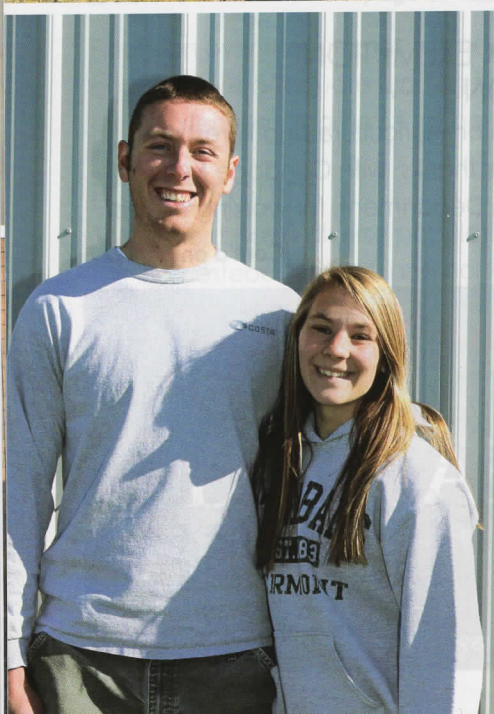
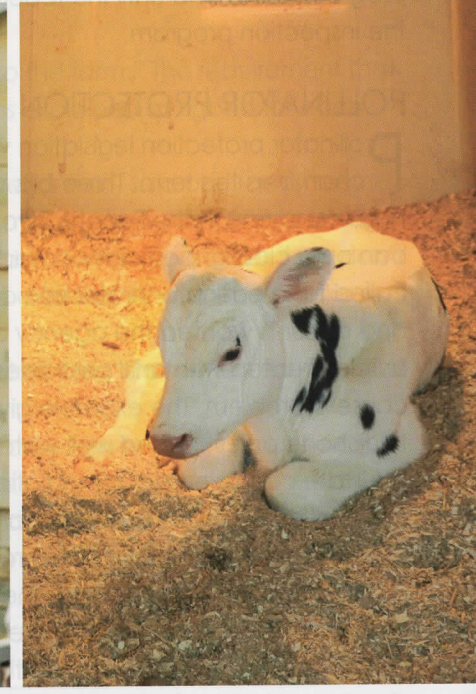
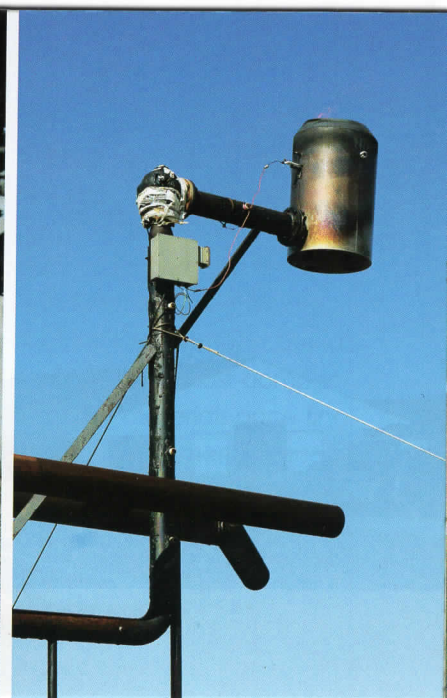


Left to right: Brian and Tammy Rowell manage and work on the farm together. Equipment. Holsteins. Bill Rowell serves as the farms spokesperson and advocates for dairy farmers. A newborn calf. Matthew and Mariah Gauthier. The grid of roads are maintained and frequently graded. Daughter Megan and Tammy work together in the calf barn.





The Holsteins are separated into different age groups and are moved around as they grow. The bio gas flame of the methane digester.

