CADILLAC - Michigan farmers always can use another crop to generate cash and a former NASA engineer wants to help them.

Donald Alger, who retired from the National Aeronautics and Space Administration, spent almost 25 years experimenting in its laboratories, in his spare time, to develop a way to grow Shiitake mushrooms using pine trees from land he owns near his native Manton. The Michigan Department of Transportation took part of his property for U.S. 131 and now his dreams of operating a mushroom-growing business are gone.

"They refused to offer any compensation for our treated pine trees, so we took them to court," he said. "We will not be able to commercially produce the Shiitake mushrooms on our Manton farm because MDOT has destroyed the very center of the 40-acre track."

The trees were treated with his secret formula that would allow mushrooms to grow on pine, which naturally has anti-bodies against fungus.

Now he wants to share his secret formula for converting pine trees into food for Shiitake spores and give farmers with even scrub pine trees another crop option.

"Any landowner in Michigan with pine forests can increase their income by treating the pine trees so that gourmet Shiitake mushrooms will grow on them," he said. "Normally they are grown on oak and other hardwood. But hardwoods are very expensive in comparison to pine. So if one could grow these valuable mushrooms on pine, he would have a big price advantage over other Shiitake mushroom growers," Alger said.

Alger is patenting his process. He is willing to license his special treatment of pine to make a way for a farm cooperative or a businessman to produce the mushrooms commercially.

Using his process, Alger said he is able to grow seven pounds of mushrooms using 100 pounds of pine.

He envisions either a central processing facility that treats the pine for farmers who then would take bags of pine shavings back to their farms to grow the mushrooms in - or a processing facility that would treat the wood provided by farmers and grow the mushrooms as well.

"It's not something a farmer could just process on his farm," he said of the treatment of the trees. "It's a chemical that has to be handled carefully."

But he doesn't want to scare off those interested in smaller operations.

You could start here rather small," he said.

The mushrooms are popular with gourmets.

"They are used everywhere," Alger said. "When they are dried the flavor is better."

Alger's idea comes on the heels of potential Shiitake growing operations in Mason County.

Mason County Cooperative Extension Director Jim Breinling said the old canning plant in Scottville has recently been purchased by a company that plans to produce specialty mushrooms on a commercial bases, including Shiitakes.

Michigan State University Plant Biology Professor Frances Trail said for farmers to grow the mushrooms would require the ability to control the temperature and humidity throughout the growing process.

"I'm not sure what it would take to become an industry here," she said.

At Phillips Mushroom Farms in Kennett Square, Penn., General Manager Jim Angelucci believes Alger's idea is feasible - but not necessarily easy.

His farm grows specialty mushrooms, including Shiitakes, and markets them across the nation.

"I think it would work," he said. "It depends on what kind of costs you have in the process."

Phillips said his farm - in the "mushroom capital of the world" - uses hardwood to grow Shiitakes. He said the wholesale price of the mushrooms has dropped to $4 to $6 per pound as Shiitake mushrooms from China enter the U.S. market. He cautions that any dreams of mushroom millions are just farm fantasy.

"The way to make a small fortune in the mushroom industry is to start with a large fortune," he said.

Alger said the mushrooms he has grown in his lab with his pine from Manton are high quality and and when dried the mushrooms last for a long time.

"You can send them anywhere in the world," he said. "We can tell by the way they smell they are premium mushrooms."

Alger said anyone interested in his process can contact him at his laboratory in Seville, Ohio, at 330-721-0710 or e-mail him at algerstirling@msn.com.

By Dale Killingbeck Cadillac News