Congressional Research Service

Biochar: Examination of an Emerging Concept to Mitigate Climate Change

CRS Report for Congress by Kelsi S. Bracmort, February 3, 2009

Summary

Biochar is a charcoal produced under high temperatures using crop residues, animal manure, or any type of organic waste material. Biochar looks very similar to potting soil. The combined production and use of biochar is considered a carbon-negative process, meaning that carbon is removed from the atmosphere and will not be released into the atmosphere at a later time.

Biochar has multiple potential environmental benefits, foremost the potential to sequester carbon in the soil for hundreds to thousands of years at an estimate. Studies suggest that crop yields can increase as a result of applying biochar as a fertilizer to the soil. Some contend that biochar has value as an immediate climate change mitigation strategy. Scientific experiments suggest that greenhouse gas emissions are reduced significantly with biochar application to crop fields.

Obstacles that may stall rapid adoption of biochar production systems include technology costs, system operation and maintenance, feedstock availability, and biochar handling. Biochar research and development is in its infancy. Nevertheless, interest in biochar as a multifaceted solution to agricultural and natural resource issues is growing at a rapid pace both nationally and internationally.

Past Congresses have proposed numerous climate change bills, many of which do not directly address mitigation and adaptation technologies at developmental stages like biochar. However, biochar may equip agricultural and forestry producers with numerous revenue-generating products: carbon offsets, fertilizer, and energy. A clearly defined policy medium that supports this technology has yet to emerge (e.g., soil conservation, alternative energy, climate change).

This report briefly describes biochar, its potential advantages and disadvantages, legislative support, and research and development activities underway in the United States and abroad.

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