

# How To Make A Simple, Biodiesel Processor

If you're looking for an inexpensive way to make biodiesel, and you've got some time on your hands, you might be interested in how Ron Carey got started.

He built a simple processor, nicknamed the "Bedrock Brewer", to make biodiesel for about 60 cents per gal.

Because he uses the sun to heat his vegetable oil before processing, Carey admits that it can take awhile to get the oil hot enough to process.

Carey built the processor from a steel 55-gal. barrel, an inexpensive pump he bought from Harbor Freight (www.harborfreight.com; ph 800 444-3353), black steel pipe, and brass valves. He says he probably spent about \$150 on it.

He removed the bungs from the barrel and painted it black so it absorbs heat. He attached black steel piping and brass valves to each bung hole. One drains the byproduct glycerol and the other is used to pull liquid from the bottom of the barrel using the pump.

He elevated the processor 2 ft. off the ground on a platform made from concrete blocks and wood. The pump mounts under the platform.

Before processing the used vegetable oil

that restaurants give him, Carey lets the containers sit in the sun. On a hot and sunny summer day, it takes a couple of hours to heat the oil. "Ideally, oil temp needs to be 130 degrees or so to get a good reaction," he says. "Many biodiesel 'brewers' use a water heater as a reaction vessel so water elements heat the oil faster," he says.

After it's hot enough, he pours the oil into the barrel. He can process 45 gal. of oil at a time.

Then he does a titration test to determine the Free Fatty Acid (FFA) content. "It's a simple chemical test. Any fourth grader can do it." The results are then plugged into a simple math test. The more used the oil is, the higher the FFA.

The test determines how much lye and potassium hydroxide or sodium hydroxide to add to methanol to create the methoxide that he adds to the oil. For 45 gal. of oil, he might add 9 gal. of methoxide.

He's adamant about safety while combining these chemicals. He wears goggles, gloves and protective clothing.

After adding the methoxide, he lets the processor mix for about an hour. Then it sits for 8 hours to let the glycerol separate from the biodiesel. There's about 9 gal. of it that gets siphoned off. Carey hasn't found



**Biodiesel processor is built from a steel 55-gal. barrel, an inexpensive pump, a black steel pipe, and brass valves.**

a use for the glycerin although he knows it's used to make soap.

Lastly, Carey pours the biodiesel into separate containers and lets it sit for about two weeks to separate the impurities from the biodiesel before using it in his diesel vehicles.

"It's not as complicated as one might think, and the first few times are the hardest," he says. "With a little ingenuity, some

investment and willingness to learn, it's worth the time and effort."

Carey is the "production master" of the Yoderville BioDiesel Club. They've "brewed" over 5,000 gal. of biodiesel.

Contact: FARM SHOW Followup, Ron Carey, 205 Cedar St., West Chester, Iowa 52359 (ph 319 698-2341; burlman69@yahoo.com; www.ydbc.org).

## "Dozer Bucket" For Skid Steer Loaders

"Our new attachment for skid steer loaders converts quickly from a bucket to a dozer blade. What's more, the blade can be hydraulically angled up to 30 degrees and also hydraulically side-shifted 10 in. to either side—all from the operator's seat," says Hal Whitethorn, Laser Cut, Inc., Madison, S. Dak.

The unit consists of a 68-in. wide dozer blade with a separate hydraulic-operated clamshell-bucket mounted above it. For blading work, a hydraulic cylinder is extended to angle the blade up to 31 1/2 degrees to one side. Another cylinder is used to side-shift the blade up to 10 in. out to either side.

To use the unit as a bucket, you extend another cylinder to bring the blade back flush and then lower the clam-bucket in front of the blade. To dump material into a truck, or to belly-dump it out in an even layer on-the-go, you retract the cylinder to partially open the bucket so the material falls out the bottom. To use the unit as a clam, you lower the clam-bucket part way down.

Dozer extensions can be added to reach beyond the skid loader wheels. The 10-in. wide extensions are manually pinned in place - a 2-minute job. The bucket can be dumped, even with the dozer extensions in place.

"It does everything you'd expect of a bucket - loads and picks up debris like concrete slabs, rocks, and sheet rock," says Whitethorn. "It works great for cutting drainage ditches, grading driveways, backfilling around building foundations, finish grading, moving snow, and so forth. As far as I know it's the only piece of equipment that lets you windrow snow, then pick it up and dump it into a truck for disposal.

"It works great with the extensions for filling in trenches. You can drive parallel to the trench with the blade at an angle and roll dirt into the trench without having to do any backdragging."

The angled blade makes it easier to clear snow from parking lots, he says. "You can drive down to one end of the lot, then turn around and drive back with the blade angled in the opposite direction, without wasting fuel. And instead of just pushing snow into a pile, you can roll it off to one side, then make



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**Dozer extensions can be added to reach beyond the skid loader wheels.**

another pass and roll it further off to the side. Once you get the snow rolled over where you want it, you can use the bucket for loading and dumping work, or pile the snow up even higher."

Contact: FARM SHOW Followup, Laser Cut, Inc., 1133 1/2 NW 2nd St., P.O. Box 408, Madison, S. Dak. 57042 (ph 605 256-0450; lasercut@iw.net; www.lasercut-inc.com).

## Battery-Operated Fan

Here's a fan you can take anywhere on the farm because it runs on 12-volt power.

The 2-speed, 12-volt fan comes with battery clamps, allowing you to hook it up directly to any battery terminal, and with a 12-volt plug-in adapter for cigarette lighter outlets.

Sells for \$99 plus \$10 S&H. Larger 12-volt fans are available, too.

A similar 20-in. variable speed model is also available. It sells for \$199 plus \$15 S&H.

Contact: FARM SHOW Followup, Howard Plank, Tool Plus, RR 1, Box 122-C,



**New 2-speed, 12-volt fan comes with battery clamps.**

Dept. FS, Arthur, Ill. 61911 (ph 217 543-3294 or 217 543-2404).

## Combine-Mounted Mower Cleans Up CRP Acres

Tough CRP weeds and grass can give any mower a workout, what with hidden washouts and gopher mounds. That's why John Herren mounted his Brillion flail mower on an old Case combine. With the hybrid unit, he can adjust mowing height on-the-go and slow ground speed to see what trouble lies ahead.

"The combine gives me variable speed on the drive wheels while maintaining high rpms on the mower," says Herren. "Best of all, I mow everything before I run over it."

To mount the 12-ft. mower to the combine, he first stripped the 2-row cornhead down to its frame. He then flipped it upside down and reattached it to the pivot brackets mounted on the axle. A single cylinder mounted on the combine lifted and lowered the cornhead. Herren simply welded a new bracket to what had been the underside of the cornhead and reconnected the cylinder arm.

To prepare the Brillion, Herren stripped it down to the cutting head and welded angle irons on it to mount to the cornhead. He also removed the pto shaft at the mower gearbox and replaced it with a sprocket.

A sprocket on the combine beater shaft drives a sprocket mounted on the main shaft of the cornhead. A second sprocket on the cornhead shaft is connected by roller chain with the sprocket on the end of the Brillion



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mower.

Herren stripped off the grain tank and all other belts and drive chains, but left the rest of the combine intact. He needed weight on the rear to balance against the 2,200-lb. cornhead/mower on the front.

"The cylinder lets me raise the mower as high as I want to go, but I usually mow at about 12 in. off the ground," says Herren. "It's ugly, but it works great."

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