



Johannes Lehmann
Liberty Hyde Bailey Professor Cornell University

December 2023 US Biochar Initiative Newsletter

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BIOCHAR 2024: CLIMATE ACTION WITH BIOCHAR FOR ECONOMIC AND ECOSYSTEM RESILIENCE

by Tom Miles, Executive Director

Register today for Biochar 2024! We have a new format including four days of exciting speakers, enterprising biochar users and producers, scientists, technology suppliers and international visitors. Even with the expansion to four days the conference pass rate stayed the same. USBI brings you more biochar value for your investment. Don't miss this opportunity to network and build the industry.

Agenda Now Online! Power Packed! – View Speakers – Learn & Network!

We have two amazing workshops on Monday, Feb 12th at the conference you won't want to miss:

- * NRCS Code 336 National Overview 12:30 to 5:30
- *USBI Biochar in The Woods National Technical Meeting 12:30 to 5:30
- * More sessions TBA
- * Monday and Thursday workshops included with full conference pass purchase.
- * Special day-rates for Monday and Thursday attendance!

There is still time to support USBI as a conference [sponsor](#) or exhibitor. Contact john@biochar-us.org.

Thanks to **IBI** for hosting a very informative [Symposium 2023](#). It was a great venue for gathering the biochar community and for understanding the local and international challenges and opportunities. Scroll down to see wrap-up.

We have had a great response to the USBI/IBI [Global Biochar Survey](#) with more than 800 total respondents, with about half of those in the US and Canada. We look forward to sharing the results and finding ways that we can continue to build markets for biochars and for Carbon Dioxide Removals. Full results will be released in a free report in early 2024 and presented at Biochar 2024.

As part of the Biochar Atlas project, we presented an overview of [Biochar Production Technologies](#) in the first of a series of eight webinars on the **Practical Implementation of Biochar** in collaboration with the [American Farmland Trust](#) and the USDA Agricultural Research Service. Dr. Kristen Trippe presented a very informative webinar on "The 3Rs of Biochar Application: using online decision support tools to apply the right biochar in the right place". The Biochar Atlas project includes webinars, listening sessions, and



expansion of the [Biochar Atlas](#) tools to help agronomists Natural Resource Conservation Service planners use biochar as a soil amendment, including in projects that receive NRCS funding under Conservation Practice Standard 336. The project will also include efforts to improve the capabilities of laboratories to analyze biochars. Dr. Debbie Aller will discuss "[Biochar and Crop Production](#)" in the next webinar January 24.

Many thanks to our supporters including the US Forest Service, the US Endowment for Forestry and Communities, the Flora A Thornton Foundation, Steve Butler, The William Penn Foundation, the corporate and individual donors and the many individuals who have volunteered their time and talent to support our mission throughout the year.

Happy Holidays!

See you soon in Sacramento!

-Tom



CHECK OUT THE NEW CONFERENCE WEBSITE!

<https://biocharconference.com>

On the new site we have details about pass registration, exhibitor booths, sponsorships, and the agenda.

Sacramento is the epicenter of the biochar universe this February.

The North American Conference on Climate Action with Biochar for Economic and Ecosystem Resilience February 12-15, 2024. Engage in discussions on biochar products and markets, carbon markets, finance, new projects, displays of new technologies, equipment, jobs, and economic drivers,

**[BIOCHAR 2024 REGISTRATION OPEN!](#)
**[EARLY BIRD RATES EXPIRE DEC 20th!](#)
[CLICK TO REGISTER NOW.](#)****

Sponsor and Exhibit. Download the [Biochar 2024 Sponsor and Exhibitor pack](#). Click on the link to learn about how to get a booth or ways to elevate this comprehensive program through sponsorship opportunities.

Platinum Sponsors: PYREG

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**US Biochar Initiative
Biochar Conference**

Keynote Speaker

**Johannes
Lehmann**
Professor,
Cornell University



**FEBRUARY 12-15, 2024
Sacramento, CA. USA**
Info: biochar-us.org



Professor Lehmann leads the Lehmann Lab at Cornell University's School of Integrative Plant Science which explores soil biogeochemistry, nutrient and carbon cycling.

In this interview, he discusses "Global Crop Production Increase by Soil Organic Carbon" published in Nature Geoscience last month.

Q According to your study, available techniques to increase soil organic carbon would boost global crop production by only 0.7%. Why is this number so low?

