Leroy Groening built this rotary ditcher to dig drainage ditches on his Manitoba farm. He made the ditcher from a cultivator frame fitted with a combine drive axle that pto-drives the flywheel.

"Made It Myself" Pto-Powered Ditcher

Leroy Groening designed and built a rotary ditcher with a 59 1/2-in. dia. flywheel to dig drainage ditches on his Manitoba farm.

Groening made the ditcher from a cultivator frame fitted with a combine drive axle with gear reduction that pto-drives the flywheel. He used one of the cultivator's wing lift cylinders for depth control.

The drive axle is from an old Massey 92 combine. He cut the axle in half and mounted it onto the cultivator frame, then attached a pto driveline from the tractor's 1,000 rpm pto to the axle's input shaft. Using Sketchup 3D modeling software (www.sketchup.com) he drew up the flywheel and paddle parts and then gave the dxf files to a machine fabrication shop, which used a laser cutter to form the parts.

The flywheel is made from 3/4-in. thick steel plate and has 8 paddles bolted onto it. "By having the parts laser-cut I didn't need to drill any holes, and everything fit together precisely," says Groening.

He uses a Deere 7200 tractor rated at 92 pto hp. to pull the machine. "I tried my ditcher out for the first time last year and it worked quite well, although the frame could use some more weight to keep the machine from drifting to the side," says Groening. "Also, using a cultivator equipped with walking axles might have worked better because the ditcher wouldn't bounce up and down as much over rough ground, and the walking axles would help with floatation in wet conditions."

A pair of steel gathering blades under the frame move dirt toward the center, which results in a wider cut than just the radius of the cutting wheel. The blades are located a bit higher than the bottom of the flywheel.

A metal fender over the flywheel protects the ditcher's laser receiver and also helps keep dirt from flying up onto the tractor. An electric-hydraulic valve is used to control digging depth. "The valve connects to a unit on the tractor that works with the laser receiver, and automatically adjusts the ditcher's height as I'm driving," says Groening.

He says he doesn't have plans to develop the ditcher commercially at this point. "New commercial ditchers are quite expensive, and this was a way to build my own ditcher at a fraction of the cost. I also had the fun of building it," he says. "The gathering blades I made are a bit primitive, but they work."

You can see a video of the ditcher at work at www.farmshow.com.

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Ditcher's 59 1/2-in. dia. flywheel is made from 3/4-in. thick steel plate and has 8 paddles bolted onto it.

Metal fender over flywheel helps keep dirt from flying up onto tractor.

A pair of steel gathering blades under frame move dirt toward the center, which results in a wider cut than just the radius of the cutting wheel.

Sickle Section Combine Chopper

Brent Huneycutt came up with a low-cost alternative to buying a residue chopper for his combine. He bolted some old sickle section blades to the grates.

"It would have been nice to have a chopper on my combine, but it would have been an expensive addition for an old machine like my 1460 Axial Flow International," says Huneycutt. "I had heard about the idea of using sickle sections, but I didn't think it would do much good."

Huneycutt decided to try it. He used the four holes and bolts that attach the three grates to each other and the two at the back of the grates. He could have put two in the front as well, but didn't.

"I cut the sections in half top to bottom to make the triangle smaller and drilled a hole for the bolt," says Huneycutt. "Once I got one right, I used it for a template. You just have to be sure they won't hit the concave."

He faced the sharp edge in the direction of the rotation and tried it out. "I couldn't tell the difference between the soybean trash coming through mine and my uncle's 1660 International with its chopper," says Huneycutt. "They were tall stalks going in, but came out in 5-in. pieces or with the stalk nearly cut through. It was a lot better than spending $4,000 to $5,000."

He does point out that the stalks can get hung up on the blades when the rotor slows down. "You can take them out for wheat straw, but if you leave them in, they'll do an even better job cutting it up," says Huneycutt. "They're easy to take out. It just takes a few minutes."

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Instead of buying a residue chopper for his older combine, Brent Huneycutt bolted sections of sickle blades to the grates.

To keep water from freezing in his stock tank, Sam Pajari used a 100-gal. propane tank to make this wood-fired heater.

Wood-Fired Tank Heater Saves Farmer Money

Sam Pajari farms and raises livestock in far northern Minnesota, where winters can be cold and long. Keeping water from freezing in outside stock tanks is always an issue, and Pajari says a few years ago he "just plain got tired" of paying big electric bills for tank heaters.

"We've got plenty of wood up here, so I came up with the idea to make a wood-fired heater that wouldn't use any electricity." Pajari first thought about building a square metal tank for the burn chamber, then realized that a de-comissioned 100-gal. propane tank would probably do the trick. He was able to pick up a tank for free because it had a dent and wasn't usable for LP anymore.

"I started by filling the tank with water, then draining it to make sure all the propane was out of it," says Pajari. "Then I used my torch to cut the valve and some of the chamber off the top, so about 3/4 of the tank remained."

Pajari then placed a 4-in. metal pipe inside the tank, extending to the top, to provide draft for the burning wood. He made a flat metal round cover for the wood box and installed an elbow and 4-in. metal chimney near the top of the tank. "The heater is about 3 ft. tall and 18 in. in dia., so it sticks out the top of my 200-gal. galvanized water tank just fine," says Pajari. Metal brackets on 2 sides of the heater slip over the side of the water tank so it's held in place and can't float up.

Pajari gave his first heater to neighbor Don Bonnette, then built another one for himself. Bonnette says "it works like a charm. I can keep a small fire going in it and my stock tank never freezes."

Pajari says if the stock tank water does freeze hard a small fire in his heater will thaw the ice in about an hour. He places a small amount of tinder in the bottom, then puts 4 to 5 small pieces of wood about 14 in. long and 2 in. in diameter on top. "When the fire is burning, I can regulate it by closing or opening the cover. Normally with the cover closed the fire will burn 12 hrs. and keep the water nice and warm."

Pajari says another key for success with his wood heater is using the right kind of wood. "Soft wood like pine or birch burns too fast. I use black ash and that burns nice and slow."

Pajari says his beef cattle enjoy the warmer water in the cold winter months and tend to drink more. The tank is situated in the cattle yard so the end with the heater is outside the fence so cattle can't nose the heater to one side or another.

"Building the heater probably took me 3 to 4 hrs. and it sure has saved me a lot of money in electricity charges," says Pajari.

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