

Summary: What is biochar?

- Biochar is a fine-grained charcoal-like material produced through pyrolysis.
- Pyrolysis is the heating of biomass to temperatures of 300-600°C under air-deprived conditions.
- Through pyrolysis, the feedstock changes chemically to form structures that are much more resistant to microbial degradation than the original material.
- Many different sources of organic matter can be used as a feedstock for this process, including residues from forests or crop production, from animal production (manures), and from green waste streams, such as yard wastes.
- Biochar-like materials produced through forest fires are already a significant part of the global soil carbon cycle.

How does biochar sequester carbon?

- Because biochar is much more stable than other forms of biomass-derived carbon in soil, it remains in the soil for much longer.
- Biochar is 1.5-2 orders of magnitude more stable in soils than uncharred material and has mean residence times of hundreds to thousands of years.
- The “saturation point” for biochar additions to soil would be significantly greater compared to other additions from organic matter.

Why is biochar valuable?

- Biochar is a very stable form of carbon and can thus be used to sequester CO₂.
- Biochar can be made from waste materials, including those (e.g., manure or green wastes) that may otherwise produce even more potent non-CO₂ greenhouse gases.
- Biochar production results in energy generation, which can also be integrated into sustainable local-scale operations such as the heating of farm buildings.
- Biochar’s addition to soils can enhance soil fertility, water availability, and retention of agrochemicals.

What do we need to know/do?

- The technology and scientific knowledge is ready to implement the necessary steps to thoroughly develop biochar systems at a meaningful scale.
- This will be necessary in order to understand biochar best practices, demonstrate field-scale soil health benefits for different agroecosystems.
- Soil carbon sequestration, including biochar carbon sequestration must be recognized under carbon trading schemes.
- Robust guidelines must be developed to ensure that any integration of biochar into carbon trading schemes is truly additional, sustainable, and does not result in the “leakage” of greenhouse gas emissions.
- Biochar must not be seen as a replacement for dramatic reductions in our greenhouse gas emissions.

Full Testimony Available at:

www.biochar-international.org/sites/default/files/Written_Testimony_Lehmann_final.pdf