vast majority of current meat production is carbon-emitting. With that point implicit in the IPCC’s report, meat producers will hopefully pursue constructive remedies rather than try to talk their way out of it or throw up barriers to change.

One thing ranchers could do to cut some of their emissions while sequestering carbon is to incorporate biochar in their livestock feed and manure management. In the U.S. and other countries, regulators must first grant the O.K. for a feed supplement. Europe has established standards for biochar in some feeds. A literature review by Hans-Peter Schmidt, Nikolas Hagemann, Kathleen Draper, and Claudia Kammann on The Use of Biochar in Animal Feeding was published on July 31. The abstract states, “Our review demonstrates that the use of biochar as a feed additive has the potential to improve animal health, feed efficiency and livestock housing climate, to reduce nutrient losses and greenhouse gas emissions, and to increase the soil organic matter content and thus soil fertility when eventually applied to soil. In combination with other good practices, co-feeding of biochar may thus have the potential to improve the sustainability of animal husbandry.” In Australia, Dr. Stephen Joseph has been asked to draft a standard for biochar feed supplements, which he hopes could become the basis for a global standard. This is the sort of constructive change that livestock industries should be pushing.

Another thing farms could do to reduce emissions is add biochar to manure and litter to aid in ammonia retention and improve composting.

When the IPCC report finally got to the topic of biochar, it was a lot like the Drawdown project, i.e. biochar is in the list of the 100 things you can do to solve global warming, but we haven’t had time to study it enough to understand how much it can help. Nothing about biochar in animal feed or urban tree plantings or stormwater devices. Yet, the report does call on biochar to do its part in agricultural soils. That we must do and not lose sight of all the other ways biochar offers to smooth our transition to a low-emissions global economy.

Any opinions expressed in this article are those of the author and may or may not reflect the views of IBI, its Directors, or Committee members.
Regional Briefs

North America

In Vermont, six state-funded pilot projects to remove excess phosphorus from water are being monitored for results. One that has looked most promising uses a biochar filter and was featured on a TV news report. If this technology becomes incorporated as a best management practice, dairy farmers will be subsidized by the state at 90% of cost to have these filters installed.

**All Power Labs’ (APL) Local Carbon Network (LCN)** is a global network comprised of community gardens and their associated local biochar producers, feedstock suppliers, and supporters. The flagship node centers on the Gill Tract Community Farm in Berkeley, California (APL’s home), but there are several others in the San Francisco Bay Area and one in Italy. Based on the tremendous yield increases after applying co-composted biochar at their farms, LCN considers this method to be the best chance for local organic produce to compete with the conventional food supply network.

**Aries Clean Energy** is one of the first large-scale producers in the Eastern U.S. to offer biochar in retail quantities.

One of this month’s renewing IBI business members, Carbo Culture, operates in Finland and California. They don’t disclose much about their technology, but indications are that their carbonizer is fast, high-yielding, and portable – just what we need to make lots of biochar everywhere quickly.

**Minneapolis** has run soil restoration trials with biochar and found a 20 – 30% improvement in plant productivity. A visit to the Stockholm biochar project then helped the town council to decide to adopt biochar as a measure to be used in urban plantings. They are embarking on setting up their own production facility for charring ash trees and other biomass available in the city.

The Natural Resources Research Institute (NRRI) at the University of Minnesota is taking on a lot of heavy lifting for the biochar industry. NRRI is stepping up to perform much-needed tasks such as life cycle analysis, market development, standard specifications, and supporting NRCS in getting biochar approved under the U.S. Farm Bill for cost-sharing with farmers.

When it comes to reviving soil for urban agriculture, grad student Michael Weiss looks to biochar as a solution and is running trials at the University of Michigan Campus Farm.

**Soil health** has been the topic of several U.S. state laws over the past few years. There is now a bill in the U.S. House of Representatives that would have the Department of Agriculture study soil health on federal lands.

West Virginia and New York are calling out biochar as a useful water purification media in their 5-year plans on improving the quality of the Chesapeake Bay Watershed. **New York is leading** on the climate
and soil health fronts as well. Policymakers were among the participants at Cornell University’s flexible pyrolysis facility, where the issues of including biochar in updated legislation were discussed.

Among beneficial uses mentioned by the U.S. Forest Service’s Deborah Page-Dumroese in this article about biochar, are supporting unirrigated farmland, restoring land temporarily used for forest roads, and stopping invasive species.

A proposed regenerative agriculture community located in New Hampshire, envisions net carbon negative emissions, partly by integrating biochar into their practices. If they do, over time they can enjoy their gardens without the troubles that many gardeners face in minimizing weeds.

Africa

A short, but impactful video was produced for Warm Heart Worldwide showing how a veterinarian is using biochar on his Malawi farm to increase crop and livestock productivity and health.

Southern Asia

Biochar figures prominently in a discussion of Natural Climate Solutions for India.

Australia and the Pacific

Drawing from the Australian Compost Standard AS4454-2012, European Biochar Certificate Guidelines (2019) and the IBI Standardized Product Definition and Product Testing Guidelines for Biochar That Is Used in Soil, ANZBI has drafted a new standard on Australian Biochar for Soils, currently open for comment. Email comments to Dr. Stephen Joseph. A discussion of the draft standards will be held on Friday Oct 25, 9:30 - 10:30 am (Melbourne GMT+10) at the ANZ Biochar Conference. Access via Zoom will be available: https://zoom.us/j/693186570.

The Council of Australian Governments (COAG) has resolved to stop shipping waste off-shore, potentially giving Australian biomass users more access to feedstocks.

