



A SOYBEAN PRESS on Cornell Dairy extrudes oil from soybeans and creates a high-protein pellet to feed to the cows.

Christy Achen

Pressing soybeans opens avenues of opportunities

Diversification for added cash flow is the driving force behind this dairy's decision-making process.

by Christy Achen

CORNELL Dairy, Greenwood, N.Y., wasn't hard to find, mainly because it is located right off of Cornell Road. Joe Cornell, the owner, and his son, Cody, are the fourth and fifth generations to work and live on this farm.

"We have survived over 100 years here, and so far, we haven't found a reason to leave," shared Joe. He remarked that where we were standing was on the foundation of the first barn built here in the late 1800s. Just looking around, you can see some of the farm's history.



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"Back then, they actually milked into those old milk cans," said Joe. Right over the hill, he pointed out a bank where his grandparents and parents would use the cold water to chill the cans. The same spring was still flowing there. They did this until the 1960s, and by the 1970s, they built a state-of-the-art freestall barn and parlor for that time.

From the 1970s to the mid-1990s, the farm continued to slowly grow, and by 2009 the dairy was at full capacity milking 150 cows. Rather than expanding and going strictly dairy, Joe decided to forgo the blueprints he had drawn up for a new barn and possible robots, and he started diversifying the farm in other ways.

"Instead of adding more cows, we started growing grain corn, soybeans, wheat, and different hay species," explained Joe. He listed horse hay, dairy cow hay, and mulch hay, which is a lower-quality hay used as peat for mushroom production in the Northeast region, as different markets he grows for.

Further diversification occurred when Cody returned home from college in the spring of 2015. Cornell Dairy started changing some

practices and added a soybean press to its portfolio. "It just gives you more levers to pull, more avenues for cash flow," remarked Cody. He likes to think the addition of a soybean press has made the "basket" for their "eggs" much bigger.

Move to soybeans

"We found that if we were solely dairy farming, it was difficult," said Joe. "But when we take soybeans and make our own feed, and then sell the oil to feed mills, and use the excess oil to burn in our tractor, suddenly our basket gets a lot bigger."

The technical name for the machine is a soybean mechanical press extruder, and it basically presses the oil out of the soybeans and creates a dry, high-protein feed. It is all computerized and runs by itself. At its highest efficiency, it can process 4 to 5 tons of pressed soybeans per day, which equals about 60,000 bushels a year. Between 25 and 30 gallons of oil per ton is also produced.

The computerized system is equipped with a touch screen, and adjusting the speed can be done in seconds. Simply set a timer and the press will automatically run and stop on its own. A mesh tote captures all the dried protein by-product while a 250-gallon plastic tote beneath the press collects the oil.

"We have put over 5,000 hours on it and only have to change the oil every 2,000 hours," noted Cody. "It's easier than car maintenance, the only thing we worry about is replacing full totes."

The machine doesn't only press soybeans, it can also handle different crop seeds such as sunflower, canola, flax, and because it is manufactured in Canada, hemp as well.

The financial commitment for this kind of system can vary. The Cornells invested \$38,000 for the press, insulated the building they store it in, and also added a bin on the outside that feeds the beans into the press. All in all, they spent around \$45,000. Their return on investment (ROI) is valued on the oil produced and their milk production. With the current low milk prices, they are still getting a ROI of 3.5 years.

But, Joe noted, there is also no feed bill for this dairy farm. Because they chose to diversify into crops, they have been able to supply all the feed for their farm, which has shrunk a quarter of their expenses.

There are many uses for soybean oil. Next to corn syrup, it is the second-most used product in the food industry. However, before the Cornells sell or burn any of it, they settle and run it through a three-stage, food-grade filter. Because it is 98 percent fat, most of it goes to feed mills and is used as an energy ingredient. Anything left over they cut half and half with their off-road diesel and make biodiesel for their tractors.

More protein, lower cost

The dried soybean pellets that come from the press are a higher digestible protein feed compared to raw soybeans. Around 5 to 6 pounds of raw soybeans can be fed per cow. With a soybean press, the oil extrusion does not damage the protein, and more usable protein is available. Cornell Dairy can feed up to 10 pounds of dried soybean pellets per cow.

"We are taking out all the oil, which can cause some negative effects on the microbes in a cow's rumen, and adding back the percent we want in our feed" explained Cody. "It allows us to feed more protein with less oil."

Milk production has seen a slight increase since they started feeding their new protein. However, for this dairy, their cost of production has become a lot more manageable since they no longer pay the middleman to produce a product that they can manufacture.

They do not know of anyone locally who is using this system. Joe and Cody said that they have adopted a lot of new practices early on the crop side of their operation, where they have seen it financially fit to do so. The dairy side of their operation is another story. They are utilizing the same 1970s freestall barn to house their 80-cow herd along with a double-4 herringbone parlor built the same year.

When Joe took over the farm in 2011, he explained, "Instead of building a new facility, we chose to diversify, whether that be with crops or our young stock." All the calves, heifers, and bulls are raised on the farm. Cody takes pride in raising healthy calves and has a motto, "Whatever the calf needs, whatever the price, it gets it."

The young stock has been another avenue or "lever" they can pull for added cash flow. They



CODY AND JOE CORNELL are the fourth and fifth generation to live and work on their family's farm.

have a local market for breeding bulls, but are always watching steer prices and can make the switch to market feeder cattle, too.

The Cornells are constantly learning. Always keeping an open mind to new advancements in the farming industry has helped them stay in business. So far, focusing on their crops and feeds has been a good investment for their farm. Nevertheless, the family already has plans to upgrade the technology and facilities of their dairy, too.

Joe and Cody shared that once milk prices swing around, they would like to install milking robots and use their dry soybean pellets as the concentrate. 🐄

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