

## Drumlin Farm: Resilience through Organic Systems

**S**teve Haendler owns the land and has lived in the area his entire life. The property was a Certified Tree Farm and an organic garden for several decades, while Steve managed a welding business. Four years ago, when his welding business struggled in the economic downturn, Steve expanded his gardening into a full-time business.

**Production:** Steve and his wife have  $\frac{1}{2}$  acre intensely planted with vegetables. They also produce strawberries, blueberries, raspberries, and Christmas Trees. Business comes primarily from a CSA (Community Supported Agriculture) for which they have twenty shares. They also sell at a couple of farmers markets and have an account with a local restaurant.

### Practices

Mildred's Drumlin Farm is a Certified Naturally Grown operation, which means similar standards to organic, but less paperwork and fees.

### Climate Impacts Seen

“Of course it is all averages, but I do think it is hotter,” says Steve, who notices that winters are much milder than he remembers growing up. This past winter, 2013, was more of a typical “old time winter.” In recent years there has been less snow and cold in the winter, and spring comes earlier every year. Weather data supports this observation, as southern New Hampshire has followed a warming trend over the past century, with the largest temperature increases occurring in the winter.<sup>1</sup>

Earlier spring thaw and later frost dates mean a longer growing season. Steve notes that the average



*Steve and his wife live on the farm. Before turning gardening into a business, Steve grew produce to feed his family as a hobby.*

NH frost date for the fall is September 26, but last year there wasn't a killing frost until the third week of October. “In a way, it is kind of helpful to us. In general, you can get crops in earlier.” The growing season in Southern NH has been increasing on average between five to ten days per decade.<sup>1</sup>

However, warmer winters can lead to increased pests, as insects may overwinter or arrive earlier in the season. Steve says that they have definitely seen more bugs at Mildred's Drumlin farm, especially when there are milder winters. So far they are the same pests that they have always dealt with; potato beetles, cucumber beetles, cabbageworms, but now



---

*The word “drumlin” means little ridge. The farm is located on top of a ridge, hence the name Mildred’s Drumlin Farm.*

in greater populations. “Everyone is worried about this new stinkbug, but we haven’t seen it yet.” Steve is referring to the brown marmorated stinkbug, an invasive species that can seriously damage crops.<sup>2</sup> This pest is already a problem in the warmer Mid-Atlantic States, and has been found in a few NH towns.<sup>2</sup> Steve is also worried about the spotted wing drosophila (SWD), a fly that attacks soft fruit like strawberries and blueberries. This Asian gnat has been in NH for at least a few years<sup>3</sup> and can be devastating to berries.

Another challenge for Steve is water management. “I think rainfall is a big issue, it has been pretty dry already this summer.” As Mildred’s Drumlin Farm is on a hill, there are no problems from flooding. However, Steve does have to work hard to maintain soil moisture, especially because they experience an almost constant breeze. The wind dries out soil, exacerbating the short-term droughts that are frequent in the summer.

---

**Mildred’s Drumlin Farm is one of six Certified Naturally Grown operations in New Hampshire, and among twenty-six in New England.<sup>5</sup> The Certified Naturally Grown program is tailored to farms that sell primarily through direct marketing. It can be feasible for small farms because there is less paperwork than USDA Certified Organic.<sup>5</sup>**

---

### Response

As an organic farmer, Steve is limited to a small number of pesticides that he can use to manage insects. As a result, he relies heavily on row covers. Steve started originally covering for pest protection and to keep the plants warm, but found that the row covers also discourage deer. He continues covering all of the rows every night. It’s a labor-intensive process, but helps control damage from both deer and insects.

There are other benefits from row covers as well. Steve learned to water a recently planted row of greens and then immediately put on the row cover. This keeps the wind from drying out the soil. Once the greens start coming up, he puts up the hoops and continues covering.

