

# COVER STORY

## Power to the poultry

### Facing soaring propane prices, growers look at different fuels, furnaces and sealing services to cut energy costs.

BY DAVID IRVIN ARKANSAS DEMOCRAT-GAZETTE MAY 4, 2008

GENTRY — Retired salesman Bill Linch always dreamed of owning a chicken farm. As a youth, he won a competition raising chickens in his native Oklahoma, and by the time he retired decades later, his lifelong dream was still alive.

Linch bought six chicken houses just north of this western Benton County town in April 2007. In the first year of operations, the price of propane rose more than 60 percent — from \$1.28 a gallon to \$2.08.

“I’ve had a lot of people say, ‘Well, you’re getting in it at the wrong time,’” Linch, 58, joked at his farm recently.

Just as gasoline prices are hitting motorists’ pocketbooks, the weekly propane buy is taking a bite out of poultry farmers’ profits.

For Linch, the problem was serious. His older houses were hemorrhaging warm air along some joints and he was spending about \$3,000 per house over the seven or eight weeks it takes to raise a flock.

Contract farmers like Linch are looking for ways to shave energy use as the cost of petroleum-based fuel plays havoc with already tight margins.

Some are buying furnace systems that burn wood, corn and other materials in a fundamental shift in how their farms are warmed. For his part, Linch contracted with Lincoln-based Ag-Tite to apply a soy-based sealant along his chicken house joints.

“It would tickle me to death if we could cut [the propane bill] by 25 percent,” Linch said.

Energy analysts predict the price of propane — which is connected to oil prices — will remain high the rest of the year. Low propane stocks, weakness in the dollar and high petroleum prices will likely keep upward pressure on propane prices, said Mary Novak, an energy analyst at Lexington, Mass.-based Global Insight Inc.

With that in mind, farmers, entrepreneurs and researchers are scrambling after ways to save energy on the farm.

#### **TIGHTENING, VENTILATING**

Gene Simpson, a professor of agriculture economics at Auburn University in Auburn, Ala., agrees farmers can save on energy by sealing — or “tightening” — their houses.

“You need to tighten them up, you need to insulate them,” he said.

Other strategies include better management of ventilation systems, according to a newsletter his department released in March.

Good ventilation is “one of the prime keys” to achieving maximum fuel efficiency, especially in cold weather. Stirring the air is also a good way to produce uniform temperatures throughout the houses.

In April 2007, a cold snap struck the state, killing row crops and forcing poultry farmers to burn more propane to keep the chickens warm. Linch was suddenly aware of the great disparity in energy efficiency among his houses.

He found his newer houses were burning half the propane of his older houses, even though they were larger.

After “tightening” the older houses in April, he was able to reduce his propane use during chick brooding to 32 gallons a day. That was down from 54 gallons of propane a day — a savings of \$308 a week per house at current prices.

Sealing Linch's houses cost \$1,600 per house, said Bill Collins, Ag-Tite's general manager. A more thorough sealing job, in which side curtains on older houses are completely covered, costs between \$6,000 and \$8,000 a house, he said.

Ag-Tite is sealing poultry houses in Arkansas and across the Southeast by setting up business partnerships in Alabama, Kentucky, Tennessee, Missouri and Mississippi.

“This is a year-round business for us. We're always on farms,” Collins said while his crew worked on Linch's farm.

## HEAT FROM THE LAND

Baby chicks need a warm environment to survive. This “brooding” stage requires that poultry farmers keep their chicken houses around 90 degrees for the first two weeks.

That's an expensive practice, particularly during winter, so some poultry growers have turned away from propane and are seeking new ways to warm their chickens.

Coal, wood and poultry-litter furnaces have been invented and some farmers are putting them on their farms.

Bill Harvill, a poultry farmer who contracts with Springdale-based Tyson Foods near Stark City, Mo., says farmers can save on fuel costs through creative use of natural resources.

Harvill installed 14 biomass-burning furnaces that supply hot, dry air to his chicken houses. But that's only half the solution. Farm commodity trading also is important, he explained.

Because the price of commercial fertilizer has risen dramatically in recent years, Harvill realized his poultry litter has great value to row-crop farms farther north in Missouri. Harvill said he can barter 1,000 tons of poultry litter for about 8,000 bushels of corn.

Because corn sells for more than \$6 a bushel, Harvill resells the corn and reinvests in wood pellets for about \$150 a ton. He then burns the wood pellets in his furnaces, saving on fuel by cutting propane use.

Asked if that is too much work, Harvill chuckled.

“We have no choice. It's either change or quit,” he said.

Each of Harvill's units cost about \$20,000, but he cut his propane use by 85 percent. He envisions a new business model, in which groups of farmers can buy into a co-op and begin pelletizing wood products on their own to further reduce fuel costs.

## HOLY GRAIL?

Though wood pellets burn well, what many poultry farmers see as the Holy Grail is a furnace that burns poultry litter — a mixture of wood chips, corn hulls and chicken droppings. If that could be achieved, farmers could eliminate most off-farm trades for fuel, many believe.

But it's hard to burn poultry litter.

Terry Walmsley, a spokesman and environmental engineer for Fibrowatt, a company that operates a poultry-litter-fueled

electricity plant in Minnesota, explains:

“Litter as a fuel is not like wood or coal. It’s not something you can just throw in and expect to perform consistently,” Walmsley said.