Lehmann Right now, new strategies such as redistributing carbon in the form of biochar, are not yet in widespread use. Also, methods to improve soil organic carbon are often limited to producing and retaining carbon onsite from plants grown in fields.

***Biochar 2024**, USBI's premiere event on February 12-15, is a great opportunity to network and learn the latest about biochar practices and how they can help mitigate climate change!*

NOVEMBER 2023 IBI SYMPOSIUM -- THAT'S A WRAP!

40 EXPERTS, 400 PARTICIPANTS, 40 COUNTRIES!

A jam-packed, virtual event, the 2023 IBI Symposium drew nearly 400 participants from 40 countries who heard over 40 experts. [Watch the recordings](#) to learn the latest about carbon credits, standards,

Q How would you recommend optimizing crop growth?

Lehmann One needs to think about transporting both carbon and nutrients to deliver these where they generate the greatest benefit to both crop growth and avoid pollution. With biochar, you can make it in a city and transport it to an agricultural field a few hundred kilometers away.

Q What are some of the other technologies that pump more carbon into the soil?

Lehmann These might include deep-rooted perennial crops, which are being widely researched, and biotechnologies such as maize varieties that pump more carbon into soil.

Q What would be the impact of increasing soil organic carbon with biochar and other techniques to optimum levels?

Lehmann Our study estimates that global production of the three most important staple crops (maize, wheat and rice) could rise by 4.3%, enough to feed an additional 640 million people. But there are many factors that impact this number that we have not yet identified.

For example, the data for our study were obtained under optimal management strategies, including pesticides and fertilizers, and many food insecure areas do not use these. Addressing crop growth constraints of what is often called "non-responsive" soils was not addressed. Local responses may be very different from average responses

See the complete [Cornell Chronicle](#) article [here](#) and the [Nature Geoscience](#) paper [here](#)..



revenue streams, market developments
biochar durability, and more. Also find out
who won the biochar pitch competition!

ON DEMAND

More details

All symposium recordings are available free for event attendees and for others at a small fee.



Thank you to everyone that took our biochar market survey!

Your input is helping build this industry.

The biochar market survey, a joint project between USBI, the International Biochar Initiative, and US Endowment for Forestry & Communities, will help develop key industry metrics, identify top USBI priorities, and improve industry collaboration.

The report will be highlighted at the conference in February and freely available online.

Notable Reads & CDR Survey

RMI's Applied Innovation Roadmap (AIR) provides a comprehensive, objective, and action-oriented perspective on how to best advance the technical readiness of 32 carbon dioxide removal (CDR) approaches this decade. Biochar is well represented.

https://rmi.org/wp-content/uploads/dlm_uploads/2023/11/applied_innovation_roadmap_CDR.pdf

Assessing biochar's permanence: An inertinite benchmark

The Earth's carbon dioxide removal and storage occur via inorganic and organic pathways: mineralization and maceralization. Biochar, imitating the organic pathway, undergoes controlled pyrolysis to transform biomass feedstock through a carbonization process into the inertinite maceral, which is a permanently stable form of organic carbon.

CDR.FYI Survey for purchasers and suppliers Market Outlook Survey assesses current and future capacity and demand for durable CDR. Only takes 5-10 minutes to complete!

BIOCHAR FUNDING OPPORTUNITIES



TAKE ACTION NOW!

U.S. Endowment Impact Investment Program - RFP Opportunity

The U.S. Endowment for Forestry and Communities has announced an RFP for their new Impact Investing Program. The program seeks to deploy up to \$5 million in 2024 through impact investments in companies, funds, or projects that advance systemic, transformative, and sustainable benefits for the health and vitality of working forests and forest-reliant communities in the United States.

The full Request for Proposal can be [downloaded here](#). Short pre-screen proposals are due Jan 9, 2024.

Organic Agriculture Research and Extension Initiative -

Biochar producers with organic certification, this program is to fund projects that will enhance the ability of ag producers and processors who have already adopted organic standards to grow and market high quality organic agricultural products. The OREI is particularly interested in projects that emphasize research, education and outreach that assist farmers and ranchers with whole farm planning by delivering practical research-based information. [Details here](#).

NRCS Financial Assistance for Biochar as a Soil Amendment

Through the National Resources Conservation Service's Environmental Quality Incentives Program, agricultural producers can apply for financial assistance under Practice Standard 336. Deadlines vary by state. [More information here](#).

