

filters up to the 1,500-sq. ft. main floor through the basement door.

• Even though John Hix has had plenty of problems with the **Traeger** furnace he bought 5 years ago, the Sandwich, Ill., contractor says he'd still buy a new one.

"It's very cost-effective, I'll give it that," Hix says. "It takes only about \$500 to heat a 3,200 or 3,300-sq. ft. barn I use as a shop for an entire season. The building has 10-ft. high concrete walls, with some Styrofoam insulation just laid up against them, that leak like a sieve. Propane would be way more expensive."

On the other hand, the furnace fire gets so hot it "eats burn pots alive," he says. Also, when burned corn gases and moisture mix, the result is very acidic and Hix had to replace the 30-ft. single walled stainless steel vent pipes three times in one year. Plus, the clinkers have to be cleaned out

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daily, and there is a special trick to starting the fire, he says.

"Mine's rusting out after five years," he adds. "It cost \$2,500, so you'd expect to get 10 or 15 years use out of it.

"If they'd just go the rest of the way with their engineering - I understand they have made some improvements in five years - I'd buy a new one when this one goes down."

• Duct work from Stan Campbell's old propane furnace now serves as ductwork for the **Superior Biomass Furnace** he bought last March.

"The nice thing is you control the temperature with a thermostat," says Campbell, Ionia Station, Ontario. "It fires up just enough to heat to whatever you set the thermostat for."

"On the coldest day of winter last year we used 3 bu. of corn to heat our 2,000 sq. ft. house," he says. "Corn heats better than the propane we used to use. It's a warmer heat.

"Since it's a bottom-fed furnace, clinkers don't seem to be a big problem," Campbell says. "The only thing I would have liked to have seen was a bigger hopper than the 6-bu. one mine came with. The company now offers a 12-bu. hopper."

While Campbell has only tried heating with corn, some of his neighbors are burning rye. "I guess they're getting along fine," he says.

• Last year Dave Tjosvold's company, **Alpha American**, Palisade, Minn., started selling the "Corn Combustor," which boasted one of the highest efficiency ratings of any furnace on the market. However, due to auger and metering system problems, the company temporarily stopped manufacturing the furnaces until the "bugs" are worked out to Tjosvold's satisfaction.

"Corn stoves normally burn at about 1,535 degrees, which is about the point where clinkers form," Tjosvold says. "You can burn up a clinker at 2,100 or 2,200 degrees. The problem is how to get the fire that hot.

"Our theory is to keep the fire temperature below the point where clinkers start to form," he says, "and we're

developing a way to do that. We've already eliminated the ash problem - we get less than a shoebox full of ash a week - and we think we'll find the answer to the clinker problem, too."

Meantime, if you're interested in a corn-burning stove or furnace, Tjosvold has a couple of "buying tips."

"Find one that's easy to clean out. Many times those clinkers have to be knocked off with a hammer and chisel. They fuse right to the metal - especially cast iron, plain steel, and even some stainless steel. We're investigating a special ceramic material that seems to work better."

"Look for one with an efficient heat exchanger."

• "I'm pretty well satisfied, but there is room for improvement," says Homer Riffey, Westphalia, Kan., about the **Traeger GBU 070 furnace** he bought in 1993.

"I have to let the fire go out about once a week to remove the clinkers. It takes probably 20 minutes to get it back in operation. That's quite a long time if it's zero degrees and the wind's howling."

While the furnace makes "nice even heat," Riffey says it's quite big enough for his house. Still, he bought what the dealer recommended, he says.

"I sometimes burn wheat mixed 50:50 with corn and I can't tell any difference from straight corn," Riffey says. "I can tell some difference between corn varieties, though. Hard kernel corn seems to burn better than soft kernel corn.

"The best thing is, if you've got corn that's out of condition and you can't feed it, you can always burn it."

• "With the price corn is at this year it shouldn't be too expensive to heat our house this winter," says Eleanor Wynn, an Ashland, Ohio, farm wife. She and her husband Norman just bought a **Grain Stove** to replace the homemade wood burner they previously used to heat their 1 1/2 story 1,300-sq. ft. home.