The moisture content of the poultry litter can cool the inner core of a furnace, and also cause trouble with clumping or “bridging” when the litter is fed through a hopper on the way to the furnace.

Pennsylvania-based Fibrowatt recently announced that its second litter-fired plant will be built in North Carolina. The company has talked with farmers in Northwest Arkansas about buying poultry litter but has not committed to building a plant here.

Jim Wimberly is the founder of BioEnergy Systems LLC, a Fayetteville-based consulting business that works with the agriculture and energy industries.

“There have been dozens of attempts nationwide in the past 20 years to develop farm-scale litter-fired furnaces,” Wimberly said.

Poultry-litter-fired furnaces must be technically viable, economically feasible, environmentally acceptable and user friendly, he said. However, he added he has “no confidence” a farm-scale system can be developed to meet all four criteria.

Still, a number of companies in Arkansas are seeking to do just that.

One such furnace is being developed by Lynndale Systems of Yellville. Company founder Jim Raley said he designed a system that can consistently burn poultry litter.

A year ago, he attached a prototype to a chicken house owned by the University of Arkansas near Savoy, about seven miles west of Springdale. After getting a low-interest loan from the state, Raley is ready to demonstrate a newer and smaller unit this month.

“Our strategy is just to let them see the furnace in operation and they are going to buy it. It’s kind of like a ‘if you build it, they will come’ deal,” Raley said.

## FEDERAL HELP

Resource Conservation and Development Councils in Arkansas, nonprofit groups that help market U.S. farm programs, have been meeting with farmers this spring to help them get government money to buy energy-savings devices.

The program, under Section 9006 of the current farm bill, provides a 25 percent grant and a 25 percent guaranteed loan for projects up to \$500,000. Projects can take advantage of many kinds of energy-saving devices, including wind, solar, hydrogen and geothermal projects. This year’s deadline to apply is June 16.

“That’s where the biomass stoves come in, because this program will assist them in buying those furnaces,” said Charlie Williams, project coordinator for the conservation and development council in southwest Arkansas.

Farmers interested in accessing the money must be found in rural areas or towns with populations of less than 50,000, he said, and half of their income must come from selling agriculture products.

The program is expected to expand with the new farm bill, but political gridlock in Congress has slowed the bill’s passage.

## A NICHE MARKET

A small but growing industry is trying to make money by helping farmers save money.

Steve Faust is the founder and president of EnSave, a Vermont business that contracts to provide energy audits for farmers seeking to cut energy costs.

“The energy issues are much more prevalent for the broiler house grower, because the energy needs take up such a significant portion of their expenses,” Faust said.

His business operates in 10 states including Arkansas. It has conducted thousands of energy audits on poultry farms, dairies and other agricultural enterprises. Faust said his company conducted 150 to 200 last year.

“There are plenty of energy consultants out there,” Faust said. “They have sprung up primarily when the utilities are required to provide energy efficiency programs. They are going after the big bucks,” meaning industrial, commercial, residential and multifamily residential projects like apartment complexes.

Farms aren’t considered as lucrative, he said.

For Linch, the dream of chicken farming is alive and well, despite the rise in energy costs in his first year of business. Linch said he is open to suggestions from anyone on how to trim costs, and is looking at more ways to save money and grow better birds.

“My company man said, ‘Bill, you are doing a lot of things right,’” Linch said. “Well, I want to do everything right.”



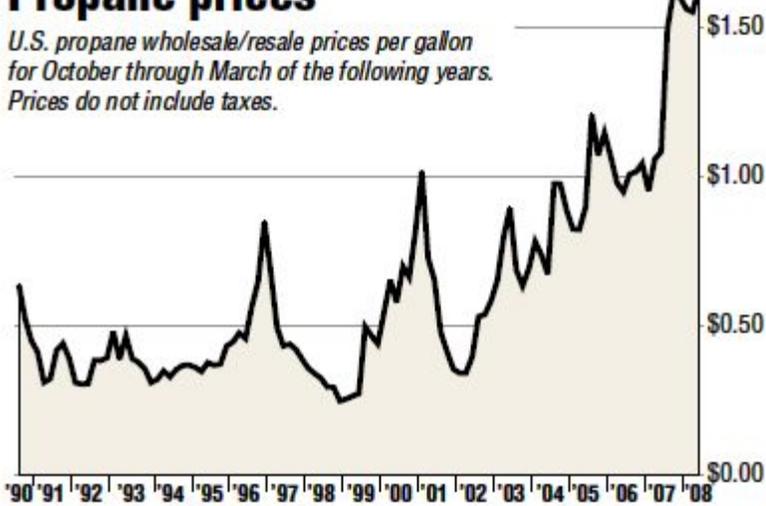
Arkansas Democrat-Gazette photos/BOB COLEMAN Adam Miller, the operations manager for Ag-Tite, sprays a soy-based sealant into holes and cracks on chicken houses at Bill Linch's farm in Gentry.



Bill Collins, the general manager of Lincoln-based Ag-Tite, shows how his company's sealant fills gaps and prevents air loss from the joints in chicken houses. The dark areas are where the sealant has been applied.

## Propane prices

*U.S. propane wholesale/resale prices per gallon for October through March of the following years. Prices do not include taxes.*



SOURCE: Energy Information Administration

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