In a timely demonstration of the way cattle farms can take the lead in sequestering carbon, Doolan’s farm in Ecklin South held a field day to show the many steps they are taking to reduce their carbon footprint, including use of biochar, under a government-funded pilot project: “Keeping Carbon Down on the Farm.” The Meat and Livestock Association is targeting 2030 for a carbon neutral industry.

Free Webinar: Stormwater Management –17 October, noon to 1:00 pm EDT sponsored by the Chesapeake Network

Dr. Paul Imhoff (U of Delaware) will discuss his research showing the potential benefits of biochar and what the pollutant removal mechanisms might be telling us about where it is best applied. Then Lori Lilly (Howard Ecoworks) will talk about some of the implementation considerations for anyone interested in using biochar in their BMPs. Register
Biochar-related opportunities, jobs, and education

The international workshop “Innovative Forest-Based Bioeconomy for the Future” provides a platform for all initiatives engaged in the forest-based bioeconomies of Europe and South/Central America. The workshop will be held in Buenos Aires, Argentina on Oct 8th and 9th. European and Central/South American Ministries, funding agencies, and initiatives interested in a joint funding of R&D projects in the field of forestry and sustainable use of wood are invited.

Pioneering biochar and wood fiber products company, Confluence Energy, is auctioning off its Walden, Colorado plant, originally costing over $10 million. Deadline for competing bids is September 6, 2019. For additional information, parties with potential interest in participating in the sale process can contact Daniel Zwelling, representing Bradley Woods & Co. Ltd. by calling (508) 720-0034.

A post-doctoral position is currently available for a U.S. citizen to work with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Coastal Plains Soil, Water and Plant Research Center located in Florence, South Carolina. Additional research analysis will be conducted at the U.S. Environmental Protection Agency (EPA), National Health and Environmental Effects Research Laboratory (NHEERL) located in Corvallis, Oregon. The work will involve developing and evaluating methods of manure biochar activation to improve P and heavy metals capture. Application deadline is 9/30/2019.
Calendar

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

IBI Biochar World Congress 2019
Developing the Global Market
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 : 31 August 2019

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/

Bois Energie

AGU Fall Meeting
https://www2.agu.org/en/Fall-Meeting

Compost 2020
January 28 -31, 2020 Charleston, SC. US Composting Council conference will include a panel and presentations on the synergies of biochar and compost.
https://compostconference.com/
The 2019 IBI Biochar Study Tour scheduled for 4 - 6 September in Tampere, Finland is SOLD OUT!

More than 100 participants will hear from biochar experts and practitioners from around the globe. The first day will be conducted in Helsinki with presentations on carbon sink trading with presentations from the new carbon removal marketplace “Puro” based in Finland, Hans-Peter Schmidt will outline the new European Biochar Industries Carbon sink leasing program. Updates from Gerald Dunst, Claudia Kammann and the Finnish Minister of the Environment. Participants will travel by bus to Tampere for days 2 and 3 to visit Carbofex OY’s biochar production facility and hear about the many ongoing projects and gain insight on various urban uses of biochar. The full agenda is on the IBI website and most presentations will be available to IBI members after the tour.

New Research

Here are just a few of the papers recently published regarding biochar. These are selected by IBI staff from the 260+ 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 by joining IBI.

- Bovine B-no:
  From the Abstract: “…biochar supplementation at 800 mg/d decreased the abundance of one Methanomethylophilaceae OTU (19.8-fold, P = 0.046) and one Lactobacillus spp. OTU (31.7-fold, P < 0.01), in comparison to control treatments.”

- ... so the Cipro said, “I’ll have H₂O, too“:
  From the Abstract: “More than 70% of ciprofloxacin was removed in the optimal conditions: acidic condition (pH 3–4), low doses of H₂O₂ (20 mM), and temperature of 298 K.”

- A Safe Place to Store your Joules:
  From the Abstract: “… the [latent heat storage biocomposites (LHSBCs)] showed a maximum latent heat storage capacity of 74.6 J/g and a low thermal conductivity of 0.030 W/mK at the maximum,
confirming that LHSBCs have a high latent heat storage capacity and thermal insulation performance. With a maximum specific heat of 1.69 J/gK, a high, sensible heat storage was confirmed. In addition, all LHSBCs were found to be thermally and chemically stable.

- **Putting an End to Fertilizer Futility:**


**From the Abstract:** “In the first and second seasons, 5.6 Mg maize grain yield ha\(^{-1}\) was obtained from plots amended with biochar (without fertilizer), which was about six times higher than that harvested from unfertilised control at 0.9 Mg ha\(^{-1}\). Yield differences in plots where fertilizer was applied with or without biochar were not significant. Yield in the third and fourth seasons declined to 3.2 and 1.5 Mg ha\(^{-1}\), irrespective of fertilizer type or biochar amounts.”

[www.biochar-international.org](http://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/study-tour-austria/](https://biochar-international.org/study-tour-austria/) 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.
Bitte geben Sie Ihren Namen und Ihre aktuelle Bezugsadresse an:

**Collaboration Options** (Preise in US-Dollars)

- □ Platin: $15,000
- □ Gold: $4,000
  - □ Optionelles Online-Webinar-Zugang (+$1,000)
- □ Silber: $1,000

**Gesamtbetrag eingereicht:** $________

- □ Scheck in US-Dollar
- □ Bargeld in US-Dollar
- □ MC/Visa-Karte: ____________________________
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Vielen Dank für Ihre Unterstützung!