

One-Pass Self-Propelled Baler

By Mick Lane, Contributing Editor

When a group of farmers, researchers and soil conservationists in south central Iowa got together awhile back to sell a power company on the idea of burning prairie switchgrass to generate electricity, everyone knew that if the idea was approved, the hard part would be harvesting the native prairie grass.

Switchgrass is a native prairie grass that's seeded on much of the CRP ground in southern Iowa, Illinois, and Missouri.

When grown as a fuel crop, the grass is allowed to reach full maturity. If left standing for 10 to 14 days after a killing frost in the fall, it's usually dry enough to cut and bale the same day.

Gary Kelderman of Kelderman Manufacturing, Inc., Oskaloosa, Iowa, is a member of the committee studying the feasibility of switchgrass fuel. To solve the harvest problem, he put together a direct-cut baler that cuts and bales in one pass.

Kelderman mounted a Freeman big square baler and a Deere cab on a Kelderman factory-built frame. The cab rides on a custom-built air suspension system that allows 9 in. of travel. A 14-ft. sickle head up front cuts the grass and feeds it to the baler. The machine is powered by a Deere 8.1 L Powertech engine which puts out 300 hp and can reach a maximum speed of 30 mph. The transmission is a 4 speed with 4-wheel hydrostatic drive.

Kelderman spent much of the past summer testing and perfecting the baler in order to have it ready in time to harvest switchgrass for the project last fall. Lack of a timely killing frost kept him from using the direct cut header, but even so, he baled some 3,000 bales for the project. Before the switchgrass project he was able to bale four cuttings (3,000 bales) of alfalfa with no problems.

He plans on having the direct cut baler available again next year for the ongoing energy project. In addition, he says such a baler could be used for cutting and baling small grain straw, dried cornstalks, stubble from grass seed production, etc.

He says operator comfort, visibility and control are excellent. Kelderman's self-propelled baler weighs only about 34,000 lbs., where a comparably sized baler behind a 300 hp 4-WD tractor would have a combined weight of about 50,000 lbs.

It can bale about 45 tons per hour working in alfalfa hay. "The hay industry is very much in need of self-propelled balers," Kelderman says. He expects the big self-propelled baler to be available from at least one of the "big 3" within the next three or four years.

Contact: FARM SHOW Followup, Gary Kelderman, 2686 Highway 92 East, Oskaloosa, Iowa 52577-9685 (ph 641 673-0468 or 800 334-6150; Website: www.keldermanmfg.com).



Gary Kelderman put together this direct-cut baler that cuts and bales in one pass.



A Freeman big square baler and a Deere cab mount on a Kelderman factory-built frame. A 14-ft. sickle head up front cuts the dried grass and feeds it to the baler.



Pellets fall out of 7-in. sq. hole cut into the tread of 4-ft. wide floater tire. Tire drops a pile of pellets every revolution, spaced about 15 ft. apart.

Floater Tire Makes Cheap Pellet Feeder

Miles Belsheim, Marwayne, Alberta, put together a low-cost program that makes his cow-calf operation profitable despite the weather and a lack of homegrown feeds on his cattle land, which was carved out of the bush of northern Canada by his grandfather in 1909.

The mainstay of Belsheim's cattle ration is pellets he has made specifically for his operation by a Wilke, Saskatchewan, pelleting company. Besides specifying the protein content and TDN of the pellets, Belsheim wants pellets that won't crumble easily because all his cattle are fed on the ground.

Pellets are fed with a homemade pellet feeder made from a 4 ft.-wide floater tire. To make the feeder, Belsheim cut two solid circles from a sheet of 3/16-in. plate steel and mounted them in the tire in place of a wheel. In the center of the circles, he cut holes, ran a length of pipe through them and welded it in place to make an axle. This stabilizes the tire so it will hold pellets and allows him to pick it up with the big round bale handler/

unroller mounted on the back of his 1-ton pickup.

He cut a 7-in. square hole in the tread of the floater tire, through which he loads the tire with pellets from a hopper bottom bin. When he gets to the pasture, he lowers the tire to the ground and drives. On every revolution it drops a pile of pellets on the ground, spaced about 15 ft. apart.

Belsheim says if you drive at a consistent speed, every pile of pellets is about the same, although they do get a little smaller as the tire empties. The tire holds about a ton of pellets. Belsheim says it takes about 5 minutes to roll them out. "If you drive too fast, it splashes the pellets out and if you go too slow, it makes a bigger pile and pellets may get stomped and wasted," he says.

In addition to pellets, Belsheim's cattle also get wheat or barley bales. Belsheim winters about 500 head of cattle with his pellet-straw ration.

Belsheim won't take credit for the idea behind his tire pellet feeder. "Several people around here have similar feeders. This is my



To raise and lower the tire, Belsheim uses the big round bale handler mounted on back of his 1-ton pickup.

second one and I've made some for others. You can buy a similar feeder made of steel for about \$1,000. I used scrap steel and a used tire and made mine for about \$35," he says.

Contact: FARM SHOW Followup, Miles Belsheim, Marwayne, Alberta, Canada TOB 2X0 (ph 780 847-2236; fax 780 847-3134).

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