



## Biofuels from Wood Part II

A previous article discussed some general technical and economic aspects to the commercial production of cellulosic biofuels from tree and crop residues. There are also issues of particular relevance in Missouri. We lack an in-state pulp and paper industry and sawmill residues are limited, so the infrastructure for harvesting, processing, and delivering the required quantities of woody biomass must be enhanced, creating new business opportunities.

Economies of scale matter greatly in biofuel production—the larger the manufacturing facility, the cheaper the construction cost per gallon of capacity. This will place a premium on selection of technologies that are economically feasible and sustainable, given the low biomass availability in Missouri's hardwood forests compared with coniferous plantations and forests in southern and western states.

Poorly located or oversized biofuel plants could create a demand for biomass from clear cuts to the detriment of soil and water quality. On the other hand, by providing a new market for sustainable forest thinnings, biofuel production could help to improve forest management by offering an alternative to prevalent harvest practices that degrade forests by removing only the best timber.

Cellulosic biofuel production will require commercialization of new technologies, which can be accelerated by public subsidy. Limited funds will require a decision between promising new energy technologies and conventional, already profitable ones. Another issue is whether subsidies should be conditional on providing economic benefit to farmers and on

utilization of sustainable harvest practices so as to promote truly long-term rural development.

We would do well to consider these matters *before* biofuel plants are constructed in Missouri. Land owners and managers should be meeting now with forest and energy industry partners to discuss guidelines for biomass harvest and mechanisms to ensure that this is done sustainably and with acceptable environmental impact.

The benefits of biofuels are not merely economic. Most of the energy consumed in the United States comes from fossil fuels, with just 6% from renewable sources. Increased use of renewable energy, together with energy conservation, could reduce global warming and dependence on foreign energy supplies.

A significant advantage of cellulosic ethanol, especially when produced from long-lived trees with high inputs from solar energy, is its low fossil fuel input. Ethanol has lower energy content and thus poorer mileage than gasoline, but gasoline requires ten times as much petroleum in its manufacture.

Biomass offers the most likely medium-term source of transportation fuel in significant amounts. The entire U.S. corn and soy crops could offset only 12% of gasoline and 6% of diesel demand. In Missouri, forest thinnings and crop residues could produce sufficient biofuel to exceed current corn ethanol production several fold without competing with food production.

Article by: Peter Becker

The Eastern Ozarks Forestry Council

Submitted by Peter Maki, Forestry  
Communication Specialist, Top of the Ozarks  
RC&D