To manage water in droughts, Steve uses drip irrigation. “Drip tape is great; you can direct the water right where it needs to be.” Covering with plastic prevents the soil from drying out, so less watering is needed; this translates into big savings. Drip irrigation with plastic covering also prevents water from splashing and spreading fungus. To help the soil retain moisture and build up humus content, Steve mulches with straw and applies compost. In addition, Steve is experimenting with windbreakers. “We are going to leave some of the rye grass that we use as cover crop, to see if it works as a windbreaker,” says Steve, which could further combat the drying out of his soil. Overall, after decades of organic gardening, Steve notes that soil health is improving, which is a huge plus for water management. Organic matter in soil helps retain moisture in droughts, and helps percolate water to prevent floods.<sup>4</sup>

---

## Drumlin Farm: Resilience Through Organic Systems (Continued)

Being willing to try new things is crucial for farms to adapt to any variability, be it changes in weather, ecosystems, or market conditions. Steve is certainly willing to experiment. Currently, he and his wife are trying out a mix of “good bug plants” that they ordered from a farming catalogue. This is a mix of approximately twenty species, designed to flower at different points throughout the season and attract beneficial insects (think: pollinators, and bugs that will eat other more damaging pests). The idea is to bring more biodiversity to the farm, and add another control against the influx of invasive insects. An added benefit? As Steve planted on a patch of old lawn, he now has less lawn to mow!

### Challenges:

Steve has forty years of experience as an organic gardener, but notes that his main challenge has been translating this from a hobby into a business. He rarely works with Cooperative Extension, but does attend conferences and workshops to network and get new ideas. While he says that most folks are pretty friendly, it is a very competitive business. “This is a good time to farm. Everyone is excited about healthy food and local food. But the bigger farms don’t always like it; we pick away at their monopoly.”

Steve wishes he had more land; he could then rest a section for an entire year and plant cover crops, as well as incorporate more crop rotations. He notices that this helps control pests and maintain soil. However, land here is extremely expensive. Many farmers lease, and need off-farm jobs as well. “I am lucky,” says Steve.



*Mildred's Drumlin Farm has 140 blueberry bushes.*



---

### Moderated tilling for soil health:

**One of the benefits of being a welder and a farmer is that Steve can build some of his own equipment. He built a tiller to be able to aerate the soil, without turning up as much as a conventional design, thus lowering soil erosion. The bars on the back also leave small ridges in the soil, which help block wind and prevent erosion.**

---

## Drumlin Farm: Resilience Through Organic Systems (Continued)



*As the farm is close to a wooded area, Steve has a lot of trouble keeping deer out of his produce. He has even had some bears get into the berries.*

### Resources:

- A Technical Consultancy Program offered through NOFA-NH (Northeast Organic Farming Association-New Hampshire) that Steve has found helpful: <http://nofanh.org/farmer-technical-consultancy-program/>
- Steve often attends the Fruit and Vegetable School organized each year by the University of Maine: <http://umaine.edu/highmoor/blog/tag/vegetable-and-fruit-school/>

### References:

1. Wake, C., Burakowski, E., Wilkinson, P., Hayhoe, K., Stoner, A., Keeley, C., LeBranche, J., 2014. "Climate Change in Southern New Hampshire" Climate Solutions New England. <https://climatesolutionsne.org> Accessed on June 30, 2014
2. University of New Hampshire Cooperative Extension, 2014 "Brown Marmorated Stink Bug (BMSB)" <http://extension.unh.edu/New-and-Invasive-Pests/Brown-Marmorated-Stink-Bug-BMSB> Accessed on July 10, 2014
3. University of New Hampshire Cooperative Extension, 2014 "Spotted Wing Drosophila (SWD)" <http://extension.unh.edu/New-and-Invasive-Pests/Spotted-Wing-Drosophila-SWD> Accessed on July 10, 2014
4. Natural Resources Conservation Service, 2003. "Managing Soil Organic Matter: The Key to Air and Water Quality" [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_050965.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_050965.pdf) Accessed on July 16, 2014
5. Certified Naturally Grown, 2014. <http://www.naturallygrown.org> Accessed on July 23, 2014

## Climate Change and the New England Food System Case Study Series

This case study was researched and written by UNH's 2014 Thomas W. Haas Climate Fellow, Ruby Woodside. Ruby's fellowship focused on documenting and communicating climate impacts and adaptation strategies for New England farmers and fishermen. Ruby is currently working on a Masters of Environmental Science and Policy as well as an MBA in Sustainability at Clark University. The fellowship is based at the UNH Sustainability Institute, and hosted in collaboration with Food Solutions New England (FSNE). FSNE is a regional, collaborative network organized around a single goal: to transform the New England food system into a resilient driver of healthy food, sustainable farming and fishing, and thriving communities. Learn more at [www.foodsolutionsne.org](http://www.foodsolutionsne.org).