EPA Climate Pollution Reduction Grants for Proposals to Reduce GHGs

The EPA is requesting proposals to implement programs, policies, and projects to reduce greenhouse gas emissions with a focus on areas that have not yet been funded under BIL (Bipartisan Infrastructure Law) or IRA (Inflation Reduction Act) programs. States, municipalities, and tribes are eligible to apply by **April 1, 2024** for a total of \$4.3 billion in available funds. Potential biochar proposals could focus on conversion of wastewater treatment residuals into biochar, application of biochar as a soil amendment to reduce nitrous oxide emissions, programs to pair biochar with improved forest management to reduce wildfire risk and more. [More information](#).

AirMiners Launchpad Batch 11 - Startup Accelerator Program.

AirMiners LaunchPad engages with entrepreneurs in an intensive six-week program for early carbon removal teams or individuals striving to advance their carbon removal startup - with biochar companies prominently represented among our alumni! Apply [HERE](#) by Jan 11th for the February to March 2024 session. Applicants from underrepresented backgrounds are especially encouraged to apply!

NRCS BIOCHAR FUNDING FOR CODE 336

A Quick Guide for US Producers - Rolling Deadlines

This [Funding Fact Sheet](#) is a timely companion to our Code 336 Soil Carbon Amendment webinar series found on the [USBI YouTube Channel](#). Deadlines are approaching fast.

Read soon to learn how agricultural producers can qualify for USDA NRCS funding to inoculate their soil with biochar, including:

- Criteria to be eligible for using biochar on your land.
- How to begin the application process.
- Conservation Planning.
- Pro tips on best application strategies.

[Abstract & Poster Information](#)

A compelling headline about NRCS Code 336

New Online Help to Implement NRCS 336

Conservation planners have free access to the Pacific Northwest Biochar Atlas, an online toolkit that



NRCS BIOCHAR FUNDING FOR US PRODUCERS - A QUICK GUIDE
The newly developed Conservation Practice Standard Soil Carbon Amendment (336) can be used by growers to offset the costs of applying biochar to improve soil health and build soil carbon. This FAQ identifies practical information on what the practice standard is, how it works, and important details to consider when applying for the funding.

This guide explains how growers can offset the costs of applying biochar.

provides decision support tools for selecting biochar types and amendment rates. The Atlas is being expanded to help conservation planners implement the NRCS Soil Carbon Amendment (CPS 336). While the tool's expanded features are being developed, USBI Board members Kristin Trippe (USDA ARS) and Josiah Hunt (Pacific Biochar Benefit Corporation) have developed an [interim spreadsheet and guide](#). If you have feedback, please contact [Kristin Trippe](#).

BIOCHAR EVENTS CALENDAR

January 24, 2024 Practical Implementation of Biochar: [Biochar and Crop Production](#), Dr. Debbie Aller.

February 6th – 9th, 2024. [COMPOST2024 national conference](#) will be in Ocean Center, Daytona Beach, Florida. Join USBI Program Director, [Myles Gray](#), at this fantastic event. More and more organics recyclers are expanding into complimentary biochar operations. Great place to learn more.

February 6th - 8th, 2024. [Soil Health in the West Conference 2024](#) - Utah Soil Health Partnership brings together world experts and regional soil health practitioners on a range of topics impacting soil health in the West. Join [USBI's John Webster](#) for a discussion on *Biochar in the West* on the 8th from 2:00 – 3:00 PM

February 12, 2024 [NRCS Code 336 National Overview](#) 12:30 to 5:30 - Single day tickets available.

February 12, 2024 [USBI Biochar In The Woods National Technical Meeting](#) 12:30 to 5:30 Single day tickets available.

February 12-15, 2024 [Biochar 2024: The North American Conference on Climate Action with Biochar for Economic and Ecosystem Resilience](#), Sacramento, CA - Engage in discussions on biochar products and markets, carbon markets, finance, new projects, new technology displays, equipment, and more!

