

# Michigan Researchers Look At Rutabagas For Biofuel

David Runk, Associated Press Writer

DETROIT (AP) — Researchers at Michigan State University are working to turn the rutabaga into an oil-producing powerhouse that could make the turnip-like vegetable a better source of biofuel than other food crops.

The idea is that the rutabaga, which stores oil in its seeds like some other biofuel crops, could be genetically modified to churn out more oil and store it throughout the plant.

"If we could make it in the green tissues, like the leaves, stems or even underground tissues like storage roots, then we think we can make a lot more," professor Christoph Benning said.

The rutabaga hasn't had much presence on U.S. dinner tables, an advantage in using it for biofuel. The use of corn, soybeans and other food crops for fuel instead of food has raised the specter of shortages, and some blame the biofuel boom for pushing up food prices. Benning's research is one of many efforts nationally to get biofuel from sources other than major food crops.

Benning decided to focus on the rutabaga because the root vegetable already has the "machinery" of producing oil and it grows well in northern states. It's cold-resistant and, because of the way it flowers, he said, there's no threat of modified rutabagas becoming invasive.

Benning and his fellow researchers at Michigan State in East Lansing have inserted a gene into rutabagas to try to get them to accumulate oil instead of starch throughout the plant.

It took about a year to grow the first generation of genetically modified rutabaga in a university greenhouse, Benning said. The scientists will analyze seedlings from subsequent generations to see how oil production has been affected. Even if all works as expected, it could take 15 years before rutabaga biofuel becomes a reality, he said.

"It's not going to happen tomorrow, but the problem won't go away tomorrow," said Benning, who is part of Michigan State's Department of Biochemistry and Molecular Biology.

Dan Gustafson, director of the Washington, D.C. liaison office of the United Nations' Food and Agriculture Organization, said it's important for researchers to look at different sources for biofuel — in part because of the trade-off, for example, between producing corn for food and corn for fuel.

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"Biofuel has some tremendous potential and opportunities for farmers, but there also are problems with food security," Gustafson said.

Scott Faber, a lobbyist for the Grocery Manufacturers Association, said it's important when looking at biofuel crops to examine how they will affect the cost of food. Even if rutabagas aren't widely grown in the U.S. for people to eat, rutabagas for biofuel could edge out other food crops.

"If you were to dedicate hundreds of thousands of acres to produce rutabaga for the biofuel sector, in all likelihood farmers would be changing what crops are currently being cultivated on those lands," Faber said. "That is one of the sort of hot-button issues, a central focus of the biofuel debate."

A goal, Benning said, is to grow rutabagas two or three times as efficient at producing oil as canola, a major biofuel crop. That could make it a "game changer" in the biofuel industry, he said.

The parts of genetically modified rutabagas that aren't harvested for oil could be used for animal feed, Benning said. He doesn't think the rutabagas would be unsuitable for human or animal consumption, but that would need to be studied. And the U.S. Department of Agriculture would have to approve their use.

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