Green Mountain Dairy

Walks the Walk and Talks the Talk by Laura Cahners Ford

Although many Vermont business owners recognize the need for renewable energy, they do not have the financial wherewithal or knowledge as to how to go about it. Not so with Green Mountain Dairy in Sheldon, Vermont. Since 2007 this large dairy farm has used an on-site methane digester to produce the farm's power needs, to send a significant amount of electricity to the grid, and to share their knowledge with over 22,000 visitors from 29 countries. Two Vermont brothers, Bill and Brian Rowell, are the impetus behind this dairy business. Bill serves as the up-front spokesperson for the farm and advocates for dairy farmers in the legislature. Brian bought the farmland, designed the layout and structures, and manages it with the help of his wife, two adult children, and several employees.

The Rowells go way back in Vermont history. They originally settled in the Northeast Kingdom during the mid to late 1700s when "It was just northern wilderness," said Bill. The brothers grew up on their family dairy farm in Albany, which consisted of 300 acres and 50-60 milkers. It was sold in 1971.

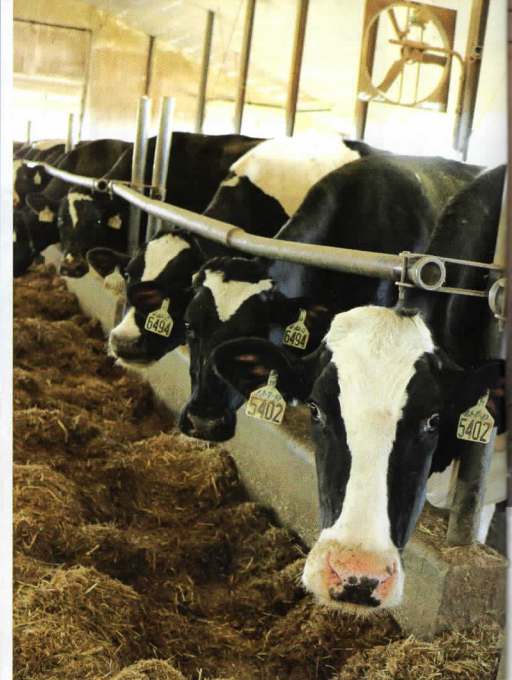
As Bill and Brian grew into adulthood, they found their entrepreneurial niche. Following high school, Bill joined the Navy and later obtained a B.S. from Johnson State. Brian worked at Burlington Electric and the help of his father, Willard Sr., and brothers Bill and John, started Fastway Loader Service. The business unloaded wood chips at the old Moran plant. The company eventually morphed into

Green Mountain Forest Products (GMFP). After receiving a master's in urban and environmental planning, Bill came back to help his brother and father run the thriving wood-chip business. At its peak, it had 43 employees plus sub contractors and millions of dollars invested in equipment – chippers, skidders, tree shears, bulldozers, dump trucks, tractor trailer trucks.

For 20 years Bill ran an offshoot of GMFP, Green Mt Forest Transportation, along with tirelessly advocating for farmers. As a past president of the National Dairy Producers Organization, he worked to change federal policy regarding milk pricing and advocated for a supply management tool for dairy in the U.S. He has also been on the University Extension Service State Advisory Board for the past six years. He is currently the up front spokesman for the dairy and still helps with running GMFP. The brothers are winding down GMFP as the farm is now their primary focus.

Brian's heart was always in farming. "I enjoy farming. I grew up on a farm, but my parents sold it my last year of school. It's hard getting back into farming, and I had to work into it slowly. But when you want something, it's in your blood." In the 1980s he bought a small farm in Highgate and over the years purchased four other farms. By 2008 eight buildings had been constructed – all grey buildings with green metal roofs interconnected by a road grid which makes the farm easily accessible by vehicle or by foot.

On a typical day Brian gets up anywhere from 4 to 5



Brian designed the layout of farm. There are eight grey buildings with green metal roofs interconnected by a road grid which makes the farm easily accessible. With 950 lactating Holsteins, 150 dry cows, 600 heifers, and 120 calves. It takes 23 full time employees to keep the dairy running.

a.m., depending on what's happening that day. He goes through the barns to check and adjust the feed. His outside employees arrive after him and look at what needs to be accomplished. This can mean running the dragline, hauling manure, doing field work, checking the digester engine, doing maintenance in the barns, and meeting with the nutritionists, the hoof trimmer, vets, or equipment

dealers. Milk production must also be overseen daily.

