

Bio-Char Solutions

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Here's how it works in a nutshell:

Charcoal has been used as a soil amendment for thousands of years. The rich black soils of the Amazonians supported huge populations on what otherwise would have been very poor soil. This very old practice is being revived and used on a fairly large scale in some places, as explained in the video. When plants grow, they take up carbon dioxide from the atmosphere. When the plants die, the carbon is released back into the atmosphere. If the plant mass is converted to charcoal and the charcoal incorporated into soil it is known as biochar. The carbon that was in the plant is locked into the soil instead of being released into the atmosphere. Charcoal has a very large surface area and provides an excellent habitat for microorganisms which are essential for healthy soils. (One gram of charcoal has a surface area of approximately 1000-2500 square metres because of all the micro-pores.) Charcoal therefore has a very large holding capacity for microorganisms, water and nutrients. In short it is an excellent soil amendment and is being used to rejuvenate useless, depleted soils, bringing them back into production, and increasing the land's re-sale value as well.

Charcoal is made by heating biomass (plant and animal material) in the absence of oxygen. The fumes that are driven off can be fed back to fuel the furnace, and can also be captured to produce high octane fuel. The heat produced can be used to generate electricity. The charcoal is returned to the soil where it stays unchanged for thousands of years. Through this process, carbon is taken from the atmosphere and locked safely into the soil where it enhances food production. The soil is used to produce more plants which can then be converted to charcoal, and so on.

Growing tall grass-like crops like corn, sugarcane, sorghum, or giant miscanthus are ideal as they are fast growing, and produce excellent quality charcoal.

Biochar is starting to be produced on an industrial scale and operations large and small are beginning to spring up all over the world. Some of the world's poorest community have already benefited by the installation of relatively small biochar production units which supply them with power, enhance their food growing capacity and provide employment. It takes four to eight years to convert desert soil to productive and valuable land. Big companies such as Google, BP, and General Electric are investing in this technology, and the momentum is building.

My goal is to help this momentum build and to raise awareness about the potential of biochar to solve environmental issues in our local communities as well as globally. Nitrogen run-off into rivers and lakes from dairy farms is a big environmental challenge that can be mitigated with the use of biochar. Local air pollution from the burning of waste wood from horticulture and forestry could be prevented, by converting the biomass into charcoal and putting it back into the soil, enhancing the water and nutrient holding capacity of the soil and reducing fertilizer needs.

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