March 4-8, 2024 [17th Annual International Biomass Conference & Expo](#) Greater Richmond Convention Center in Richmond, VA. This dynamic event unites industry professionals from all sectors of the world's interconnected biomass utilization industries—biobased power, thermal energy, fuels and chemicals. USBI Newsletter readers get your [free Biomass Magazine Subscription here](#)

May 21-23, 2024 [CarbonUnbound USA](#) New York City - Business leaders, investors, buyers and policy makers meet in New York to discuss the future of carbon removal. We anticipate biochar will be a carbon removal hero driving discussions at this event.

[See More 2024 Biochar Events](#)

SCROLL DOWN TO SEE MORE NEED-TO-KNOW BIOCHAR NEWS!

■ USBI Board Member Corner -
Isabel Lima

■ Outreach and Education

■ Biochar Newsbytes

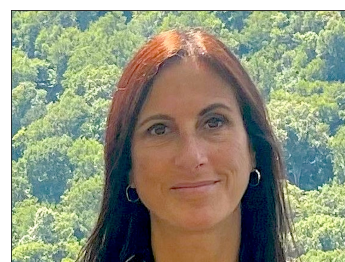
■ Sponsorship Opportunities

■ Biochar Jobs!

USBI BOARD MEMBER CORNER

Isabel Lima PhD, Board Member

USBI is so grateful to the many talented, experienced, biochar pioneers who serve on our Board.



Isabel Lima Ph.D. has been a research chemist with the U.S. Dept. of Agriculture, Agricultural Research Service (ARS), Southern Regional Research Center (SRRC) in New Orleans, Louisiana, since 1997. She received her M.S. and PhD at the Bio and Agricultural Engineering...



[Learn more about Isabel](#)

OUTREACH & EDUCATION

Call for US Biochar Samples for USDA Biochar Atlas Project

USBI is collaborating with USDA Agricultural Research Service (ARS) to develop the national Biochar Atlas. (Currently the pnwbiocharatlas.org) As part of this project, USBI is requesting biochar samples from United States biochar producers to be analyzed by ARS.

The goals of this process are to 1) Assess existing laboratory methods for biochar analysis by conducting split sample analysis by two separate ARS laboratories using IBI standards, 2) Develop datasets that could be used in the Biochar Atlas currently under development, and 3) Provide biochar suppliers with free laboratory analyses.

Interested biochar producers should contact [Rachel Baschieri](#), 541.738.4168 with the Agricultural Research Service to arrange sample shipments. [Info: pnwbiochar.org/home/submit_sample/](http://Info:pnwbiochar.org/home/submit_sample/)



Looking for biochar industry career opportunities?

Check out [LinkedIn](#) for sales, research, and internship postings and more!



NEWSBYTES



[Hawaiian Collective Wins Over \\$1 Million for Biochar Project](#) The Hiiaka Function Project's goal is to reverse climate change by growing healthy soil that uses biochar to capture and store carbon.

[New Technique – Charred Poop Used to Decarbonize Concrete in Portland area](#) For every pound of product that's put into the concrete mixture, one pound of CO₂ is removed, according to Solid Carbon co-founder John Mead.

[Helping Firefighters Succeed by Thinning Forests Prone to Igniting](#) Woody mass gathered by thinning Eucalyptus trees will be turned into biochar in the San Francisco area.

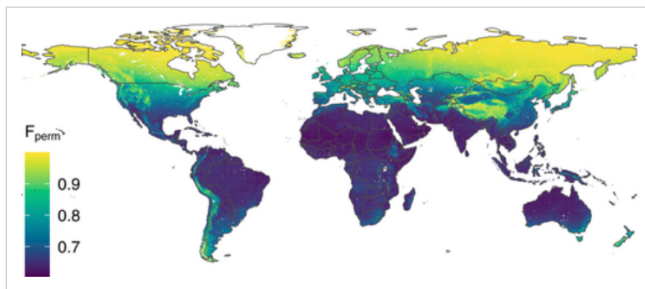
[Scalable Biochar Technology Makes Headlines in the Popular Press](#) A Newsweek article provides

examples of how biochar is being used at an industrial scale - one of which is biochar. Other ideas include earth-cooling paint, CDR, seaweed shopping bags, and rust-powered batteries.



Biochar on the Move When it's too costly to move biochar from the forest, just process it in place and help reduce the risk of forest fires at the same time. That's the thinking behind mobile biochar units like the "CharBoss" which began commercial sales last June.