"If you burn 1 bu. of \$2 corn a day, that's only \$60 a month to heat your home," she notes. Although Wynn expects to be

## Corn Stove, Furnace Manufacturers

Alpha American  
1000 Ag Science Drive  
P.O. Box 20  
Palisade, Minn. 56469  
(ph 218 845-2224)

American Energy Systems Inc.  
50 Academy Lane  
Hutchinson, Minn. 55350  
(ph 612 587-6565)



Superior Biomass

Big M Mfg. Co.  
(A-Maize-Ing Heat)  
R.R.3  
Box 319A  
Taylorville, Ill. 62568  
(ph 217 824-9372)

Earth Stove Inc.  
10595 Manhasset  
Tualatin, Ore. 97062  
(ph 503 692-3991)

Eneco Corporation  
(Envirotech)  
536 Imperial Rd. N.  
Guelph, Ontario  
N1H 1G4  
Canada  
(ph 519 763-6833; fax 763-7928)

Even Temp Company (Traeger)  
P.O. Box 127  
Hwy. 34  
Waco, Neb. 68460  
(ph 402 728-5255 or 800 331-8862)

Franklin Products Inc.  
P.O. Box 345  
Mexico, Mo. 65265  
(ph 314 581-7338)

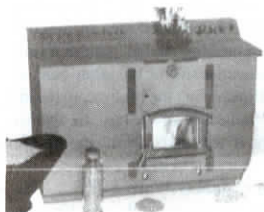
Grain Stoves Inc.  
R.R. 3  
Blythe, Ontario  
NOM 1H0  
Canada  
(ph 519 523-9897)



Traeger

Ja-Ran Enterprises Inc.  
(Superior Biomass Furnace)  
3541 Babcock Road  
Lexington, Mich. 48450  
(ph 810 359-7985)

Snow Flame Inc.  
5 Airport Road  
P.O. Box 745  
Arden, N.C. 28704  
(ph 704 684-4444; fax 704 684-5429)



Grain Stove

cleaning clinkers out of the stove every day, she also expects corn-burning to be a lot

less troublesome and messy than burning wood.

## Home-Built Corn Burning Furnace

When Doug Weber's heating oil bills began to go through the roof a couple of years ago, he began investigating all the corn-burning furnaces on the market. Prices, Weber decided, were unjustifiable.

"I figured I could build a furnace that worked just as well for a lot less money," says Weber, who farms near Alma, Ontario. "The oil furnace my home-built unit replaced was rated at 180,000 Btu's and this keeps right up, heatwise."

Weber built his furnace for about \$300 and put it in his basement. It heats his big two-story brick house better than his old oil furnace, and does it cheaply using corn and other inexpensive materials like wood chips, chaff, cobs, even soybean pods.

"I started with the combustion chamber out of an old gas furnace," Weber explains. "Then I used an old coal stoker to feed material into the bottom of the combustion chamber. The coal stoker's auger has a slow-turning gear box, perfect for delivering corn into the combustion chamber without overfeeding and smothering the fire. I put a 6-in. dia. auger in the coal stoker rather than its original 3-in. dia. auger so it'll handle the variety

of materials I burn."

Weber built a double-walled stainless steel firepot out of pipe. It's positioned at the end of the auger. The 10-in. wide by 10-in. deep firepot allows air to enter the combustion chamber from the bottom and the top, stoking the fire much like a bellows.

A furnace fan forces air around the combustion chamber, which is totally enclosed, through the existing duct work in his house.

Weber's furnace is 34-in. wide by 4-ft. high by 6-ft. long, with stoker extending about 4 ft. to the side. The hopper for Weber's stoker holds about 3 1/2 large feed bags full of whatever he's burning.

"I've been blending dry field corn with wood chips I get for free from a disposal guy," Weber says. "But with the bigger auger I can also burn chaff and soybean pods.

When burning corn, "you get a few clinkers," Weber says. To make it easy to clean them out, he installed a 4-in. dia. piece of pipe that leads out of the bottom of the furnace. The pipe has a plug that Weber removes when he cleans out the clinkers.

"I just use a scraper and shove the ash into the pipe. It falls into the ash pan beneath it," he says. "You don't even have to shut off the furnace to clean it."

Weber doesn't know exactly how efficient his furnace is, but knows it ranks right up there with most energy efficient commercial corn-burning units. "You can rest your hand on the exhaust pipe and it's only warm," he says.

Plus, it's saved him a lot of money. "Last year was the first full heating season I used it," says Weber. "I used 2 40-yd. containers of wood chips and about 6 tons of dry shelled corn that would have sold for \$130 to \$140 per ton," he says. "Oil would have cost in the neighborhood of \$4,500."

If Weber were to build another corn burner, he says he'd put only one fan on it instead of the two he used to simplify maintenance.

A few neighbors have asked Weber to build furnaces for them, but he says old coal stokers are extremely hard to find.

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