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Add-On Bale Feeder "Roof"

"It greatly reduces spoiled hay, which saves on waste and time spent cleaning up," says James Brotz, Sheboygan, Wis., about his assemble-it-yourself roof for round bale feeders.

The roof, made from lightweight UV-resistant recycled plastic, is designed to fit a standard 8-ft. dia. round bale feeder.

"It looks like a miniature round corn crib roof. That's why we call it the Hay Crib," says Brotz.

The roof consists of wedge-shaped sections that you bolt together. Plastic straps (supplied) are used to fasten the cover to the feeder's top ring at 4 different places. Each strap has a snap link at one end that attaches to an I-bolt on the outer edge of one of the roof sections. A small cap bolts on top of the roof. Once assembled, the roof measures a little more than 1 1/2 ft. tall and has a 1:6 pitch.

"As far as I know it's the only separate roof made to fit standard round bale feeders," says

Brotz. "There are a lot of covered round bale feeders on the market, but most of them are made from steel which makes them so heavy you need a skid loader to move them around.

"The assembled roof weighs only about 70 lbs. so one person can easily roll the roof-equipped feeder on its side and flip it over the bale. The roof has a 4 to 6-in. overhang which isn't a problem when rolling the unit."

The Hay Crib ships in a 2 by 4-ft. box. Sells for \$324.99 plus S&H.

Brotz also offers a complete round bale feeder made from continuous 48-in. wide sheets of recycled poly. "We cut a series of large holes in the sheets where the animals feed. A cage made out of plastic pipe wraps around the sheets to stiffen them up. We also plan to offer a calf crib from the same material," he notes.

Contact: FARM SHOW Followup, James Brotz, 2403 S. 8th St., Sheboygan, Wis. 53081 (ph 920 208-0493; www.thehaycrib.com).



"Clear view" cab has big windows on all sides for great visibility and tilts back to provide easy access.

"Clear View" Cub Cadet Cab

"After reading articles on how other readers had built cabs for their garden tractors, I decided to build one for my Cub Cadet 1864. The cab has big windows on all sides for great visibility and tilts back to provide access under the hood," says Eugene Forster, Buckley, Ill.

"During the winter I mount a dozer blade and a snowblower on front of the tractor, and the cab lets me work in comfort. In fact, I wish I had built it 20 years ago."

The cab is built out of pvc pipe and plywood, with plexiglass windows. He used 1 1/4-in. pvc pipe to make the cab's frame, with 3/8-in. plywood screwed to both sides, front and back. A 36-in. length of 1-in. dowel rod serves as a stand for the cab when it's tilted back.

A length of 1 1/2-in. angle iron bolted across the rear fenders serves as the rear cab mount and also is the hinge for the cab. A small piece of flat iron with a short piece of 1-in. dia. pipe welded to it is bolted to the front outside edge of the footboard on each side of the tractor. The 1-in. pipe slides into the vertical part of the cab's pvc pipe frame and is the front support for the cab.

Forster used 2 different materials for the windows. The front window is made out of polycarbonate and is fastened with galvanized screws. The sides and back windows are clear

vinyl. He folded the edges over 1 in. and installed brass grommets about every 6 in. around the perimeter of the window. Then screws were put through the grommets and screwed through the plywood and into the cab's pvc pipe frame. The roof is made from 1/2-in. plywood that's also screwed to the cab frame.

The door was made by screwing a piece of plywood to a pvc pipe frame and adding some old door hinges and a garage door latch.

A 36-in. length of 1-in. dowel rod serves as a stand for the cab when it's tilted back. A small hinge is fastened to the back of the cab toward the top. One end of the dowel rod is screwed to the hinge, and the other end snaps into a broom handle clip that holds the rod in place until the stand is needed. A single floodlight mounted above the front window provides extra light when working at night.

A weight rack that mounts on the tractor's rear hitch was made by welding together angle iron and flat steel to form a 6-in. wide by 30-in. long box. Three 60-lb. concrete weights fit into the box side by side. "Three smaller weights are easier to handle than one large one," notes Forster.

Contact: FARM SHOW Followup, Eugene Forster, 765 N. 100 East Road, Buckley, Ill. 60918 (ph 217 294-2233).

Self-Taught Biodiesel "Expert"

Dick Carrier has an inventive mind and a will to succeed. He'll build just about anything that can save him time and money, including the 40-gal. and 400-gal., biodiesel processors that sit behind his shop.

