

Header Attachment Windrows Stalks During Harvest

By **Lorn Manthey**, Contributing Editor

"The idea just popped in my head back in 2006 when we were demonstrating a chopping corn head," says Jim Straeter of Rochester, Ind. "It occurred to me that since the combine could harvest as well as chop stalks, it could also put those stalks in a nice windrow."

After 5 years of designing, building, testing and tweaking, Straeter's patented "Cornrower™" invention is now on the market.

The Cornrower gathers stalks from under a chopping corn head before they hit the ground, reduces the particle size, and makes a clean windrow of stover directly behind a combine. The rowed stalks are free of dirt and rocks or even snow when there's a late harvest. The implement runs off the variable speed combine drive, so no additional power source is needed.

During the past two years, Straeter has thoroughly tested and improved his prototype model that was 3 years in the making. "After 5 harvest years I think we've got the bugs out," Straeter says. In optimal conditions, harvest speed is typically 3.5 mph in 200-bu. corn with 20 percent grain moisture and 40 percent stalk moisture. Field speed is less in higher moisture corn, in stalks that are damp or frozen, or if snow is on the ground.

The Cornrower uniformly deposits stover in a straight row under the center of the combine. Cobs and leaf residue land on top as the combine discharges it. Because the Cornrower slices and cuts the stalks, Straeter says they dry down quickly so bales are roughly 20 percent more dense than those done with a conventional chop, rake and bale system.

Straeter says the Cornrower produces

"baler-friendly windrows with cleanly cut short stubble that's easy on pickup tines. Baled stover from the Cornrower can be used in a TMR mixer to produce high quality feed for livestock." One Indiana farmer added hydrated lime to his Cornrower stover last fall, then chopped it with a forage harvester and packed it in a standard bunker silo with corn silage. Feed trials by Iowa State and the University of Nebraska show that lime treatment increases digestibility and significantly reduces the cost to feed beef cattle. Lime softens the stover and makes the sugars more digestible. Ethanol plants are also looking at bales from the Cornrower because the stalks are clean and dirt-free.

Field tests have shown that baler intake, bale density and bale shape with Cornrower stalks are all improved over conventional chopping and raking.

"My first prototype had a single row of sickle sections mounted on a rotor shaft and that didn't work too well. I modified that with a single housing and put it on the outside left row of an 8-row corn head. I ran one row at a time and made adjustments until I finally got a configuration I thought would work."

In the fall of 2009, Straeter built a setup for all 8-rows on a 99C chopping head and used it for the first time on a warm Sunday afternoon. He says he was excited to see a nice uniform windrow and baled those stalks later that afternoon. "We tested those bales for moisture content and dirt and the results were very positive," Straeter says. "The stover was clean and the bales stored very well without overheating."

In addition to time, labor and fuel savings, the Cornrower eliminates the need for a stalk shredder, a rake and a tractor to run those



Cornrower uses rotating blades on each row to chop stover and send it to the center of combine, where it's deposited in a windrow machine.

implements. Windrows behind the combine can be picked up by any large round baler, large or small square bale, or forage harvester.

Straeter has tested the Cornrower on New Holland CR and Case IH 8010 combines. He says New Holland machines have to be 2008 or newer because they have the stronger header drive. "The Cornrower will work on older CR combines, but the variable speed drive isn't as strong and belt life is unacceptably short," Straeter says the rig will work on CIH 7010, 8010 and any of the newer 7000 and 8000 series combines based on the 8010 tests. He expects to test the Cornrower on other combines in the fall of 2012.

Straeter says running the Cornrower takes about 3 gal. more fuel an hour than just a chopping corn head, but overall savings on

equipment, labor and additional passes are probably \$15 to \$18 per acre. The Cornrower is being manufactured by Craig Welding of Mentone, Ind.

The price for an 8-row Cornrower is \$18,000 fob Rochester, Ind., installed on the header. A 12-row Cornrower will cost about \$27,000. Parts will be available from the dealership in Rochester. Straeter hopes to have additional dealers by 2013 and is also looking into teaming up with chopping corn head manufacturers.

Contact: FARM SHOW Followup, Jim Streater, New Holland Rochester, Inc., 1260E 100S, Rochester, Ind. 46975 (ph 800 327-5936; dealer@newhollandrochester.com; www.newhollandrochester.com).

