



Bale furnace's 6-ft. dia. firebox is designed like a giant cage, with 48 vertical pipes spaced 2 in. apart around the outside. Lid has two 8-in. dia. smoke stacks on top.

Underground Big Bale Furnace Heats Their Home, Shop

When Clarence and Duane Klimack heated their houses with electricity, it wasn't unusual to have a \$1,200 monthly electric bill in winter.

To get away from electric heat, the Russell, Manitoba, father and son team took a look at commercial bale burners but found they couldn't justify the expense. Instead, they built their own big round bale burner completely from scratch.

"We now burn about 40 5 by 6-ft. round bales of flax straw a month in the coldest weather to heat our shop and two houses," says Duane. "We make the bales ourselves so the cost of running it is practically nothing and we can load it in minutes with a front-end loader."

The bale furnace is buried in an earth berm next to a 16 by 32-ft. shed. It has a 6-ft. dia., 9-ft. high firebox that's designed like a giant cage, with 48 vertical pipes made out of 2 in. sq. tubing spaced 2 in. apart around the outside. It has a 3-ft. deep ash pan underneath and a lid with two 8-in. dia. smoke stacks made of 1/8-in. wall pipe on top.

The shed houses the furnace's controls, pumps and 200-gal. water storage tank and provides access to the ash pan. The furnace was built next to the shed and then dirt was backfilled around it to insulate it and also to make it easy to load.

Water is pumped through the burner by two 1/16 hp pumps. It's heated to 140 to 160 degrees by the burning bale and then returned to the tank where it's stored until needed.

Two additional 1/16 hp pumps move water to the Klimacks' 48 by 56-ft. shop, which has radiant floor heat, and also to both Clarence and Duane's homes. Like the shop, Clarence's 1,200 sq. ft. home has radiant floor



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heat and Duane's 1,100 sq. ft. home has forced air heat, which required a radiator to be installed in the duct work. Hot water from the bale furnace is also used to heat the Klimacks' domestic water heaters.

Bales are loaded into the burner vertically with a grapple fork on the Klimacks' tractor and are ignited with a torch from the ash pit below.

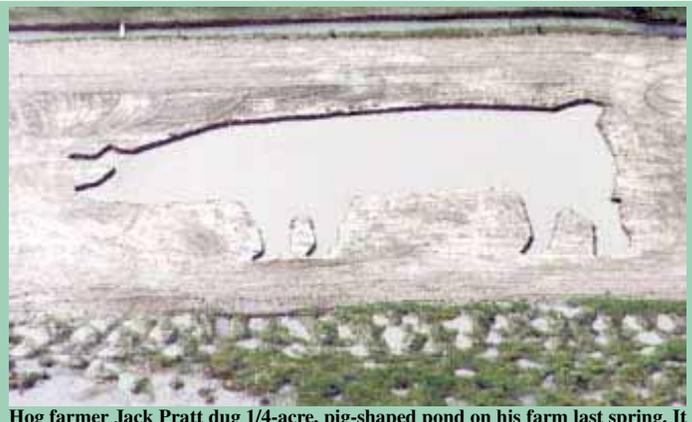
"We load a new bale in whenever the one before it is about half burned," says Duane, adding that the hardest part of the project was welding the tubing to make sure it was well sealed. "During the past two heating seasons, we've burned up flax straw bales from about 100 acres. It's now our only source of heat, although we do have electric back-up that we've never had to use."

Out-of-pocket expense was \$8,000, including \$2,000 in materials to build the furnace itself and \$6,000 for plumbing and pumps.

Contact: FARM SHOW Followup, Clarence and Duane Klimack, Box 756, Russell, Manitoba, Canada R0J 1W0 (ph 204 773-3148 or 2197).



Bales are loaded into burner with a grapple fork on Klimack's tractor and are ignited with a torch from ash pit below.



Hog farmer Jack Pratt dug 1/4-acre, pig-shaped pond on his farm last spring. It was built as part of Delaware's "no net loss" wetlands policy.

ARTISTIC WAY TO RESTORE WETLANDS

Pig-Shaped Wetland Draws National Attention

Airline passengers flying over Jack Pratt's hog farm must have a hard time believing their eyes when they look down and see his pig-shaped wetland.

It was built by Delaware's Department of Natural Resources as part of Delaware's "no net loss" wetlands policy.

There are 3,000 to 4,000 miles of drainage ditches in the southern three-quarters of the state. If we disturb those channels we have to add wetlands elsewhere," explains Tom Barthelmeh, who, along with hog farmer Jack Pratt, Kenton, Del., came up with the idea for the pig-shaped wetland last spring.

The 1/4-acre pond is located on the southernmost edge of Pratt's 250-acre farm. There's a drainage ditch on one side and marginal soils on the other which were also restored to wetlands.

Once the pig design was agreed on, a draftsman digitized a picture of a pig that Barthelmeh got from Delaware State University. From there, an engineer laid out the design. Flags were positioned and the outline was drawn in lime. A backhoe then simply dug out the 140-ft. long pond to a depth of 12 in. From conception to completion, the project took almost three months, Barthelmeh says.



This is another fanciful wetland created by the Delaware Department of Natural Resources.

Since we built it, we've received calls from all over North America, including one from Ontario, thanks to an article about the wetland in an EPA publication," Barthelmeh says.

Contact: FARM SHOW Followup, Tom Barthelmeh, Delaware Department of Natural Resources and Environmental Control, Division of Soil and Water Conservation, 89 Kings Hwy., Dover, Del. 19901 (ph 302 739-4411).

"Silage Processor" Conversion Kit For New Holland Pull-Type Forage Harvesters

"Our new silage processor conversion kit for New Holland 900, 892, and 790 pull-type forage harvesters lets you roll corn kernels while making silage. It lets you quickly convert to making haylage by sliding out the bottom diverter pans. Haylage then bypasses the processor rolls," says Israel Beiler, Georgetown Kernel Processor Co., Christiana, Pa.

The kit consists of two 8 1/2 in. dia. by 22-in. long hardened steel rollers with 1/4-in. machined grooves. The rollers turn at different speeds to provide a shearing action that results in better breakage of kernels. The rollers can be adjusted to vary the crimp spacing. The unit is belt-driven off the tractor pto. To extend the life of the drive belts and bearings, the unit is designed with a stationary top roll, with the bottom roll supported on a through shaft. Stainless steel is used to extend the life of certain high wear parts.



Kit consists of two 8 1/2-in. dia. by 22-in. long steel rollers with 1/4-in. machined grooves. Rollers turn at different speeds to provide a shearing action that results in better breakage of kernels.

Sells for about \$9,000.

Contact: FARM SHOW Followup, Georgetown Kernel Processor Co., Christiana, Pa. 17509 (ph 610 593-2753).