Cheesemaking at Shelburne Farms

Sustainability and Education Come Together by Laura Cahners Ford

When you drive onto Shelburne Farms today you are awed by its sweeping landscapes and period architecture. What was once a private estate is now a nonprofit working farm "dedicated to educating for a sustainable future," the visitor's guide states. Expressions such as nonprofit, farm to table, education, sustainability, working landscapes, and interconnections of people to the land are bandied about a lot these days. Shelburne Farms is not a newcomer to jumping on the bandwagon to promote sustainability through stewardship and education.

The history of the farm is one of agricultural innovation. In 1886 Dr. William Seward and his wife, Lila Vanderbilt Webb, started purchasing farms along Shelburne's Lake Champlain coastline in order to "to create a model agricultural estate," according to the website. The Webbs hired renowned architect, Robert H. Robertson, and landscape architect, Frederick Law Olmstead, to design the buildings and sculpt the landscape. By the early 1900s Shelburne Farms was a model farm comprising 3,800 acres.

A large part of the estate was used to try out new agricultural methods and techniques. They produced a variety of crops—barley, corn, corn fodder, hay, oats, potatoes, rye, and wheat. There were orchards filled with apples and other fruits. There was also an extensive greenhouse of 25,000 square feet and a vegetable garden complex. The dairy itself was three buildings plus a creamery, which produced 400 pounds of butter a week, all used for estate consumption. The horse breeding operation was the largest part of the farm, and during the 1890s there were over 200 horses: trotters. Everything was on such an immense scale that to sustain it became economically unfeasible, and the estate started experiencing financial difficulties as early as the 1890s. By 1910 the family

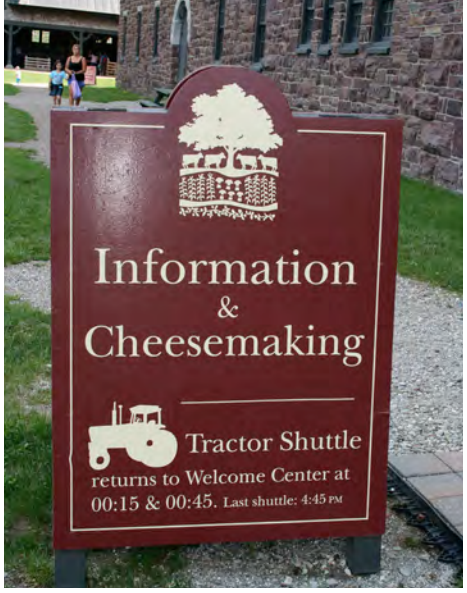
Nat Bacon, head cheese maker at Shelburne Farms in the pasture. The Farm Barn houses the The Farm's cheesemaking facility and mail order operations. It is also the hub of Shelburne Farms' education programs and nonprofit administration. It was originally constructed to house offices, workshops, farm machinery, stables, and crop storage rooms. The barn underwent a $3-million renovation to become an education center between 1990-93.

started selling off parcels of the estate.

As years passed efforts were made to make the farm more self-sustaining and diversified. In the 1970s young descendants of the original founders changed the farm's vision to encompass the present day ethic. They started their first educational program–a summer camp for urban and rural youth with a focus on environmental awareness and "a love of the land," according to *The History of Shelburne Farms A Changing Landscape, An Evolving Vision* by Erica Huyler Donnis (228). By 1972 they had established their farm as a nonprofit with an "ambitious, complex mission embraced wide-ranging ideals rooted in the environment and back-to-the-land movement, including conservation education and environmental stewardship...At the heart of their goals was the wish to become a "model to the State of Vermont and the world." Donnis (230)

The themes of sustainability and education come together in the cheesemaking enterprise and in the dairy. Not only do these entities provide financial sustenance, they also help to maintain the working landscape and provide an exceptional food product, Shelburne Farms Cheddar Cheese. As Alec Webb, the current president of Shelburne Farms, says in the video, "From Sun To Cheese," which can be viewed on the website and at the cheesemaking building, "It's what maintains the working landscape...it's what maintains these resources and provides a wonderful food for people to enjoy...it creates an amazing environment for everyone from young children to educators who are seeking to be more place-based in their educational programs."