Grain Bin Cleanout Less Dangerous With Bin Bot

Smart farmers understand the hazards of knocking down grain stuck inside a grain bin. In 2010, 21 U.S. farm workers were killed inside bins.

A new robot might help reduce the number of deaths. At 2 ft. wide and 6 ft. long, the "Bin Bot" slips easily through a bin door and is remotely-controlled to push, pull or lift the sweep auger to knock down grain.

"The response has been tremendous," says Kristin Outtrim, marketing director for Mack Robotics, Inc.

Four deep-cycle marine batteries that last about 12 hrs. and recharge in 4 hrs. power the 800-lb. electric skid loader. One person

can operate it with a remote control while watching through the bin door or by looking at a monitor if the Bin Bot is equipped with an optional camera and lights. Each Bin Bot comes with one of several attachments including three different size buckets, a forklift, a push device or an adjustable arm.

The Bin Bot is under final development and will be sold by Mack Robotics out of Leola, S. Dak., for \$15,000 with one attachment. Models with lights and camera run \$17,500.

Outtrim acknowledges that commercial elevators are likely to be the first buyers. But it will also be welcomed by large farm operators who must meet OSHA regulations,

which require the sweep to be turned off and that two people are at the bin door when a third person is fixing the auger/sweep. Besides saving lives, Bin Bot saves labor costs.

Jerome Mack, owner of Mack Robotics, has experience with robotics. He manufactures the Boar Bot, which safely leads a boar around pens of sows to determine which ones are in heat and ready for artificial insemination.

The death of a friend in a bin accident compelled Mack to develop the Bin Bot with engineers and designers from Anvil Design & Manufacturing of Fargo, N. Dak.



Remote-controlled Bin Bot can be equipped with several attachments, including 3 different size buckets.

Videos of Bin Bot in action can be seen on www.farmshow.com.

Contact: FARM SHOW Followup, Mack Robotics, Inc., P.O. Box 373, Leola, S. Dak. 57456 (ph 605 439-3434; www.mackrobotics.com).

Loader Bucket Telescopes On-The-Go

This new 36-in. high "telescoping" loader bucket is designed so you can automatically change its width on-the-go. It's equipped with a pair of 2-ft. wide wings that are each acted on by a hydraulic cylinder. The driver can move both wings in or out together, or separately.

A 3/8-in. thick plastic plate, bolted on back of each wing, rides inside a pair of metal guides to keep the wings in line.

Four different models are available. They expand from 5 to 8 ft.; 7 to 10 ft.; 8 to 12 ft.; and 10 to 16 ft. Custom bucket sizes are available on request. The quick-tach buckets can also be used on skid loaders and payloaders.

"I got the idea one day when I was driving down the road with my tractor equipped with a 12-ft. bucket. Another tractor was driving toward me with a 16-ft. bucket and I was forced to hit the ditch, where I got stuck," says inventor Tom Miller, Waterloo, Ind.

"Being able to automatically expand the bucket's width offers many advantages. You can fit the bucket through narrow doors or gates, and then widen it out to get more work done such as scraping manure in free-stall dairy barns. It's much safer on the road. It's designed for use on light materials like snow, manure, and leaves, etc. It's not meant to be used on dirt, which might be too heavy for the cylinders to handle.

"An 8 to 12-ft. Telescope sells for \$7,500, which is a little more expensive than a conventional bucket of comparable size but worth it when you consider the productivity, safety and heavy-built design."

The bucket's main frame is made from 3/8-in. thick steel, and all rolled edges are made from 1/4-in. thick steel. Reinforced steel "ribs" support the back side of the main frame and wings. The bottom of the bucket is made from armor-plated steel for high wear. Metal skids at each end of the bucket help it



"Telescoping" loader bucket is equipped with two 2-ft. wide wings, each acted on by a hydraulic cylinder. Driver can move both wings in or out together, or separately.

glide on the ground.

Contact: FARM SHOW Followup, Telescope, Inc., 4094 County Road 12,

Waterloo, Ind. 46793 (ph 260 837-9031; cell ph 260 414-8493; www.telescoopinc.com).