

First "Stripper" Combine

(continued from cover page)

owns one of the machines, but it's being tested at the company's European facilities. The prototypes were built by a British company, Shelbourne Reynolds Engineering, which worked out a licensing agreement with engineers at the British National Institute of Agricultural Engineering who developed the new machine.

The stripper combine consists of a totally rebuilt grain head that mounts on a conventional combine body. A reel that's shrouded by a white metal hood, mounts on the platform of the head. It's fitted with rows of plastic teeth and spins at high speeds of 500 to 750 rpm's. In the field, a metal push-plate along the front edge of the head pushes the crop toward the ground so that the stalks snap back up inside the shrouded reel. At that point, the rows of plastic teeth "strip" grain off the stalks. The "keyhole" design of the grain-stripping fingers is what makes the stripper head work so successfully, according to those who've seen it work. The 3-in. long plastic fingers, spaced 1 1/2 in. apart, narrow to a "V" and then widen out again in a circular shape. Grain is stripped from the stalks at the center of this "keyhole" so that equal pressure is applied from all sides of the heads of grain. Because the stripper reel spins at such a high rate, each stalk of grain

is "stripped" as many as 60 times by the fingers, removing virtually all the heads from the stalks and threshing as much as 60% of the grain from the heads themselves as they're stripped.

Mark Schrock, ag engineering professor at Kansas State University, Manhattan, Kan., got a chance to see the stripper combine in action earlier this summer when Massey brought it to wheat fields in the southwest Kansas.

"It's potentially a great idea that could totally change the way we harvest grain. Although wheat loss in the head appeared to be somewhat higher than with conventional grain heads, loss at the back of the combine should be less because there's much less crop material going through the machine. The increased ground speed - Massey talks in terms of 30 to 50% higher speeds - should outweigh the increased losses," says Schrock, noting that he has not yet been able to scientifically test the machine. "What I was most impressed with was the way it threshed grain in the head as it stripped it off the stalks. That would allow companies to build a combine specifically designed for small grains, with less separating and cleaning mechanisms in back. However, there are two areas where I think more investigation is required. How much grain does it actually lose and how long will the plastic teeth last?"

Preliminary tests indicate the stripper head threshes 50 to 60% of the grain as it's harvested, before feeding it to the combine cleaning cylinder and sieves. The stripper also leaves about 75% of the straw and residue in the field, running only about 25% of the normal volume through the combine. Most of the residue that still enters the combine consists of leaves and chaff, although some stalks do break off and get in. One advantage of leaving the straw standing is that it's easier to burn off or can be plowed under more easily with the roots still in the ground.

In addition to small grains, the stripper head has also performed well in soybeans, edible beans, peas, lentils, navy beans, and other miscellaneous crops. It works particularly well in over-mature crops that can be difficult to separate conventionally when vines get tough and stringy. Although every crop harvests differently with the stripper, British tests have shown from 50 to 100% more through-put capacity with the combine at a given loss level as compared to a conventional cutterbar-equipped machine. British researchers also state that the stripper head does a "superior job" picking up downed crops.

Tom Woollard, sales manager for Shelbourne Reynolds, the British manufacturer, told FARM SHOW the new stripper design makes it possible to revolutionize grain harvest. "It's much faster than a cutterbar-equipped conventional combine. We think farmers could use the stripper head to quickly bring grain in from the field, without completely separating and cleaning it, and then run it through cleaners back at the farm where there's more time to handle it. That would reduce the risk from weather and improve the overall quality and cleanliness of the grain."

Massey's Tony Colvin told FARM SHOW the amount of losses sustained by



Inventor Ray Anderson with his "Poor Man's Combine" which mounts on self-propelled swather or bi-directional tractor.

COMBS THROUGH CROP WITH MINIMAL LOSS OR DAMAGE

Big Brush Harvester "Street Sweeps" Grain

A big brush harvester developed by an Idaho inventor "sweeps" grain off stalks and into a platform auger that screens out trash and fines on-the-go.

Ida Man Inc., Burley, Idaho, has built 40 prototypes of the new brush-type harvester for inventor Ray Anderson. Hesston Corporation provided much of the research and development funding for the 40 test models, which have been operated extensively throughout Western states this year. Although developed primarily to harvest grass and wild herb seeds, the company has also tested it in small grains.

"It's a cross between a swather and a street sweeper. Costs much less than a combine to own and operate," says Gary Graber, Ida Man Inc., representative. "It'll harvest many tiny-seeded crops that conventional combines just can't handle. It can also harvest crops without causing damage to the plant so you can go through a second or third time to get seeds as they mature."

In addition to successfully testing the brush harvester in oats and rice, the company has been harvesting valuable wildland seeds such as crested wheat grass, sagebrush, wild rye, fireweed and many other

wild crops that are in demand for wildlife habitat improvement projects around the country. The crops bring as much as \$3 or more per pound.

The brush harvester uses a 14-ft. long, 3-ft. dia. nylon bristled "street sweeper" brush to comb stalks against a bar beneath the brush. As seed is combed off the stalks, it's pushed into an auger running across the back of the head. It augers the seed across a cleaning screen and blower that sucks the seed away from the auger to a clean grain tank. Trash, fines, or larger variety seeds that don't pass through the screen are augered off the end of the header onto the ground. The hydrostatically-powered header has just three moving parts and weighs less than a swather head. "The Poor Man's Combine", as one company representative called it, mounts on a self-propelled swather base but could be modified to fit a bi-directional tractor.

Ida Man hopes to have the brush harvester on the market by next year together with Hesston Corp.

For more information, contact: FARM SHOW Followup, Ida Man Inc., P.O. Box 1251, Burley, Idaho 83318 (ph 208 678-1223).

the stripper head is of the biggest concern. "We've experienced losses ranging from a minimum of 80 lbs. per acre to a maximum of 1,000 lbs. of grain per acre when the crop's badly damaged or when it matures at uneven levels. Once we've finished our evaluation of the stripper head and have been able to identify the conditions and crops that pose the most serious problems, we may be able to modify the head."

During this year's harvest, the stripper combine worked its way north along the combine trail. Cordell Lundahl, president of Ezra C. Lundahl, Inc., Logan, Utah, who has himself invented a stripper-type combine (see story on page 3), saw the machine work

when it passed through his area in July.

"It ran 3 1/2 to 4 times faster than a new Massey combine that ran against it in the same field. It's an exciting machine with tremendous potential but we think our own machine is simpler and does a better job. Massey officials have expressed an interest in my design, which has only 2 to 3 moving parts and threshes 99% of the grain right in the head versus only 50 to 60% of the grain in Massey's stripper head," says Lundahl.

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