

How They Started Their On-Farm Pelleting Business

Charlie and Christine Forman operate 2,000 acres of cropland and several service businesses that keep them and their employees hopping around the clock. In addition to growing crops, they install drain tile, dig ditches, operate a greenhouse, produce vegetables for a farmer's market, sell bedding plants and perennials, produce custom flower containers, and deliver grain. Over the past couple years, they've also worked hard to develop an on-farm pelleting operation called SwitchGreen.

Charlie Forman says their initial plan was to pelletize switchgrass because the perennial crop is fairly easy to grow and is ideal for the growing conditions in eastern Ontario. They purchase harvested bales and turn the crop into biomass fuel pellets and other products. Pellets are "made to order" with recipes they've developed that use switchgrass, waste wood and other agricultural biomass, including crop residue. Pellets can be used for residential, commercial or industrial heating.

They've had some success, such as a contract to provide more than 150 tons of pellets to heat a local school, but profitability has been challenging.

To start out, Forman purchased a pelleting mill in 2011 from Torrifed Wood Pellet Equipment in New Brunswick, Canada, for \$350,000. Initially, they had to make a lot of modifications to the machine to get it to work the way they wanted.

"The conveyors and paddles would freeze up and the paddles were not heavy enough. The auger that supplies material to the dies had to be replaced with one of our own design so we could use steam to preheat the crop material. Sensors were installed to control the flow of material

yet allow the dies and hammermill to run continuously. The two dies run against each other with 3,000th of an inch clearance and were extremely difficult to reset, so we redesigned them with a cam that can be adjusted with a large ratchet. In addition, the dies have thermal elements imbedded into the wall of the plate that the dies are fastened to. We doubled the wattage and saw a significant increase in production but, more importantly, saw fewer problems with variability in moisture content of incoming product to the dies."

They made many other adjustments to guides and shields and even the electrical box. After modifying the machine, they've been able to produce about 800 lbs. of pellets per hour. They're just now getting to a point where they're able to get a handle on production costs, which include:

1. Collection of raw product.
2. Pre-grinding
3. Loading product into feed bin
4. Pellet production
5. Filling totes or bagging
6. Pickup or delivery of pellets
7. Maintenance and setup of machine
8. Electric costs of operation
9. Storage.

"The price of pellets is pretty much set by the marketplace unless you have a product with special attributes so we have to know what our costs are," notes Forman.

In addition to all of the above, Forman notes that it takes 3 years to establish a crop of switchgrass and during that time, there's no income. Once established, one crop can be harvested each year.

Maybe the biggest challenge to making pellets, says Forman, is getting the right recipe so the material actually pelletizes and doesn't break down. They use vegetable



Charlie and Christine Forman turn bales of switchgrass into biomass fuel pellets and other products on their farm.



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oil, moisture and other ingredients that he won't divulge because it took so much work to figure them out. He does note that switchgrass can't be successfully pelleted by itself without added ingredients.

In addition to producing pellets for fuel, Forman makes pelletized deer feed that

includes corn, roasted soybeans, alfalfa hay, and dried molasses.

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Young Farmer Grows His Own Brand Of Beer

Craft brewers have opened thousands of new establishments in the past decade, literally flooding the market with new beers. Jeremy Beach is also a craft brewer, but in a very unique way.

"I'm growing all the ingredients for my beer on my own farm rather than just producing it in a micro-brewery with purchased ingredients," says the 33-year old Wisconsin farmer. Beach is experimenting with different strains of hops, barley and oats on a portion of his family's 650-acre farm. Mostly the farm grows corn, soybeans and hay.

Beach's hop production takes place under 1,700 strands of twine, each one 18 ft. long. Beach cut every piece of twine by hand in the winter of 2016, more than 6 1/2 miles worth. Then in the spring, Beach and his father used a specially built hop stringing wagon to tie all those pieces of twine to cables above the growing plants. The string and hops are supported by cables attached to more than 100 locust timbers that Beach and his father cut from a nearby woods.

He also grew 15 acres of Conlon barley and about one third acre of hull-less oats for his beer. Other plantings include wheat, rye, grapes, high-bush cranberries, pear trees, blackberries, hazel nuts, ground cherries and Aronia berries. Beach says

his plan is to experiment with different flavors and styles of beers.

Beach says producing everything but the yeast and water on his farm makes his brews especially unique.

Beach has invested about \$25,000 so far into his beer farm, mostly for building the hop yard that grows 7 different varieties. In 2015 he harvested about 100 lbs. of hops by hand and produced a 400-lb. yield in 2016. He sold the 2015 hops to an Illinois craft brewer and with the 2016 hops plans to brew a 10-barrel batch that will be sold in kegs and bottles. He also sells hop shoots, a dining delicacy, to a 4-star restaurant in Madison. Beach says the shoots are sauteed in butter and garlic and taste like asparagus.

"Having my own business has been a dream for several years," says Beach, who graduated from the University of Wisconsin and also holds a master's degree in rural sociology. He's worked as a statistician for the USDA in Oregon and also as a survey methodologist in Washington D.C. His work on the farm is a long way from either of those jobs, but Beach says he's always been interested and passionate about food, farming and agriculture.

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Business Is Booming For Garlic Seasonings

If you love garlic, you might want to check out the seasonings developed by Budd and Judy Leisenring who grow garlic to sell for both seed and food products.

While Budd has 35 years worth of experience growing garlic, he credits his wife for developing their unique seasonings. "We strive to grow large garlic bulbs, but we always have some smaller bulbs and some that split open. Judy decided we could make seasonings out of them so she started experimenting," he explains.

Leisenring, a contractor, built a commercial kitchen on the couple's rural Mogadore, Ohio, property. About 25 to 30 percent of the 7,000-lb. harvest (from one acre) ends up in the kitchen after it has dried and cured.

The Leisenrings chop and dehydrate garlic to make nuggets that can be put in a jar with a grinder and ground fresh like peppercorns. Garlic salt is made with pink Himalayan salt. Garlic Grilling Spices is a mixture of garlic and other spices for grilling and stovetop cooking. Thinly sliced and dehydrated garlic becomes garlic powder - without any anticaking additives.

"Once they taste our powder, people are hooked on it," Leisenring notes. "Our garlic rub is catching on, but our grilling spice and Italian seasoning are the most popular. One young couple buys the Italian seasoning every 2 or 3 weeks. They put it on their



Budd and Judy Leisenring grow garlic to sell for both seed and food products.

mashed potatoes and use it as seasoning."

The garlic growers say their BJ Gourmet Garlic products sell for \$7 for 2-oz. bottles. Besides the dried seasonings, they also sell balsamic vinegar and oil with garlic.

Having a value-added product that they can make and sell after a busy season of harvesting and shipping 20 varieties of whole garlic helps spread income throughout the year, Leisenring says. Though most of their products sell out before the next harvest, he notes that he has tested seasonings that are still good after two years.

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