Currently the farm boasts 950 lactating Holsteins, 150 dry cows, 600 heifers, and 120 calves. They milk three times daily which takes about 21 hours. It takes 23 full time employees (six of these are family members) to keep the dairy running. To support the herd, they own and lease a total of 1500 tillable acres in three towns where they harvest 900 acres of corn and 600 acres of hay. The farm produces an astonishing 27 and-a-half-million pounds of milk a year which gets trucked to the St. Albans Coop.

Tammy, Brian's wife, and their children, Matthew, 21, and Megan, 20, also work as full time barn employees.

Tammy manages the calves – no small job on a large dairy that can have up to 120 calves up to three months old. The calf building is a huge 112-foot by 88 foot light-filled structure. One to eight calves are born daily. When a cow freshens, they feed the calf warmed up colostrum for two feedings. Then they get fed with pasteurized milk from two "milk taxis," machines that

warm and agitate the milk. There are eight calves per group nursing on pails filled with milk with ten nipples attached. You have to be quiet around the small calves, feed them consistently, and take advantage of "calf accoutrements" to keep them warm and happy – heat lamps, calf jackets, dry beds. "Taking care of a calf is almost like taking care of a baby. You have to be gentle, kind, and loving," mused Tammy.

Megan helps to raise calves and is stepping into her mother's position. She also works in the fields and packs the bunk – corn silage and haylage. Matthew caught the farm animal bug early on. When he was ten, he caught a greased pig at a fair. He took on full responsibility for its care, for getting it bred, and for helping to care for the piglets, and finally selling them. Since sixth grade, he has been raising and selling bulls on his own time. Now he helps where he is needed but mostly works with the crops.

As with any large-scale dairy, there is a large volume of waste or cow manure. In 2007 milk prices had dropped, and another income source was needed to offset this



Megan helps to raise calves and is slowly stepping into her mother's position.



Brothers and partners, Bill and Brian Rowell, next to their 2008 Vermont Dairy Farm of the Year sign are always improving and promoting their dairy farm.

loss. So the brothers decided to diversify and to make electricity from manure. As Bill said, "We saw this as an economic and environmental management tool." Using \$750,000 from federal, state, and utility company grants to reduce their portion of a \$2.75 million project, they built a methane digester. This extraordinary structure looks like a gigantic concrete covered swimming pool. Its impressive dimensions run 120 feet long, 75 feet wide and 16 feet deep.

In a year they send enough electricity to the grid to power about 400 homes. As Bill stated, "for the past 8 years we have produced an annual two million kilowatt hours of electricity to the grid... between electric sales payment for renewable energy credits under GMP's Cow Power program, and reduced bedding costs, our operation will gross approximately \$500,000 a year."

But electricity isn't all that the digester produces. The remaining manure goes through a separator that creates liquid manure, hot water, and also solids. The liquid manure fertilizes field crops used to feed the cows, and the solids are used for cow bedding. Hot water from the generators is used to heat the utility room, the farmhouse, and the maintenance garage.

The methane digester removes much of the odor from the waste stream during the process (the bedding is nearly odor-free) and makes the nutrients more readily available for uptake by

Inside the calf barn workers change the bedding.



bill for multiple years. The legislation has passed the House and Senate. It exempts from state sales tax all farm machinery used "predominantly" in production agriculture. House Ways and Means set the meaning of predominately at 75 percent. The tax department has revised its exemption certificate. It has also revised its list of other tax-exempt materials used in production agriculture. It's almost completed. We will be publishing these materials once finalized. This will be huge help to our farmers. Please take the time to thank the House Committee of AFP members for this great result.

