

Heating With Corn

With temperatures dipping and energy prices soaring, homeowners are turning to alternative heat sources to keep them warm this winter. Many, it seems, are turning to corn.

Even where low electric rates make heating with electricity a little easier on the pocketbook, there has been a renewed interest in burning corn as a heating fuel — a practice that can be traced back at

least to the Depression, when farmers couldn't afford coal.

"Corn is not only for home heating. It also has commercial and even industrial applications," says Sam McNeill, an

agricultural engineer at the University of Kentucky (UK) College of Agriculture, who has fielded numerous phone calls from Kentuckians interested in corn as a heat source.

Corn is becoming so popular as a heating fuel that manufacturers of corn-burning stoves and furnaces can't make them fast enough, says Leslie Wheeler, communications director for the Hearth, Patio and Barbecue Association (HPBA) in Arlington, Va.

"It's enormous this year as people look at alternative ways to stay warm," Wheeler says.

No doubt, corn's resurgence as a heating fuel is due primarily to its competitive cost — currently less than \$2 a bushel (bu.). If a typical corn-burning furnace uses a bushel and a half a day at \$2 per bu., for instance, it would cost approximately \$330 to heat a home with a corn furnace this winter, says Robert Fehr, UK agricultural engineering professor. By contrast, the same amount of heat would cost about \$1,130 with straight electric resistance heat, \$1,000 with natural gas and \$628 with a typical heat pump at current prices, he says.

In addition to its affordability, McNeill says people are also discovering corn is a plentiful and quickly renewable resource. What's more, corn's 70% heating efficiency makes it comparable to natural gas and propane, and slightly better than wood.

Effective and efficient

The key to using corn effectively — and cost-efficiently — begins with finding the right corn-burning stove or furnace. Freestanding furnaces may range in price from \$1,800 to \$2,200, while the high-end furnaces could cost as much as \$5,000, Wheeler says.

Although there are corn furnaces designed to distribute heat throughout the house, the most popular corn burners are conventional stoves that focus their heat on one area of the house. A typical corn-burning stove is similar to a wood-burning stove, except it is designed for a granular fuel, such as dry, shelled corn.

"The general idea of how it works is no different than a stoker coal furnace was in the late '40s and early '50s,"



Fehr says. "So the technology, while it's improved, is not really anything new. Now, they're just using wood chips or pellets and corn."

Corn-burning stoves come in a variety of styles, including fireplace inserts and space heaters. Unlike most wood-burning stoves, corn-burning stoves have a combustion air fan and a fuel stoker. The corn is held in a hopper, which can store a one-day supply to a 10-day supply.

Another key to using corn efficiently is making sure there is a plentiful supply of dry, shelled corn on hand.

"You're going to somehow have to contract with a supplier, whether it be a farmer or a corn broker or a fuel broker, to bring corn to your house, and then you're going to have to have a place to store it," MacNeill says.

Electric alternative

Despite the renewed interest in corn as an alternative heating fuel, Fehr says Kentuckians might be wise to stick with a proven source: electricity. Electricity's heating efficiency is 100% or more, and Kentucky's electrical rates are consistently among the lowest in the nation, he says.

"The story in Kentucky is that having the lowest electric rates in the United States makes other forms of energy for heating less economical unless the fuel source is free, such as cutting your own wood," Fehr says. "While corn furnaces sound interesting, corn will not likely stay under \$2 per bushel. And until electric rates increase significantly, it might be marginally economical when compared to a heat pump."

He recommends, instead, that Kentuckians who want to be more energy-wise when heating a home consider a geothermal heat pump.

"It represents the next increase in efficiency (up to 350%), taking into account our really inexpensive electric[ity] and how to better use electrical energy," Fehr says.

For those set on buying a corn-burning stove, McNeill says it's important to consider the initial costs of buying a corn-burning stove and a supply of corn. "You're not going to go out and buy a stove and pay for it in a year," he says. "That's something to consider."

McNeill adds that corn is a renewable resource, like wood, but is more energy-intensive to grow. Consumers intent on saving energy might want to factor that in when deciding whether to heat their homes with corn.

"I can see pluses and minuses in terms of saving fuel. But you have to ask, 'Is corn the better choice?' ... It challenges us to really think about a lot of different things rather than what's my heating bill going to be this winter," McNeill says.



National Junior Angus Association

Members of the National Junior Angus Association pay an annual fee of \$20, and junior privileges expire at age 21. Junior members have access to all services offered by the American Angus Association, and they receive two issues of the *Angus Journal* per year and the NJAA newsletter, *Directions*.

To apply for membership in the National Junior Angus Association, visit www.njaa.info and download a printable application, or call (816) 383-5100 to request the application.



Editor's Note: This article was written by Terri McLean, writer/editor for Agricultural Communications at the University of Kentucky, which supplied this article.