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David Guralnick / The Detroit News

Peat, which covers a considerable chunk of Michigan, is a better fuel source because it requires no fertilization, researchers say.

Peat grows as new fuel source

Naturally occurring material is cheaper and more Earth-friendly than corn, scientists say.

Andy Henion / The Detroit News

Turning corn into fuel is all the rage these days as America attempts to reduce its oil dependency.

But a team of Metro Detroit researchers has identified a potentially cheaper and more Earth-friendly fuel source: peat, that half-rotted vegetation that covers a considerable chunk of Michigan.

The scientists, from University of Detroit Mercy and Wayne State University, are working to develop what they call "pethanol" to run small, fuel-cell-powered vehicles such as golf carts and riding mowers.

Because peat forms naturally and requires no fertilization, it's a benefit over corn, the researchers say. And Michigan, with its swampy environs, has one of the nation's largest peat reserves.

"Corn's biggest problem is that you only get one crop a year," said John Shewchun, an adjunct chemistry and engineering professor at Wayne State. "Peat is dirt cheap (to harvest), and with it you've got something that is easily replenished."

The venture is one of eight projects at the Michigan-Ohio University Transportation Center, a new federal initiative that aims to increase alternative fuel use, reduce road congestion and improve traffic safety and flow. The center, one of 60 nationwide created by the U.S. Department of Transportation, is a coalition of five



colleges: UDM, Wayne State, Grand Valley State, Bowling Green State and University of Toledo.

It's funded by \$2 million in federal funds over four years, as well as state, university and private money from the likes of Ford Motor Co. that bring the first-year total to \$1.1 million, said center director Leo Hanifin, dean of UDM's College of Engineering and Science.

"The majority of it will be spent on faculty and students doing research and outreach," said Hanifin, who spearheaded the effort to line up funding and coordinate the projects.

With the pethanol initiative, Shewchun and fellow researchers Mark Benvenuto of UDM and Charles Winter of Wayne State will hunt for synthetic enzymes to convert peat to ethanol through fermentation. Wayne State researchers have brewed pethanol using two natural enzymes -- one from impatiens -- but that's not practical for wide usage.

In lab tests, the pethanol has also powered a fuel cell without the use of hydrogen, which eliminates the need for hydrogen storage tanks in fuel-cell vehicles, Shewchun said.

Critics say peat mining can harm the environment by stripping the earth of wetlands and essential elements such as carbon. But Shewchun said responsible mining includes continuous restoration of the bogs.

Turning any plant into fuel on an industrial scale is difficult and expensive. Nearly all 4 billion gallons of ethanol produced in the United States is made from corn, an effort subsidized by the federal government to the tune of about \$3 a gallon, experts say. In warmer regions, the primary feedstock for ethanol is sugarcane.

President Bush said earlier this year that ethanol could help reduce Middle East oil imports by 75 percent in 20 years.

Opponents contend it takes more energy to create corn ethanol than the fuel produces and that the corn should go to feed the world's hungry. And most scientists agree there is not nearly enough corn -- or even the land to grow it -- to replace gasoline consumption.

Benvenuto, principal investigator on the project, said if peat works as a fuel, the researchers will look at duplicating its success with other hearty native Michigan plants, such as switchgrass. He said the answer is likely not one plant, but a variety of sources.

"None of the three of us think this will solve America's energy dependence," Benvenuto said. "But it will help." *You can reach Andy Henion at (313) 222-2610 or ahenion@detnews.com.*

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Wayne State professors Chuck Winter, left, and John Shewchun are helping to develop "pethanol" for small vehicles like golf carts. [See full image](#)

Where's the peat?

Michigan ranks third nationally in peat resources -- behind Alaska and Minnesota -- with an estimated 6,500 square miles of the decomposing matter, much of it in the Upper Peninsula.

In southeastern Michigan, St. Clair County has about 3,000 acres of peat reserves, while Oakland County has about 40.

Michigan typically ranks second to Florida in peat production, with more than 120,000 tons annually.

Sources: *University of Minnesota's National Resources Research Institute; researcher William Walden; Michigan Agricultural Experiment Station*