



International  
Biochar Initiative

# WHAT IS BIOCHAR?

## Biochar Combats Climate Change

**T**he carbon in biochar resists degradation and can sequester carbon in soils for hundreds to thousands of years. Biochar is produced through pyrolysis or gasification – processes that heat biomass in the absence (or under reduction) of air.

Oils and gases co-produced with biochar, in well-designed pyrolysis or gasification equipment, can be used as fuel, providing clean, renewable energy. When the biochar is buried in the ground as a soil amendment, the system can become “carbon negative.”

Biochar and bioenergy co-production can help combat global climate change by displacing fossil fuel use and by sequestering carbon in stable soil carbon pools. It may also reduce emissions of nitrous oxide.

In the next few decades, the use of biochar should be able to offset carbon emissions by 1 gigaton per year – an amount which could increase in subsequent years.



## Biochar Is a Valuable Soil Amendment

**B**iochar is a fine-grained, highly porous charcoal 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. Intensive study of biochar-rich dark earths in the Amazon (terra preta), has led to a wider appreciation of biochar’s unique properties as a soil conditioner.

Biochar can be an important tool to increase sustainable food production in areas with severely depleted soils, scarce organic resources, and inadequate water and chemical fertilizer supplies.

Biochar also improves water quality and quantity by increasing soil retention of nutrients and agrochemicals for plant and crop utilization. More nutrients stay in the soil instead of leaching into groundwater and causing pollution.



Above: *Jatropha* seedlings grown without and with biochar.

Left: Biochar ready to apply.

(Photos courtesy of C.C. Cheng, Julie Major and Robert Flanagan.)



Field trials in Colombia demonstrate the longevity of biochar added to soil.

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