

NEWS

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GEORGIA TECH DEVELOPING WOOD

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ALCOHOL AS GASOHOL INGREDIENT

For Immediate Release

Someday, Georgia motorists may have trees to thank for a portion of the fuel which runs their cars.

Energy researchers at Georgia Tech are developing a process to convert the cellulose in wood into ethanol (ethyl alcohol), one of the two ingredients in gasohol. Gasohol is a liquid mixture usually comprised of 90 percent gasoline and 10 percent ethanol. Some service stations in Georgia already sell it and automobiles with standard engines can use the fuel with little or no modification.

Distillers produce most of this country's ethanol by converting starchy crops, such as corn, into sugar, which can be fermented into alcohol. This process works well in states such as Nebraska, where grain grows near ethanol plants and is in plentiful supply. However, the same approach doesn't fit Georgia, which imports more corn than it harvests each year.

"It would make sense for Georgia ethanol producers to use wood if this is feasible," says Dr. Robert Cassanova, associate director of Georgia Tech's Energy and Materials Sciences Laboratory. "In Georgia, tons of wood wastes are available each year in the form of wood shavings, sawdust, fallen branches and trees unsuitable for lumber. They're close to ethanol distilleries and could be hauled to these plants without using much fuel for transportation."

Making ethanol from wood has broader implications than its impact on the Georgia economy. The United States is losing farm acreage to other land uses at a rate of approximately one million acres a year. Some agricultural planners believe

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that the era of crop ^{surpluses} is ending and that America soon may have problems feeding itself. In this context, using foodstuffs to produce energy would be undesirable.

Georgia Tech's wood-to-ethanol research has been underway for two years with Department of Energy funding. Tech energy specialists believe the Georgia Tech wood-to-ethanol system has shown better prospects for rapid commercialization than other cellulose conversion technologies being tested in the U.S. today.

"Other systems can convert cellulose to sugar but at a rate of no greater than 55 percent," says Cassanova. "Our process is a major breakthrough because we're getting conversions in the lab of around 80 percent."

Georgia Tech fashioned the system which made these improvements possible from proven commercial technologies. The Tech approach involves several steps. First, a steam explosion separates the cellulose from lignin, the other component of the wood. The cellulose then passes through a reactor, which recycles the material until 80 percent of it has been converted into fermentable sugar. The critical difference between the Georgia Tech process and others in development is Tech's reliance on recycling reactors for the conversion of cellulose.

Georgia Tech's economic development specialists have conducted studies which show that distillers could use the Tech process at costs comparable to those incurred in corn-based ethanol operations.

Tech researchers hope to run more extensive tests of their wood-to-ethanol technology soon. This work will be possible when a small ethanol pilot plant goes into operation on the Tech campus on an experimental basis. If all goes well with this research, the process could be ready for commercial use in several years.

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