

Mechanical Cracker Speeds Hazelnut Processing

With 4,500 hazelnut bushes planted and half of them already producing hazelnuts, Norm Erickson needed a way to process the nuts.

“Commercial processing for hybrid hazelnuts was not available so we’ve had to develop machines to husk, sort and crack the nuts, then clean and size the kernels,” says Erickson. “Our machines handle anything from the smallest hazelnut to the largest walnut.”

A retired IBM employee, Erickson is developing high oil hazelnut seed stock (60 percent) for biofuel and other markets. There’s also a high demand for black walnut kernels and oil; yet millions of black walnuts go unused every year, largely because they are hard to process. He is confident his equipment could be used equally well on them and be the basis for a new, rural cottage industry.

Erickson has a prototype husker and cleaner that can be built in most shops. He has applied for patents on his Crack-M-All nutcracker and is in the process of applying for his Sort-M-All nut sizer/sorter. Both are complex and highly engineered machines.

“I am still refining some design points

on the Sort-M-All, but the prototype is fully operational,” says Erickson.

He uses a mechanical hammer that cracks nuts against an anvil. The anvil-to-hammer opening can be adjusted for the type and size of nuts being cracked. Three cams offer 1/16-in., 1/8-in. and 3/16-in. hammer travel. The hammer travel can be changed in about 10 min.

Erickson has sized the cracker for small farm-sized operations and for larger commercial use. A 12-in. input hopper holds about 10 lbs. of nuts and it will process about 200 lbs. of nuts per hour. A larger hopper can automatically keep the input hopper full.

“I am currently driving the cracker with a 1/2 hp, 1,725 rpm motor with speed reduced 3:1 for hazelnuts,” says Erickson. “It needs a larger motor for black walnuts.”

Before cracking, hazelnuts need to be sorted into size classes. Erickson’s Sort-M-All is designed to do just that. While Erickson hesitated to give details on it before patent submission, he did describe what it does.

“It can be adjusted in minutes to sort the nuts into a number of sizes as desired by the operator before cracking. I use 7,” he says. “It



Norm Erickson has developed machines to husk, sort and crack hazelnuts, and then clean and size the kernels. Mechanical hammer (left) cracks nuts against an anvil.

can also be used to sort the cracker output to remove husk and shell debris and sort kernels for final cleaning and marketing. This step enables the smaller nuts to be easily removed from nuts going to the in-shell market. Cracked black walnuts pieces can also be sorted into size classes for the required recracking.”

Erickson plans to develop a feeding system

for the Sort-M-All. Currently, it can sort about 160 lbs. of nuts per hour with output from 80 to 320 lbs. or more per hour.

Prices have not yet been established for either nut processing machine.

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Magnetic Camera Helps Line Up Bin Auger

With 20 years experience trucking grain, Laurie Brownlee understands challenges faced during harvest. Several years ago, he developed a Full-Bin Super Sensor to let producers know when a bin or air seeder is full. Now the Unity, Sask., entrepreneur has developed a magnetic camera system to help the operator on the ground line up augers with the bin openings.

His biggest challenge was finding some way to mount the camera so it could be easily removed at the end of the harvest season. He ended up using powerful 260-lb. pull magnets mounted on a flexible rubber pad that holds securely to the curvature of an auger.

“The magnets are so powerful you don’t have to worry about them falling off, but

there is also a safety chain just in case,” Brownlee says. “Customers also use the camera in air seeder tanks, grain carts or even on the back of a camper trailer.”

The magnetic camera package comes with 85 ft. of wire and heavy-duty tie straps to hold the wire onto the auger. The 7-in. monitor with 80-lb. magnetic base mount comes with a waterproof zippered bag to protect it from the elements — especially in tractors without cabs. The camera wire plugs into a wire harness on the tractor.

“We used a wired camera, because two-way radios interfere with wireless systems,” Brownlee says.

The camera takes color video, and has a 110-degree angle and 28 infrared illuminators to allow 32 ft. of visibility in the dark.



Magnetic camera system helps operator on ground line up auger with opening on top of grain bin.

The camera sells for \$649 through dealerships in the U.S. and Canada. Contact Brownlee for more information.

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Bolt-on unit allows combine to pull baler, harvesting grain and crop residue at same time. Enclosed conveyor delivers material to baler.



A hydraulic motor, powered by an independent hydraulic pump on combine, drives baler.

Combine-Baler System Now On The Market

Now you can get the combine-baler system you read about in FARM SHOW (Vol. 33, No. 4). Tuthill Drive Systems introduced the Australian innovation at the 2010 Farm Progress show. The system has been used for 9 seasons in Australia and 2 in the Palouse region of Washington State. Now Tuthill has licensed the technology to put it on the market.

Bale Direct is a hitch and power transfer system that lets you run your combine and large square baler as a single system. It’s designed to save time, fuel and labor, as well as capture crop residue for use as feed or bedding. Eventually it may play a role in supplying cellulosic ethanol plants with biomass.

“We introduced it at the Farm Progress

Show because it was close to a POET plant that will be making cellulosic ethanol,” says Darren Foster, Tuthill Drive Systems. “However, we don’t want it to be considered only for ethanol production. We have farmers who want to bale cobs and residue for livestock. We even have a company interested in pelletizing the residue for burning with coal.”

The Bale Direct is a bolt-on unit that doesn’t interfere with crop harvesting. An enclosed conveyor delivers the crop material to the baler without spilling, even when the combine is turning. A hydraulic motor powered by an independent hydraulic pump on the combine drives the baler.

“You can switch the baler back to a tractor-powered pull-type in about 4 hrs. and you

would never know it had been used with a combine,” says Foster.

Bale Direct conversions require a Class 8 or larger combine and a 3 by 4 by 8-ft. baler. Kits are available for AGCO, Hesston, Case IH and New Holland balers and Deere, AGCO, Case and New Holland combines.

The Bale Direct system can be set up to gather as much or as little crop residue as desired by the operator, says Foster. “Farmers were worried that it would take off too much residue, but at the show we had a Deere 9870 combine and a MF Hesston baler set up to take about a bale an acre,” he says. “A second Deere combine was working alongside us, and you couldn’t tell the difference in residue.”

Originally designed for use in wheat fields

in Australia, one goal was weed control. A tray under the conveyor helps to capture the weed seeds. Foster says the tray has to be removed in corn, as cobs tend to collect there and create problems.

“We still capture some weeds, but not as much as in wheat,” he says.

Tuthill is targeting square baler dealers as potential dealers for the Bale Direct system. List price for the entire kit needed to connect a baler to a combine is in the \$75,000 range.

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