The cycle of sun and rain falling on grass enables the soil to produce lush pastureland. The cows eat the grass and provide a high quality milk which is used to make cheese. The farm uses rotational grazing which means the cows are relocated to different pastures twice daily so they are always getting fresh food and can choose from a mixture of grasses or "pasture salad."



Shelburne Farms Cheesemakers: Zak Schafer, Sam Bevet, Delaware, Children's Farmyard milking cow, Nat Bacon, Tom Gardner and Megan Holt. Photo provided by Vera Chang, Public Relations and Marketing Director, Shelburne Farms. The cheesemaking sign welcomes visitors into the cheesemaking operation. A young visitor plays at being a cheesemaker with corks that mimic cheddar fingers and white coat to make it official. Brown swiss grazing.

As part of our tour Nat Bacon, currently head cheesemaker, took us to a pasture where cows are contently grazing. He accompanied us through the gate to show us just how gentle, docile, and friendly these Brown Swiss are. They like being touched and scratched, especially behind the ears. The Brown Swiss herd at the farm today is descended from the one started by Derick Webb in 1947. Bacon explained how this breed was picked originally for its superior "milk, meat, and draft power. They have good feet and legs for climbing hills and going through pastures for grazing." And as it says in the video, they also live long, are hardy, and have the ability to convert foraged grass into high quality milk high in butterfat and protein which is good for cheesemaking.

Also in the video you get to see them form a line and walk to the gate at milking times. Their lumbering gait shows they are content, have had plenty to eat, and have the right amount of grazing space.

After mingling with these gentle animals, we toured the dairy where "modern, restful and healthful practices... have enabled it to be certified humane by the Humane Farm Animal Care (HFAC) Organization of Herndon, Virginal." (video) The dairy at Shelburne farms is the only dairy in the state to achieve this certification. It means that the cows and all farm animals are humanely treated from birth to slaughter. "The goal of the program is to improve the lives of farm animals by driving consumer demand for kinder and more responsible farm animal practices." (website) This certification requires that animals have enough space, shelter, and gentle handling to reduce stress. They must have ample fresh water and a healthy diet that is antibiotic and hormone free. Cages, crates, and tie stalls are not allowed.

As we walked around the dairy, Nat said currently there are approximately 100 heifers and about 20-25 beef brood cows. The dairy itself has two free stall barns, one built in the 1950s similar to a pole barn with open sides, and a newer hoop style one. There is also a calf barn where the calves stay when they are born. They get their milk from the dairy herd through nipple feeders, buckets with long rubber nipples protruding from their sides, until fully weaned at about two to three months. As Nat said, "The infants need TLC, and there is no need for them to compete for food." After weaning, they go to group pens with four to five calves and then onto larger groups. Eventually they are put in with the whole herd. "We strive for healthy, contented cows through the building blocks which lower stress: good nutrition, clean dry bedding, good air ventilation, and light."

The milking parlor, which was built in 1995, "is a double-16, mid-line swingover design. It allows virtually uninterrupted milking, with 16 cows lining up on each side of the pit. Two people milk about 80 cows an hour. We take extra time to prep cows to ensure the highest quality milk for our cheese." (website) Each cow produces about 50 pounds of milk a day for ten months.

The dairy epitomizes the farm's farm to table and education ethic. The website puts it succinctly: "Our goal is to be a diversified, organic farm that supports a healthy local food system and creates and inspiring learning environment."

Along with the humane certification, the farm uses the IFOAM (International Federation of Organic Agriculture Movements) definition of organic agriculture. This is an internationally recognized system that emphasizes soil health, ecosystems, and people. The farm strives to operate economically and environmentally sustainable agriculture enterprises while integrating farm practices with educational programs.

While Nat gave us the Cook's tour, we learned a little about his history. Originally from the Boston area, he had worked on an organic vegetable farm in NY and helped out the little dairy next door where he "got the farming bug...being a city kid, the farm always seemed mysterious. I wanted to know what happened to the milk."

