

Ontario dairy farmers Jasmin Hofer and her father designed a cold screw press to process their soybeans. Feed and fuel savings paid for it in less than 2 years of use.



Energrow system is an automated system that can run 24/7 with no labor required.

## Farmer-Designed Press Turns Beans Into Oil, Feed

Why raise soybeans and sell them only to turn around and buy soybean meal to feed cattle and diesel to fuel tractors?

That's what Ontario dairy farmers Jasmin Hofer and her father started asking themselves 8 years ago. Their solution was to work with machinists and engineers to design a cold screw press to process their beans. It paid for itself in less than two years of use at their 120-cow dairy. They now run Energrow Systems, manufacturing a pressing system that typically generates a 3-year payback with a 75-cow herd.

"Our goal is to help farmers use more of their own farm grown crops, minimize purchased feed and fuel, and produce a more consistent feed, making more money for the farm," says Hofer.

The Energrow System presses out oil and extrudes pellets for feed similar to other European presses, but Hofer notes there are significant differences.

"Soybeans are the most common oilseeds pressed on farms in North America due to the feed value, but not in Europe, where rapeseed is most commonly grown and pressed," she explains. "Soybeans by nature are much more abrasive and harder on equipment, and the design and materials used to build Energrow Systems reflect this. Our system can also handle other oilseeds with some minor change of settings."

The Energrow system is automated, with a touch screen controller and sensors and probes monitor running of the machine.

"Our system comes ready to plug in and run. It has an auger control, so an auger is easily connected to automatically deliver beans," Hofer says. "The system also comes with a sedimentation tote to capture and settle out the oil, making filtering or further refining of the oil more efficient. The resulting pelleted meal can fall into a tote bag supported by removable arms or be

integrated right into another kind of feeding system without totes."

With a bin feeding the automated system, it can run 24/7 with no labor required, except making sure there are soybeans in the bin. A built-in panel heater allows Energrow to operate in cold, uninsulated conditions.

The system can press just over 1 ton of seeds/day to produce about 21 gal. of oil and 2,000 lbs. of pellets. Electricity cost per ton is about \$4.50 (based on 14 cents/kwh).

As a dairy farmer, Hofer understands the details and issues important to farmers. Energrow works with customers to find grants for government programs in Canada and the U.S. to help pay for the system, which runs about \$30,000. The company offers a 2-year warranty on electrical components and 5-year warranty on structural components. Plus they offer prompt support if there are any problems, and they can help customers market the oil they produce.



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"Energrow's customers are primarily dairy farmers looking to reduce their feed costs," Hofer says. "Some of our customers are also crop farmers looking for a value-added business opportunity."

Check out the website for dealers. Dealer inquiries welcome.

Contact: Energrow, 7389 Rd. 128, Newton, Ont., Canada N0K 1R0 (ph 519 595-8299; info@energrow.ca; www.energrow.ca).

## Wind-Powered Pellet Mill

Jeff Hoard uses wind power to make feed pellets for chickens and other livestock out of alfalfa meal and various raw materials. The pellet mill is a prototype for a larger future unit.

"I wanted a pellet mill so I could mix edible weeds with the high protein alfalfa grown in this area," says Hoard. "I also want to make fuel pellets from non-edible weeds and sell to people with pellet stoves for a little winter income."

Hoard notes that a ton of wood stove pellets runs about \$260, with the nearest source 100 miles distant. While his full-scale pelletizer will be designed to run off multiple power sources, he decided to run the prototype off the 20 mph winds that blow steady on his Nevada ranch.

"I built the pellet mill from scrap and about 20¢ of welding rod," says Hoard. "On a good breezy afternoon, it will 'squirt out' about 2 1/2 gal. of beautiful mash pellets. That is enough to feed our flock of 40 chickens for a few days."

The heart of the mill is a flywheel from an old treadmill drilled out with holes for a rotating die and a 6-pointed "tap" that looks like a sprocket. Instead of teeth, the points taper to match the holes Hoard drilled in the flywheel.

"The flywheel has a 1-in. thick perimeter with a thinner inner wheel," explains Hoard. "I drilled 14 holes evenly around the center edge of the wheel. I then drilled out each hole with a 3/4-in. bit to create a cup for meal to drop into."

The tap was designed to match the hole spacing. As the tap and die turn, they are bathed in meal and the 3/4-in. cups fill. Each turn of the tap adds about 1/8-in. to the developing pellet. As it exits the holes, it



Jeff Hoard uses his wind-powered pelletizer to make feed pellets out of alfalfa meal and various raw materials. Photo at bottom shows machine's rotating tap and die.



breaks off and falls free into a holding bucket.

Hoard built a bracket from angle iron for the tap and die and attached it to a 42-in. length of 2-in. pipe. The pipe is sized to fit over and rotate on any T-post driven into the ground. The tap is welded on a shaft that is mounted between 2 pillow-block bearings on the bracket. The die freewheels on a second shaft between 2 bearings mounted to the bottom of the bracket.

Propeller blades mount directly to the tap

## Pellet Press Makes Up To 385 Lbs./Hr.

A Swedish-built press that will make pellets from wood or most any material that is under 16 percent moisture is marketed in North America by Silvana Import Trading. It's geared for both home and commercial use, says Dick Johnsson, Silvana.

"It can also be used to pelletize straw, cornstalks, sawdust and a wide variety of other materials. You can use it to make pellets at home for heating and also sell pellets to local stores."

Model PP150 produces from 275 to 385 lbs. of pellets per hour. It has a 15 kW motor with an 11-in. (internal diameter) cylinder and two 5-in. press rollers. The compact press takes up about a 4 by 5-ft. area.

"The PP150 is very basic and easy to set up," says Johnsson. "It's ready to run. The rollers push the material through the cylinder. The pressure and resulting heat bind the material together into pellets."

Straw and other materials need to be chopped up to a few centimeters in size, advises Johnsson. Pellets come out at 140°F and need to cool before storage. Cylinders are available to make different size pellets.

The basic PP150 is priced at \$40,000.



Swedish-built press can be used to pelletize straw, corn stalks, sawdust and a wide variety of other materials.

More elaborate systems with cooling towers, hammer mills and feeding screws are available. The company offers a custom selection of components in an automated container system. It includes material storage and automated in-feeding.

Contact: FARM SHOW Followup, Silvana Import Trading, Inc., 4269 St. Catherine W., Suite 304, Montreal, Quebec, Canada H3Z 1P7 (ph 514 939-3523; info@silvanatradng.com; www.silvanatradng.com).

shaft provide power. A length of rod with a tail made from an old traffic sign keeps the fan blades turned into the wind. A hook also mounted to the pipe holds a 5-gal. catch bucket for the pellets.

"I modified an old switch box to make a shroud over the tap and die and hold the ground meal," says Hoard. "It has a hole cut

in it to allow the pellets to drop free."

Hoard shares his creative scrounging ideas and projects on his DVD titled 'Hillbilly Heaven' available at his website.

Contact: FARM SHOW Followup, HM Ranch, HC 61, Box 6108, Austin, Nevada 89310 (hm ranch@wildblue.net; www.hm ranch-hoardmfg.com).