SITING OF RENEWABLE ENERGY

This term started off with a large number of bills in the Senate from constituents, and cities and towns frustrated by the lack of transparency, public input, and reflection in the renewable energy siting process. All were rolled into one bill, S.230, which was fought over and watered down to a great extent. One questions whether it will be effective in giving local communities a voice. It hasn't slowed the process down; it isn't allowing the agency of agriculture an effective voice in placement on agricultural lands; it hasn't given the Vermont tourism board a voice at all; it didn't add transparency; it doesn't incentivize development on roofs, parking lots or brown fields; it hasn't protected ridge lines—and it seems to have pleased no one and disappointed everyone, except its opponents. It hasn't passed yet, so it may be changed some more or be dropped.

WATER QUALITY

Improving the health of Vermont's water quality is going to be a continued and unified effort. AAFM needs to see our farmers on the compliance pathway. Adequate funding for cost sharing is going to be challenging. It is funded for the next two years at the state level and five years at the federal level. We need to help members access available monies now and start planning how the state will fund this cleanup in the future. It's a long-term project. It all starts with a nutrient management plan for your farm or an update of your plan, if you have one. For farms not required to self certify, you still need to understand the RAP rules and comply with them. The AAFM has until September 15, 2016, to finalize their final draft to be submitted to the state rules process, ICAR. The Agency anticipates the RAPs

Cont'd on page 28



Left to right: The Rowell family - Tammy, Brian, Megan, Matthew, Mariah Gauthier, and Bill. The family is hosting a Breakfast on the Farm on August 27.

plants. "As the industry develops, there are tools that will work in conjunction with the digester such as a phosphorus removal system. For me, that's a big deal." Farms need to have 800 milkers in order to have a full size, full-scale digester.

Along with the methane digester, another progressive approach to farming is their manure management system. They use what's called a dragline operation to spread manure without putting vehicles on the road. Liquid manure (a byproduct of the digester) from the manure lagoon is pumped through a six-inch hose that is rolled off a reel, and the liquid manure is injected under pressure into the fields. A big tractor pulls the reel, and an implement attached to the tractor drags through the soil making furrows

to inject the manure. This method of injecting manure avoids compacting the soil, reduces odor, and the potential for run off.

The Rowells live the life they want and for them job satisfaction runs high. As Tammy said, "I would not pick any other job because this has given me time with my children. I couldn't imagine doing anything else. I have had the best life, and it has been so rewarding."

To share their way of life and teach people about modern dairy farming, the Rowells are hosting Vermont Breakfast on the Farm on August 27, 2016. Tickets are free but must be reserved in advance at www.vermontbreakfastonthefarm.com. The Rowells have been Vermont Farm Bureau members since 2007. ■

WATER QUALITY... Cont'd from page 27

will be finalized next April. They are expecting that many farmers will need individual assistance and site visits. We'd like to see our members taking a leadership role in water quality, both being in compliance and helping each other understand the rules and helping each other with ideas that work. We are asking members to email Jeffrey Sanders at jsanders@uvm.edu for assistance with water quality issues on their farm, and/ or contact their local NRCS offices which is equipped to help farmers throughout the entire application process for assistance. Finally we want to hear if you are having issues, and we will personally help you.

FARM TO TABLE, FARM TO SCHOOL, FARM TO INSTITUTIONS

Vermonters receive 19 million meals a year through institutions. This market is underserved by our Vermont

farmers selling directly to these programs whenever possible. Vermont does produce a variety of food. How to meet this demand and get Vermont grown and produced foods on Vermont tables will be a continued challenge. We all can help to try to solve these logistical issues. This is about a \$100 million market. Let's supply it.

ON FARM SLAUGHTER

Every person in Vermont and in the USA may raise their own animals for their own consumption without regulation. This personal exemption has been expanded to include the person's family and non-paying guests and employees. Vermont further expanded this personal exemption, with the blessing of the USDA, three years ago. Vermont now allows a farmer to sell, while alive, up to 6000 pounds of live weight animals (excluding chickens) with various limits (5 cows, 15 pigs, 40 goats or sheep

Cont'd on page 34