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BIOFUEL PROMISE IN PONGAMIA A MADISON COUPLE BELIEVE THE TREE COULD PROVIDE AN ALTERNATIVE TO OIL.

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Marc Vaccaro used to be all about water. As one of the founders of Great Wolf Resorts, Vaccaro helped establish indoor waterpark resorts around the country.

But about a year after Great Wolf opened its shares to public trading on the stock market in December 2004, Vaccaro left the Madison company and turned his energies from water to oil, from splash pools to drought-hardy plants and seeds.

Marc Vaccaro and his wife, Astrid, set their sights on a tree: the pongamia pinnata (ponga-MEE-ah peen-YAH-tah) tree. Experts think the pongamia, native to coastal areas from India to the Fiji Islands, could become an important, alternative source of biofuel, and at the same time, provide farmers in drought-stricken lands with a new way to make a living.

Madison could play a role in that, as well, he said.

The Madison couple would like the Great Lakes Bioenergy Research Center, a consortium based at UW-Madison, to establish ties with the project. The center is studying a variety of alternative energy sources and pongamia will be "a robust one," Vaccaro said.

The fast-growing, flowering pongamia, with its glossy, green leaves, needs little water and is poisonous to eat. But its parts serve as ingredients in numerous folk remedies and have many practical uses, as well.

The bark can be used to make twine or rope; a black, gummy substance the tree exudes can treat wounds caused by poisonous fish. Plant juices are antiseptic and resistant to insects.

The discarded seed pod, mixed with water, produces gas that can be compressed and used as cooking fuel.

Most importantly, though, the seeds of the pongamia are a source of oil that's been used for lighting lamps, making soap and as a lubricant. Supporters say they think the oil can be used as fuel for diesel engines and Roshini International Bio-Energy Co. of Hyderabad, India, is actively pursuing that option.

The Vaccaros have been investing in Roshini since they learned about the pongamia project in 2005. They were on a humanitarian trip to visit classrooms they had funded in rural villages in India through the Himalayan Institute, in Honesdale, Pa.

The project started as an agricultural experiment to help impoverished farmers in areas

stricken by drought, Vaccaro said. Now, as many as 35,000 farmers are involved. "It's a massive, massive undertaking," said Vaccaro, who is on Roshini's board of directors and, with his wife, owns about 15 percent of the company.

Roshini has planted more than 40 million trees and seedlings on 100,000 acres, mostly in India. Pilot plots are being developed in Uganda and in Australia. The University of Queensland, in Australia, is studying the tree as a biofuel source. Experts there say pongamia has a larger amount and higher quality of oil than many other crops; it can grow in poor soil conditions because it is nourished by nitrogen from the air instead of the ground; and it is not a crop that could be used for food.

A test program also is being set up in Florida, in an effort Astrid Vaccaro heads. Pongamia grows in a subtropical environment, so only land south of Tampa Bay is being considered, said Vaccaro.

Biodiesel fuel for use in vehicles - from cars and truck to airplanes - is expected to be produced in 2010 or 2011 from the acreage in India, he said. Meanwhile, the mature pongamia trees will be able to offset carbon-related emissions, tied to global warming, in India or elsewhere.

"There is not going to be a magic bullet to our energy issues; there will be 100 smaller bullets. I think this is one of the 100 bullets," Vaccaro said.