

Benefits of Bio-char

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Three years ago (2004) we reported that scientists were taking great interest in the incredibly fertile black soils found in Brazil's Amazonia region.

These deep and rich "terra treat de Indio" soils were created by early Indian inhabitants of the Amazon Basin. They practiced slash-and-char agriculture, burning trees and tilling their charred remains into the soil. As a result, these soils contain up to 70 times as much charcoal as other soils.

This "bio-char", says biogeochemist Johannes Lehmann of Cornell University, has "very specific and unique properties" which can "revolutionize concepts of soil management... it is much more effective in retaining most nutrients and keeping them available to plants than other organic matter... and it is also more persistent in soil than any other form of organic matter..."

Thus bio-char holds both nutrients and carbon in the soil – and for thousands of years. Studying the black soils, says Dr. Lehmann, "not only teaches us how to restore degraded soils, triple crop yields, and support a wide variety of crops in regions with agriculturally poor soils, but can also lead to technologies to sequester carbon in the soil and prevent critical changes in the world climate.

Cornell scientists also note that many methods of producing biofuels, such as generating bioenergy from agricultural, fish and forestry wastes, produce bio-char as a by-product. Gardeners who would like to experiment can try mixing the charred wood (not ashes) from the fireplace into the soil along with organic fertilizer.