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WSU INSIDER

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New WSU report charts biochar path



Conversion of biomass (left) to biochar (right) offers a number of potential benefits including drawdown of carbon dioxide from the atmosphere. The properties of biochar can make it a valuable soil amendment in agriculture.

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PULLMAN, Wash. — A team of biochar producers, practitioners, scientists, and engineers have published a [roadmap for future development of the biochar industry](#) in the Pacific Northwest and beyond.

This collaborative effort between individuals from industry, universities and government, has resulted in a 184-page report, *Biomass to Biochar: Maximizing the Carbon Value*. The effort was led by Jim Amonette, a researcher with Washington State University's Center for Sustaining Agriculture and Natural Resources and the U.S. Department of Energy's Pacific Northwest National Laboratory, and was supported by the U.S. Forest Service and Washington Department of Ecology's Solid Waste Management Program.

"The participants worked together over several months to produce a comprehensive report that assesses the current state of the biochar industry, identifies the barriers to its development as a key carbon-drawdown strategy, and recommends the research and development needed to overcome these barriers," Amonette said. "The cross fertilization of ideas that occurred between participants representing the various industry sectors was truly outstanding and resulted in a unique report that balances scientific, engineering, business, regulatory, and producer perspectives. Thanks to the hard work of this group, we know what the industry needs to grow and prosper while addressing the multiple problems we face in the Pacific Northwest. We hope the solutions recommended are transferrable to other regions where similar problems and opportunities exist."



Biochar from orchard waste is applied to a commercial orchard in central Washington during tree planting to improve soil health.



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Biochar is the carbon-rich solid produced by heating biomass under low-oxygen conditions to a temperature where its chemical structure transforms to a more stable form. The conversion of biomass to biochar shows significant promise as one of a suite of climate change mitigation strategies and offers the possibility of near-term, widespread deployment.

In addition to the climate benefits, biochar has potential to improve forest and soil health, decrease wildfire risk, bolster ecosystem services, and revitalize rural economies. The Pacific Northwest offers fertile ground for this advancement, with the region's abundance of forest and agricultural lands along with existing industrial and academic expertise. Despite the growing number of studies on biochar, a number of technical, economic and policy barriers have prevented biochar from realizing its full potential. The roadmap proposes strategic investments to address these barriers including additional research and development, business support infrastructure, and collaborative policy development. In particular, the report outlines a proposed long-term integrated research program to resolve the most important technical issues associated with the large-scale development of biochar technology needed to draw down large quantities of carbon dioxide from the atmosphere in the coming century.

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