International Biochar Initiative Executive Director Interviewed on the Ag Information Network Wendy Lu Maxwell-Barton, executive director of the International Biochar Initiative, was interviewed in early November on the Ag Information Network, an agribusiness broadcast news site. Maxwell-Barton highlighted the potential of biochar to contribute to a more sustainable and productive future for agriculture. The AGI network has 135 affiliate radio stations covering nine states.

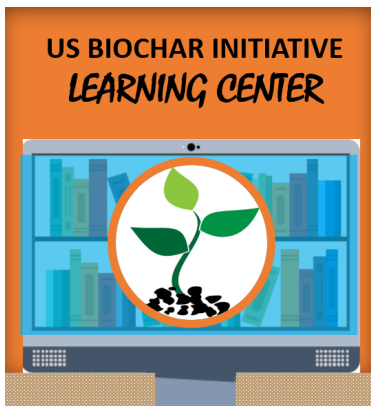


Visualizing Biochar's Impact

Researchers have published new high-res global maps that support decision-making on biochar production and investment.

Findings show that twelve countries have the technical potential to sequester over one fifth of their current emissions by applying biochar from crop residues.

LATEST FACT SHEET - Best Management Practices for Making Biochar from Sugarcane (See pdf here.)



Useful Biochar Fact Sheets on our USBI Learning Center

- [Plant Survival](#)
- [Compost Benefits](#)
- [Manure Management](#)
- [Stormwater Management](#)
- [Carbon Markets](#)
- [Application guidelines PT 1](#)
- [Beyond Application Part 2](#)
- [Guía aplicaciones PT1](#)
- [NRCS Biochar Funding](#)

SITUATION
Sugarcane is Louisiana's No. 1 valued row crop. Commercial sugarcane is a large grass that produces high biomass composed of sucrose in the juice and fiber. Upon receipt at the raw sugar factory, sugarcane stalks are shredded, and juice is extracted by a series of mills. The juice is clarified, evaporated, crystallized and processed into raw sugar and molasses. The leftover pulp is referred to as bagasse. Bagasse is composed of fiber (cellulose, hemicellulose, lignin and ash content), some feed soil and water. The moisture content of bagasse is about 50%. Approximately 30% of the sugarcane brought into the raw sugar factory for processing is bagasse.

USES OF BAGASSE
Most bagasse produced at the raw sugar factory goes immediately to the boilers. Bagasse is burned as a fuel source to generate steam – the main energy supply for factory operations. However, the raw sugar factory does not use all the bagasse as a fuel source. About 5%-20% of bagasse production is excess and stored in large, nearby piles. These bagasse piles are expensive to maintain, a safety hazard and remove valuable acres from agricultural production.

WHAT IS BIOCHAR?
Biochar is like charcoal and produced by heating sugarcane bagasse at moderate to high temperatures in the absence of oxygen. The composition of biochar varies with feedstock source (fresh vs. aged within the bagasse pile or bagasse vs. leafy trash from the field) Composition varies with pyrolysis conditions (mainly temperature and time of treatment). The table below provides further information of biochar composition.

A load of biochar is being readied for a field application. Photo by Jovani Leno

Check out the [USBI mapping project here.](#)



USBI Listings - More Than Just Business Name and Contact Info

DIRECTORY LISTING

- ◆ BIOCHAR SUPPLIERS
 - ◆ EQUIPMENT
- ◆ MANUFACTURERS
 - ◆ RESEARCHERS
 - ◆ CONSULTANTS

LISTINGS ARE MORE THAN JUST AN AD - THEY INCLUDE INFORMATION ABOUT YOUR SECTOR, PRODUCTS, APPLICATIONS, TECHNOLOGY, AND SCALE OF YOUR OPERATION.



- Sector
- Products
- Applications
- Technology
- Scale of Operation

Contact john@biochar-us.org with questions.

Do you even biochar, brah?

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2024 North American Biochar Conference

FEBRUARY 12-15, 2024
SAFE Convention Center
Sacramento, California, USA



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Visit biochar-us.org and biocharconference.com for more!

USBI thanks the USDA Forest Service, Wood Innovation Program for continued support of its activities and publications. USDA is an equal opportunity provider, employer, and lender.

USBI is supported in part by The United States Endowment for Forestry and Communities, Inc. The Endowment is a not-for-profit corporation that works collaboratively with partners in the public and private sectors to advance systemic, transformative, and sustainable change for the health and vitality of the nation's working forests and forest-reliant communities.



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