

# "Owner's Report" On Corn-Burning Stoves

Corn-burning stoves are busting out all over. FARM SHOW contacted as many manufacturers of corn, wheat, and other grain burning units as we could find for names of farmers who've bought and operated corn burners. We're hopeful this report will highlight those corn burning stoves and furnaces that perform with flying colors, and to pinpoint the "lemons" that fail because of poor performance, or failure of the dealer or manufacturer to provide service.

Here's how the survey shaped up:

"I tell corn stove manufacturers I'll buy their units as soon as they can guarantee me it'll run for two weeks without any maintenance," says Paul Woessner, Elbow Lake, Minn.

So far, there have been no takers for his offer.

Woessner began burning corn for fuel in 1991. That's when he bought a new corn-burning furnace to heat his 40-ft. by 80-ft. shop from S & M, a Fargo, N. Dak., manufacturer that has since gone out of business.

"The metering and feeding mechanisms always got jammed up so I rebuilt them," Woessner says. "And I rebuilt the burn pot so it wouldn't get all caked with clinkers."

Last winter, Woessner incorporated some new ideas into his furnace. He used an after-burner made by another corn furnace manufacturer, Alpha American, for reburning gases from the burning corn. He also used an Alpha American heat exchanger, which Woessner claims is more efficient than anything on the market.

That greatly improved performance of his furnace. But he's still looking for a better auger - a small, efficient push-type auger - for it.

"What sells me on burning corn is the money we spend in the Middle East on oil, when we've got corn going to waste over here," he says. "You grow it every year, not every million years. Just think what we could do if we could get one of these things to work without all the maintenance."

• Former Richmond, Ind., farmer Dick Austerman "loves" the Dovetech stove he bought for \$1,895 in 1988. Partly, that's because the unit, which he uses as a fireplace insert, is so easy to maintain.

"I can be away for 24 hours without having to tend it," he says. "Then, all you

**"I'll probably get by for \$250 this winter burning corn."**

have to do to clean the clinkers out is turn the fans off and flip them out into a pail with barbecue tongs."

The unit provides even, clean, economical heat for the Austermans' 1,800-sq. ft. one-story brick ranch style home, he says.

"Last year I started burning corn Nov. 1 and used it for 160 days, which took 160 bu. of corn," says Austerman. "Now corn's at \$1.85 per bu., so I'll probably get by for \$250 this winter burning corn."

Since Austerman's stove was made, the Dovetech name has been changed to **Snow Flame** and there have been some improvements, including equipping the stoves with doors that are easier to clean. Austerman's only complaint with his stove is that doors cake too easily with the white dust from burning corn.

"I'm thinking of taking this one out and

putting in a new one," he says. "Not that I've had one single problem with this one. It's just that the new Snow Flames look so much nicer."

• "I spent the better part of four years looking at corn-burning stoves and I never could find one that required as little time and maintenance as my **A-Maize-ing Heat** furnace," says Olney, Ill., farmer Larry O'Brien.

In fact, O'Brien liked the bottom-fed furnace so much after using it for one season, he became a dealer the following season. The furnace is U.L. approved, so it doesn't raise his insurance rates, and it's 85% efficient. O'Brien likes improvements made since he bought his furnace, too. One improvement is a stainless steel burn pot that doesn't rust like O'Brien's cast iron pot and a 10-in. clean-out access hole for cleaning the heat exchanger without having to shut off the furnace.

One thing that O'Brien improved on himself was replacing the original 14-bu. hopper with a 250-bu hopper for "enough corn to last a whole winter." He burns anywhere from 1/2 bu. to 5 bu. in 24 hours depending on outside temperature, so the 14-bu. hopper only lasted about a week.

Although the furnace burns 99% of the corn it's fed, clinkers must still be removed regularly, O'Brien says. If you burn high oil corn, which has less starch than ordinary yellow corn, there are fewer clinkers, he adds. Similarly, 14-16% moisture corn burns better than corn that's higher or lower in moisture content, O'Brien says.

• Donna Pizzezy, Foxwarren, Manitoba., has only two complaints about her and her husband, Cal's, 1993 **Envirotech** Model 2775 stove that burns corn, wheat or rye.

"I would have liked a bigger firebox because we have to clean out clinkers twice a day to keep it running," she says. "We've also had trouble with a little grain falling behind the auger and I don't think the auger should leak after a little less than a year. Our dealer agreed and said rather than repairing it, it would be replaced under warranty."

The Pizzezy's began burning wheat in their stove last Dec. 1 and stopped burning it about May 1. "We use it as a supplement for our electric furnace to heat the lower level of our four-level split where we have a 12-ft. by 26-ft. TV room," Pizzezy says. "It really did a good job," she says.

Plus, she says, the stove is easy to use. "You just bring in a pail of wheat and pour it into the grain reservoir on the side of the stove," she says. "An auger pulls grain down into the firebox."

The Pizzezy's haven't burned anything besides wheat in their stove, but do use wood pellets to get the fire going. As for wheat quality, "the better the wheat, the better the heat," she says.

• The **Superior Biomass** Furnace Willy Demaiter installed last January kept him and his family warm as toast in their 2,300-sq. ft. farm home later that month during a record-breaking cold spell.

