



Tuesday, 14 November 2006
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Crop Residue as Feedstock for the New Bioeconomy: Opportunities and Roadblocks.

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Producing ethanol and bio-products from renewable feedstock is receiving great attention throughout the U.S., especially as fuel prices soar. Prior to the 20th Century, agriculture was a major energy producer. It is not surprising that crop residues have again been identified as an important renewable energy feedstock, especially for the next 15 to 25 years. Since crop residues are considered by some as waste products of grain production, removing them from fields for conversion to bioenergy or bio-products is viewed as logical solution to our over reliance on imported petroleum. Production of bioenergy or bio-products has the potential to provide growers an additional source of income, reduce farm subsidies, expand the rural industrial base, and reduce reliance on increasingly scarce fossil fuels. Crop residues are not wastes if returned to the soil. They have long been essential components of erosion abatement and soil organic matter formation. The cyclic transformation of residue to organ matter is critical to soil functions, sustaining or enhancing soil physical, chemical, and biological characteristics and, in turn, supporting crop growth, waste reclamation, and filtering and buffering water and air. As organic matter levels increase, C is sequestered. Residue removal reduces soil organic matter content, crop yield, and soil quality if other management practices are not modified to compensate for the loss of C inputs. Innovative tools and management practices are needed to support and guide crop residue harvest for it to become a significant feedstock for the bio-economy while continuing to playing it traditional, crucial role in protecting and maintaining the soil resource.

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