"I learned how to build this equipment the hard way, getting information from the internet, finding out it wasn't always right, then spending two years perfecting the equipment and the process," says Carrier. That trial and error process included learning from people who had started fires in their shop, burned down a garage and blown up a house. "There are a lot of things you can't do, and some things you definitely shouldn't do," Carrier adds. "Don't try to make the fuel under pressure in an old water heater, always use the correct amount of chemicals, protect the electrical hook ups with circuit breakers or fuses, and build your processor outside."

To build his own processors, Carrier used parts from water heaters, relay switches from an air conditioner, small pumps from Harbor Freight, used bulk liquid containers, and new pvc and steel piping.

He first built a 40-gal. system that he says cost him less than \$200. Now he has a 400-gal. processor with larger tanks, more elaborate piping and valves, better pumps and larger storage. He has about \$4,000 into the larger system and produces very high quality biodiesel for less than \$.80 a gallon. Both systems are free standing with excellent ventilation. They're non-pressurized and the liquid never gets hotter than 130 degrees. Chemicals and methanol are added only after the heater is turned off.

Carrier uses waste cooking oil from restaurants as the base product for his biodiesel. Making fuel from waste oil gives him a product that has 30% lower emissions than low sulfur diesel from a pump. "Waste oil is available from many places," Carrier says, "but a lot of restaurants have disposal contracts so you really have to work hard to find a regular source. My advice to anyone wanting to do this is to build the processor first, then find the oil source."

Experience taught Carrier that waste oil stored in 35-lb containers will deteriorate over time. "I've heard of guys having plastic bottles fall apart and there's oil everywhere," he says with a laugh.

Carrier also learned that every batch of waste oil is different because of the temperature it was cooking at, the food it



Dick Carrier's home-built, 400-gal. biodiesel processor uses waste cooking oil from restaurants as the base product.

was cooking, how long it was stored after cooking, and what it was mixed with in storage. "We made a lot of weed killer with those early batches of biodiesel because we didn't accurately test the oil for pH, free fatty acids and water before we started," Carrier says. "Knowing those elements determines the amount of chemicals you need, and that's very important." He filters oil through an aluminum window screen to remove large particles before processing.

Carrier says the quality of his finished fuel is better than that he can buy at a station. "The industry standard for soap content is 66 ppm, and we can easily get to 30 ppm. Ours also has lower water content than industry standards allow, so we've got a product that's better for the engines."

Carrier runs his fuel in tractors and heavy equipment in a sand pit operation and says the engines are doing well. "We spend a lot of time getting the fuel processed right and making sure the quality is there because if we didn't, we could ruin the injectors," Carrier says.

One of the sources he recommends for competent information and quality components for making your own system is Utah Biodiesel Supply (<http://utahbiodieselsupply.com>). An internet forum for good information is learth@yahoo.com. Carrier says he's also willing to advise biodiesel makers.

Contact: FARM SHOW Followup, Richard Carrier, 15840 Wimauma Rd., Wimauma, Fla. 33598 (ph 813 545-9361; harveyking@hotmail.com).

Ear Corn "Squirrel Twirler"

"I love watching squirrels use my homemade, tree-mounted ear corn twirler. The squirrel gets a free ride from 10 ft. up all the way down to the ground. It's a comical sight," says Bill Reeks, Cromwell, Ky.

He shaved a 10-ft. long hickory stick so that it's slightly wider at the bottom. He found the balance point for the stick and drilled a small hole 1 in. above that point, then drove a 20-penny nail through the hole and into the tree. Because the hole is off center the stick normally sets in an upright position. To hold the ear of corn he drove a 1/4-in. dia. metal rod into the end of the stick and drilled a hole lengthwise through the ear.

"As the squirrel climbs up to the ear, its weight causes the stick to rotate down to the ground," says Reeks. "As soon as the squirrel jumps off, the twirler returns to its original upright position. Sometimes a few kernels end up on the ground. After eating them the squirrel usually climbs back up the stick for more. It's entertaining to see the squirrel work hard for his meal."

Contact: FARM SHOW Followup Bill Reeks, 7146 Beaver Dam Rd., Cromwell, Ky. 42333 (ph 270 274-3361).



"Squirrels get a free ride from 10 ft. up all the way down to the ground," says Bill Reeks about his homemade ear corn "squirrel twirler".