Bacon graduated from UVM in 1997 with a degree in sustainable agriculture. While still an undergrad, he got his first exposure to Shelburne Farms as an apprentice cheesemaker in the summers. Following graduation, Bacon worked a few years in the Shelburne Farms dairy where he climbed the job ladder from milker to herdsman ending up as assistant manager. Then he left the farm for a while to work on farms in Chittenden and Addison County. He also worked as a consultant to Champlain Valley Crop Management and NOFA (Northeast Organic Farming Association) where he helped to develop and execute nutrient management plans. By 2005 he was back at Shelburne Farms as the assistant dairy manager in charge of the calves and pasture rotation, doing whatever needed to get done. He had worked in the dairy for a total of seven years when his first child was born, and 4 a.m. wake-ups were no longer doable. Being interested in all aspects of the farm he moved from the dairy to become, once again a cheesemaker. "It sounded interesting to become an assistant head cheesemaker. I also liked the idea of being involved with marketing, the budget—the whole business aspect."

Back at the farm barn, we watched cheesemakers at work while learning more about how their farmstead cheddar is made (farmstead just means made on the farm). The process starts with an early morning milk delivery of 5,000 to 6,000 pounds from the dairy. The Brown Swiss milk gives the cheese its "terroir" or taste of place. As we watched this process through large viewing windows, the milk is heated in a big cheesemaking vat, and then the bacteria were added. The bacteria begin the ripening process and help to produce its distinctive cheddar flavor once it is aged.

"Cheesemaking is a magical process, a balancing act of art working in tandem with science." (video) We got a feel for this as we watched the addition of rennet which thickens the milk to consistency similar to soft tofu. As it thickened, the maker dragged a cheese rake back and forth across the milk to separate the curds from the whey. The whey is eventually drained off into an underground tank and used to feed the market garden pigs. The curd, which is the remaining butterfat and solids, is closely monitored for temperature and ph.

"This is a crucial stage in the making of great cheese" (video) as the acidity and temperature determine the unique taste of Shelburne farms cheese as it ages. The curds are firmed up into slabs, turned and stacked several times—this is called the cheddaring. After cheddaring the slabs go through a mill to cut them into fingers, chunks about the size of a finger. "The fingers maximize the area for salting which retards or inhibits the starter culture." The fingers go into metal forms, hoops, which look like rectangular buckets. They sit, covered, overnight in order to drain off the rest of the whey.

By the next morning they have become solid, 40 to 50 pound blocks of cheese ready to age. Most of these blocks are boxed and stored in specially built coolers that are plain block buildings insulated with fiberglass. Two coolers are next to the farm barn, and two are adjacent to the dairy. Here they are left to age from six months to three years. Two hundred and sixty thousand pounds of cheese are distributed among these four coolers. Small amounts of the cheese are wrapped with cheesecloth that has been dipped in lard from the farms' own pigs, and these go to the state-of-the-art underground facility at Jasper Hill in Hardwick where they age for about a year.

The dairy and cheesemaking offer many educational opportunities. Nearly 10,000 children pass through Shelburne Farms a year. A good portion of these pass through the dairy and the cheese operation where they can view ongoing production from mid May to mid October. Dairy visits take children though the milking parlor, calving barn, feed alley, and manure pit. They get to milk a cow, turn cream to butter. They learn about sustainable farming and the working landscape.

During the summer there are Sun To Cheese tours once a month through October. These offer "a behind the scenes look at dairy farming and cheesemaking" (see Shelburne Farms summer calendar online www.shelburnefarms.org/). The Vermont Cheesemakers Festival in July has an open market of local

Left to right: A cheesemaker at work. The cheesemaking operation has a viewing window to observe the process. The dairy barn. Nat scratching one of the Brown Swiss in the pasture. Cows are relocated to different pastures twice daily.

artisan cheeses, food, wines, and spirits along with cooking and cheesemaking demonstrations. Other programs specifically related to cheesemaking include a Dairy Day and a three-day Pasture to Palate workshop. The Farmer for a Day program, field trips, and summer camps also incorporate the dairy and cheesemaking. The year-round programs for school children, families, educators, and adults are extensive. Many of these programs cover farm life and stewardship and encompass dairy and cheese learning experiences. Shelburne Farm also administers a Farm Based Education Network (FBEN). This is a free member network which offers workshops on how to create educational experiences on your farm.

As Vera Chang, public relations and marketing director, said, "The best part of our cheese is the story it tells: of working towards a more sustainable future through agriculture, community, and education."

Pez, a newborn calf, will be fully weaned at two to three months then moved to a group of four to five calves.