

Biochar Puts the Earth Back in the Black

What is Biochar? Biochar is a charcoal product that helps soils retain nutrients and water. Biochar is found in soils around the world as a result of vegetation fires and historic soil management practices. Modern biochar production promises additional benefits in the form of increased carbon sequestration and coproduction of renewable energy.

Despite the urgency, global warming talks face gridlock over costs and burden sharing. Sustainable biochar offers an inexpensive, powerfully simple option we can begin using now. By converting agricultural waste into a valuable soil enhancer, we can restore depleted soils, discourage rainforest destruction and put the Earth back in the black.

Research shows that the stability of biochar in soil greatly exceeds that of un-charred organic matter, sequestering carbon in stable soil carbon pools for centuries to millennia. Bioenergy coproduction with biochar can displace fossil fuel use. Because biochar retains nitrogen, emissions of nitrous oxide (a potent greenhouse gas) may be reduced. Turning waste biomass into biochar also reduces methane (another potent greenhouse gas) generated by the natural decomposition of the waste.

Biochar systems are integrated systems with multiple, cascading benefits. Accounting for all the benefits is a challenge, and more research is needed to design optimal systems. Not every biochar system will realize every possible benefit, but here is a guide to the benefits that research indicates are possible.

IMMEDIATE BIOCHAR CLIMATE BENEFITS



Biochar captures and stores 20-40% of biomass feedstock carbon for centuries to millennia.



Making biochar produces renewable energy that can displace fossil fuel use.



Converting crop and forestry wastes to biochar avoids decomposition and resulting methane production



Thinning secondary forest regrowth and converting forest thinnings to biochar can reduce the risk of emissions from wildfires.



Controlled pyrolysis for energy and biochar production reduces soot and other emissions compared to open burning in fields and cooking fires.

ACCUMULATING BIOCHAR CLIMATE BENEFITS



Biochar increases plant biomass above and below ground.



Biochar in soil retains nitrogen, inhibiting nitrous oxide emissions.



Biochar reduces use of chemical fertilizer, saving energy and GHG emissions.

OTHER IMPORTANT SOCIAL, ENVIRONMENTAL AND ECONOMIC BENEFITS of BIOCHAR

Helps soils retain water – important in drought prone areas.

Enhances food security, providing a locally produced soil amendment.

Enhances energy security, allowing useful energy to be obtained from crop and forestry wastes.

Protects health, reducing emissions from household cooking.

Provides jobs in a new industry that operates at subsistence scale to large industrial scale.



ABOUT THE INTERNATIONAL BIOCHAR INITIATIVE

The International Biochar Initiative (IBI) is a nonprofit organization which promotes the development of biochar systems that follow cradle-to-cradle sustainability guidelines.

IBI is helping to develop and coordinate global research and development needs and approaches, and to promote supportive policy and regulatory environments at international and national levels to help foster investments in and commercialization of this nascent industry.

IBI facilitates networking and information exchange through our website which contains news articles, general biochar information, project profiles, a searchable bibliography, peer-reviewed technical documents, links to education programs and regional groups, and a searchable member/project database.

IBI believes it is essential that universal standards for biochar and biochar systems be developed to ensure sustainability, product quality, and market value. To this end, IBI is facilitating a global process to develop a definition of biochar and a biochar classification standard.

THE IBI 2015 BIOCHAR VISION

IBI supports the commercialization of sustainable biochar systems at all scales by 2015 that will:

1. Help solve the global food security crisis and ensure soil security with the use of biochar to:
 - enhance soil fertility and crop and agroforestry productivity;
 - raise the fertility of degraded and marginal soils; and
 - enhance mitigation and adaptation to climate change in agricultural systems.
2. Help solve the global climate change crisis with the use of biochar to:
 - safely and effectively draw down greenhouse gas (GHG) emissions in stable soil sinks;
 - alleviate GHG emissions associated with decomposition of waste from urban and rural sources; and
 - offset fossil fuel use through high value bioenergy and bio-products.
3. Help make agricultural production at all scales more sustainable by:
 - Maintaining production with lower chemical fertilizer inputs;
 - More productively recycling agricultural and organic waste materials, and aid in land remediation; and
 - Enhancing water quality by reducing nutrient leaching into water bodies and supplies.

For more information, visit the IBI website: Biochar-International.org

Please become an IBI member and support our work.