



Fuel for the future

Technical college's ag program launches a small-scale biodiesel project to encourage farmers to shift to alternative energy



Agriscience students at Chippewa Valley Technical College used a seed press last week to press the oil out of canola and sunflower seeds. The students are, from left, Tom Seidl of Ogema, Mark Poeschel of Durand and Isaac Hartung of Elmwood. The biodiesel processor on the right will be used next month to turn the seed oil into biodiesel.



CVTC students, in cooperation with local farmers, grew sunflower, left, and canola seeds, right, and soybeans on about 20 acres this year.

EAU CLAIRE — As agriscience students dumped buckets full of canola and sunflower seeds into a seed press hopper, thick, yellow oil dripped out of a pan below.

The seed press plugged up and even started smoking a little. The process has required some fine-tuning.

"We're learning as we go," said Dwight Swenson, an agriscience technology instructor at Chippewa Valley Technical College in Eau Claire. "I've had the press apart a few times, so I think I know how that thing works pretty well now."



Swenson

CVTC launched a small-scale biodiesel project this fall and plans to share the results with farmers interested in making their own fuel.

"If we have some of the bugs worked out, if we can explain some of the pitfalls along the way and provide some recommended practices as we go through the learning curve, then I think (farmers will) be encouraged to adopt some of these alternative-fuel practices," Swenson said. "If we get enough people doing this, collectively it can definitely make a difference."

CVTC students worked with local farmers to raise canola, soybeans and sunflowers this year. As of last week, the soybeans still needed to be harvested.

After the seeds have been pressed for their oil, students will begin processing the oil into biodiesel using a 70-gallon processor that the school bought from Turner Industries in Chippewa Falls.

Swenson hopes they can begin making biodiesel in

early December. They plan to test the biodiesel for its quality and use it in diesel trucks in the school's transportation department.

"We're just pressing it out now. That's actually the hardest part. Making the biodiesel will be a lot more fun," Swenson said. "We've purchased potassium hydroxide as our catalyst, and of course we'll use methanol, and we'll pump that in with the oil at 130 degrees. There's a little bit of mixing time, and then letting the glycerin settle out."

"We're using a dry wash filtration with resin beads. When it comes out of that dry wash, it's ready for testing, and I would say very likely should be good to go for fuel."

The project will have applications in many different classes, Swenson said.

"I've got a feed analysis class, and so we do analysis on the canola meal and some of the co-products that go along with the crops," he said. "In my sales and marketing class, that's another application where we try to market those co-products. It really crosses over into many different classes and then applies not only to our agronomy students but also our animal-science emphasis."

Farmers have been taking samples of the canola meal and testing it as a substitute for soybean meal, he said.

Oilseed crops might be better suited to marginal cropland, Swenson said.

"We don't want row crops that expose our fragile soils to erosion. It may be a very, very appropriate use of the land for canola or a comparable oil seed crop, and they don't require a lot of inputs," he said.

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Isaac Hartung worked to ensure the seeds moved through the press. Agriscience technology instructor Dwight Swenson said next year the press and biodiesel processor will be moved to a more permanent spot on campus and automated with augers.

Fabricating business branches out with biodiesel processors

CHIPPEWA FALLS — When gas prices were higher a few years ago, Ian Turner was frustrated with paying so much to fuel up for his drive to work.

So he used his job to develop a solution.

Turner works at Turner Industries, a sheet-metal fabricating business north of Chippewa Falls owned by his father, Colin. He pitched the idea of building biodiesel processors to his dad.

"He was badgering me for a year before we got into it, saying, 'We got to do this, we got to do this.' Finally, I broke down and said, 'Yup,

you're right,'" Colin said.

The Turners sold their first few processors this fall, including their first to Chippewa Valley Technical College in Eau Claire.

"These last two sales we made are going to recoup a lot of the start-up costs," Colin said.

For more information about Turner Biodiesel, call 715-288-6480 or visit www.turnerbiodiesel.com.

Turner Biodiesel makes processors and dry-wash towers to filter the biodiesel. They also are distributors for seed-oil presses and waste-oil furnaces.

Their biodiesel processor is made out of steel, which will last a lifetime and is safer, Ian said. Some processors are made out of plastic and can melt or become brittle, he said.

Ian developed his design by looking at other processors on the market.

"They weren't built very well, some of them that we were looking at online. Ian said, 'Well, we can change this, and we can make it out of steel,'" Colin said.

Several farmers have called Turner Industries interested in the biodiesel

processor but they say they can't afford it right now, Colin said. The processors cost \$5,250 and the seed presses cost \$5,000.

CVTC will share results from their experience with the processor and seed press with farmers.

"When they get done with their feasibility study, we'll be really interested to see the results," Colin said. "Even if it's a wash, it's better because it's green."

The Turners and Aaron Doane, who works in sales and as a design engineer, also are making a student lab that demonstrates the process of making biodiesel on a small scale. They hope to have it finished by the end of this month and market it to high schools and colleges.



Ian Turner



Colin Turner