

Pelletizer Turns Stalks, Crop Residue Into 6-In. Dia. Pellets

A prototype, large-scale pelletizer is being tested at the University of Missouri, Columbia. While the prototype machine only produces about 20 lbs. of pellets an hour, the next design is expected to produce 2 to 3 tons per hour and be fully automated. The project is funded by a U.S. Dept. of Energy grant.

“Our expectation is that our device will cost less than conventional pellet machines, use less energy and work without a binding agent,” says Jesse VanEngelenhoven, research director, Ecologic Tech. “We expect the machine to be in high demand for use by commercial loggers, farmers and possibly ethanol producers.”

VanEngelenhoven projects the machine will be ready for licensing within the next two years. The prototype is being used to gauge energy consumption and work out design changes as needed.

The machine presses bulk quantities of switchgrass or corn stalks into 6-in. dia. tablets. The key, according to VanEngelenhoven,

is to find the balance between density and air pockets that allows the tablets to maintain their shape during transport and shipping, yet burn easily and completely.

The next stage will be a commercial scale unit that can produce about 17,000 tons of tablets per year. At that point, Ecologic Tech will license the technology.

“We are a company that develops new technologies,” explains VanEngelenhoven. “We would hope to have a company like Deere or AGCO pick up the rights and pay a royalty for every machine produced.”

He says no decision has been made yet as to whether the final machine should be mobile or stationary. “Both have merit, but we would love direct feedback from farmers,” says VanEngelenhoven.

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Large-scale pelletizer presses switchgrass or corn stalks into 6-in. dia. “pellets”.

Pto-Powered Pelletizer Built To Last

After years of selling imported pelletizers, Make Your Own Pellets, LLC is now building its own pto-powered pelletizer with a heavier-duty gearbox that’ll stand up to increased pellet-making torque.

“The weakest part of imported mills is the gearbox,” says Brian Dingman. “We went to a 5:1 gearbox versus the more common 3:1 design. It will make a world of difference in the amount of power applied, and the quality of the pellet produced.”

Dingman explains that the slower the die turns, the longer the material stays in the press and the more compacted it becomes. With his 5:1 worm gearbox, he has the power and torque needed to produce wood pellets from pure sawdust as well as from grass and other sources, even waste paper.

The 445 lb., 9-in. model produces 250 lbs./hr. of pellets from sawdust or up to 500 lbs./hr. of pellets from soft biomass sources. A binder additive is recommended and available from the company.

According to tests by an independent lab, Juniper tree pellets reached a density of 44.8 lbs. per cu. ft. versus a standard density of 40 lbs./cu. ft., which is what the Pellet Fuels

Institute rates as “premium” pellets. At 540 rpm’s, the company produced 64 lbs. of dense Juniper pellets in less than 15 min. A 1,000 rpm pto would increase production.

“The unit is noticeably quieter than its 3:1 ring gear cousins,” says Dingman. “People like being able to make pellets at remote locations and then back into a shed and drop the mill where they want it for storage. Plus, they don’t have to buy a separate engine like they would with a skid mounted unit.”

The company plans to introduce stationary machines over the coming year. They will begin with single and three-phase electric motors, followed by gas or diesel-powered units.

In the meantime, Dingman says the pto-powered, tractor-mounted machines are proving very popular. “We are getting a lot of interest from landscapers and farmers as well as from the residential market,” he says.

“Most are looking at pelletizing wood, but we also have people in Florida interested in using it to make goat feed pellets.”

The company will also be adding 8-in. and 12-in. pellet mills to the product line. All models will use the same 5:1 gearbox. As a special bonus, the company will allow exist-



Pto-powered pelletizer has a heavier-duty gearbox that’ll stand up to increased pellet-making torque, says the company.

ing customers to trade in the non-gearbox portion of the mill rather than buying a complete new unit.

The powder-coated mill carries a one-year defective parts warranty. It’s priced at \$5,495. Dingman notes that because it’s made in North America, there is no tax on it

for Canadians as there is for imported mills.

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How To Make Oilseed Presses Work For You

If you’ve got a use for both livestock feed and fuel, setting up your own oilseed press makes a lot of sense, says Scott Robinson, who sells oilseed presses, filters and burners. “Northern Wis. dairy farmer Jerry Martin buys soybeans and presses them out for the meal. The oil is secondary,” says Robinson. “He blends the meal with a liquid mineral for what he says is an ideal feed for use in his TMR for his dairy herd.”

Martin runs soybeans through a CC4 Commodity Cleaner and a M70 AgOilPress. He uses a home-built divided tank reservoir to catch the oil. While the heavier oil and solids stay on one side, the lighter oil runs over the notched wall and into the second compartment. There, a sump pump moves it to a storage tank for burning in a KBB-85 Kingbuilt boiler.

Mark O’Brien of O’Brien Hybrid Seed in southern Wis. raises canola seed specifically for pressing. His main goal is getting the oil for use in the farm’s 12 Deere tractors. He averages 2,200 lbs. of canola seed per acre, which presses out to 100 gal. of oil per acre. Last year, he produced 3,000 gal. of oil that he filtered and blended with diesel

fuel. He says the canola oil improves engine lubrication.

“He uses the byproduct meal for his cattle,” explains Robinson. “He harvests his seed early to reduce shattering and stores it in dryer wagons.”

The homemade wagon boxes have perforated steel false floors. Landscape fabric draped over the floor and duct taped to the sides keeps the seeds from falling through. A fan on each box blows air up through the seed to dry it.

O’Brien currently uses a two-tank system. Oil is pumped from the press to the first settling tank. As sediment settles out, the oil is pumped to a second tank for more settling and finally through water filters to take out finer sediment. Oil and sediment from the bottom of the tanks are drained out and run through a five-gal. bucket with holes drilled in the bottom. Paper bags and fabric liners in the bucket filter solids out of the oil, which then also is mixed with diesel fuel.

“Last year he produced \$7,800 worth of fuel from 30 acres of canola,” says Robinson. “He has run up to 80 percent canola oil in the



Chippewa Valley Alternative Energy sells oilseed presses (above), filtering systems, and burners, as well as pellet mills and multi-fuel pellet stoves.

summer and cuts back to a 45 percent canola oil mix in the winter.”

Even without livestock, Robinson says the oilseed press can pay with multiple end products. He sells Buskirk pellet mills for turning the oil cake (pressed seed) into fuel pellets and Hestia multi-fuel pellet stoves for burning meal and other biomass.

“I have a seed producer in Saskatchewan who intends to use his press on damaged seed,” says Robinson. “Another farmer buys



spoiled seed to press it.”

The M70 AgOilPress sells for \$7,740. Accessories, such as the Commodity Cleaner, are available. Smaller and larger oil presses will be available soon, adds Robinson.

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