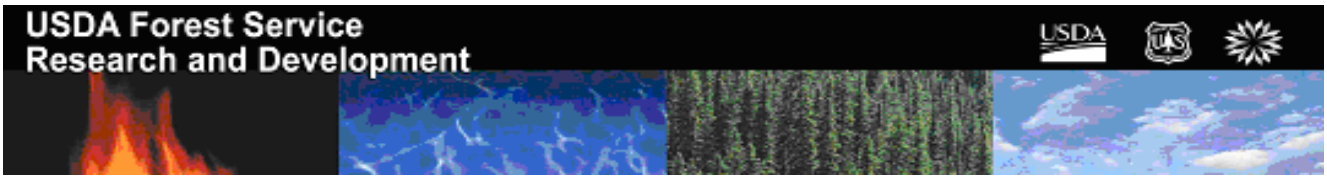

November, 2007

Climate Change, Biobased Products, and Bioenergy

Issue: Increasing amounts of carbon must be sequestered from the atmosphere into forests and rangelands in order to reduce carbon dioxide in the atmosphere, but the forests cannot store all the carbon. Increasing our use of wood in biobased products and biofuels can sequester more carbon, substitute for carbon-intensive building materials, and replace fossil fuels. Forest Service Research and Development is developing science and technology to sustainably produce, manage, harvest, and convert forest biomass, while increasing growth by remaining trees.

Key Points:

- Wood can replace many fossil fuel-based products and use carbon already in the global carbon cycle.
- Transferring biomass out of forests and into wood products is an important means of sequestering more carbon.
- Forest Service Research is looking at ways to manage forests sustainably. This includes testing ways to thin forests to reduce fuels, removal of small-diameter trees, removal of forest biomass and residues, and management of production forests.
- The Billion Ton Report, completed with the Department of Energy in 2006, estimated approximately 370 million dry tons of biomass are available every year from forest residues nationwide.
- The Forest Service Forest Products Laboratory and other research units are developing new uses for small-diameter trees and wood wastes. Some uses are: a three-dimensional sandwich panel; engineered fiberboard using small diameter woody biomass and whole tree trimmings; wood-plastic composites for exterior applications; and stabilized engineered wood fiber for playground and pathway mulch suitable for wheelchairs and walkers.
- Forest Service scientists are developing new processes for converting wood to ethanol , converting small diameter wood to energy products, and creating technologies for producing high-value biofuel products.
- Significant breakthroughs have been made in breeding hybrid poplar to enhance the poplar's ability to produce wood fiber and for use in producing energy.

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