"It kept the house a warm 75 degrees without any problems for that three weeks," says Demaiter, Bothwell, Ontario. "It makes nice, even heat. I'm quite satisfied."

The Biomass furnace is designed to burn a variety of materials - corn, wood pellets, even cherry pits - but Demaiters burned his most plentiful alternative fuel.

"I raise rye so that's what I burned," he says. "Sixty bu. of rye got us through that cold spell. We've also burned corn and that works well, too."

• "I'd recommend a **Snow Flame** stove to anybody," reports Fountain City, Ind., farm wife Martha Hill. "We bought ours two years ago for about \$1,500 and we love it."

The Hills use their stove as a fireplace insert to heat the 1,200 to 1,400 sq. ft. main floor of their home. They normally start burning corn the last week in October and continue through the middle of May. Typically, they use 120 to 125 bu. of corn during that time. "We don't use more than a bu. of corn a day even in the very coldest weather," she says.

Hill's only complaint about the stove:

"Sometimes when we open the door a little bit of soot comes out. The way I understand it, they've taken care of that problem on later models. Otherwise, our stove is very, very clean, which is one of the best things about it."

• "My theory is if I've got wheat I can't sell I might as well burn it," says Tim Dvornak, a Killdeer, N. Dak., farmer who owns a new **Grain Stove** that he bought for \$1,795. It burns wheat, corn or rye.

"This is the only stove of six I looked at that was designed specifically for grain," Dvornak says. "Others claim they're designed for corn or wood pellets, but the augers don't really appear to be designed for grain. And you've got to buy another burn pot if you burn corn instead of pellets."

"This stove burns wheat with up to 30 percent fines in it," he says. "So in the spring when we clean out our wheat for seed, we'll be able to save the fines - what we'd be docked for at the elevator - to heat the house the next winter."

Dvornak set the stove up to heat his 1,000-sq. ft. basement family room. Heat

*Continued on next page*

## Corn-Burning Furnace Built For \$300

"I wanted a free-standing floor furnace and nobody makes them anymore. That's the reason I built it myself," says Kansas farmer Ira Eichman about the homemade corn-burning furnace he's used for three heating seasons. "I also thought I could build a more efficient heat exchanger than any on the market. And I did."

Eichman's furnace is 20-in. long by 14-in. wide by 24-in. tall. Made out of 3/16-in. thick sheet steel, the furnace is the sole source of heat for his 1,100-sq. ft. one-story farm home.

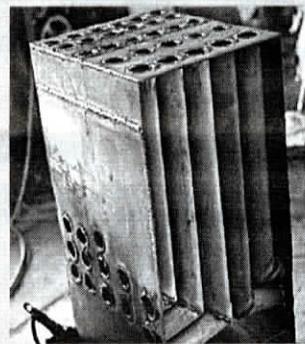
The furnace kicks out about 100,000 btu's an hour, Eichman estimates.

The heart of the system is Eichman's heat exchanger which is made out of a system of 2-in. dia. pipes mounted in a rectangular frame. "I've got a partition between the combustion chamber and the outside chamber so heat goes up the inside of the pipes and circulates, then cool air comes down the outside of the pipes," Eichman says. "It's all self-circulating, not forced air, which makes it different from any commercial corn-burning furnaces I looked at." Heat rises from the basement to the home's main floor through floor vents.

Eichman's burner is an 8-in. square box made of 1/4-in. thick stainless steel with holes drilled in the bottom. A 2-in. dia. electric fan blows air into the burner, while a 2-in. dia. flex auger with a variable speed drive, housed in a piece of 2 1/4-in. dia. car exhaust pipe, delivers corn from a hopper and gravity feeds it to the fire. Both fan and auger can be controlled from upstairs.

Eichman's grain hopper, made out of an old hog feeder, holds up to 40 bu. of corn, enough to last two or three months in the coldest part of winter. During more moderate parts, Eichman only needs 20 bu. of corn at a time to last several weeks.

For convenient cleaning, Eichman's furnace features a removable floor plate



underneath the heat exchanger. "I clean it out once a year, in the fall, before I start using it," he says.

Although Eichman doesn't know exactly how efficient his furnace is, he does have one good gauge. "I use 4-in. dia. plastic sewer pipe for an exhaust pipe," he says. "I've used the furnace three years and the pipe's still like new, so that should tell you how much heat escapes. That pipe isn't made to withstand high temperatures."

Eichman burns between 100 and 120 bu. of corn per heating season, compared with the old 60,000 btu propane furnace that used to use at least 800 gal. at 16 cents a gal. "One year, I heated with moldy corn, so that didn't cost anything," he says.

The most expensive component of Eichman's furnace was the gear reduction motor he bought for \$203 to run the auger. "There were cheaper ways to go," he says, "but I wanted it to last."

Including gear reduction motor and electric D.C. controls to run auger and fan, Eichman says he's got \$300 to \$400 invested in his furnace.

Contact: FARM SHOW Followup, Ira Eichman, R.R. 2, Westphalia, Kan. 66093 (ph 913 489-2386).