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Limiting factors to restore abandoned mine lands with woody biochar

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Mining is a man-made disturbance that causes long-term impacts on the ecosystems. These impacts vary from landscape, to soil, water streams, air pollution, wildlife habitat, biodiversity, and human health to the surrounding communities. Mining activities started in the United States of America in 1848 with the gold rush in the West leaving behind a mining legacy of thousands of abandoned mine lands, considered health, safety and environmental hazards. Biochar has high potential for a wide variety of applications. It presents an opportunity to promote forest management in areas with high risk for wildland fire while using low value biomass for biochar production. Biochar has potential applications in mine site reclamation, soil and water remediation, for enhancing soil health, and decreasing heavy metals bioavailability.

Biochar for mine restoration has not been adopted and applied extensively in the US in spite of the benefits that it provides. Limiting factors are policy and regulations limiting production, high cost of transportation from the mill to the site, high cost of biochar per ton, and still developing biochar markets. We address limiting factors to use biochar and provide valuable information to facilitate its application on restoration of mining sites using biochar alone, or in combination with other organic amendments.

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