

Digger's Mirth Collective Farm: Expansion as Response

Digger's Mirth is a collective farm located in Burlington, VT. The 5 owners farm 18 acres of land. Most of the land is leased from Intervale Center, a nonprofit that stewards 350 acres of land along the Winooski River. Digger's Mirth has farmed on this land since it began in 1992. S'ra DeSantis is one of the 5 owners and managers, and has farmed with Digger's Mirth since 2000.

Production

Digger's Mirth grows fresh produce. They harvest about 40 different vegetables, but focus on greens, carrots, and herbs. Half of all income is from greens.

Digger's Mirth sells at farmers markets, wholesale to City Market (the main grocery store in Burlington) and operates a traveling vegetable truck from which they sell produce in nearby neighborhoods. Their biggest buyer is City Market, which accounts for half of their overall market.

Practices

Digger's Mirth is a certified organic farm. Their collective business model means that all 5 owners make production and marketing decisions together, and divide all income evenly based on hours worked.

Climate Impacts Seen

"Since 2006, our fields have flooded every year but two," says S'ra, while also noting that flooding is to be expected; the Intervale is located on a floodplain. However, the farmers at Digger's Mirth notice that the floods are getting worse in both their



The most popular crops at Digger's Mirth are carrots and high quality greens.

severity and timing. In particular, timing of flood events seems more erratic. Spring flooding is to be expected, but now the farmers are dealing with floods in later summer. In 2011, Tropical Storm Irene hit the Intervale in August, causing very significant losses to Digger's Mirth and other farms in the area¹.

S'ra knows that it is difficult to directly attribute any single event to climate change. "We aren't scientists," she says, but in her experience "there is definitely an increase in flooding and severity [in the 22 years] since we have been here." Increase in extreme weather events such as floods and droughts may indeed be caused by changes in climate.

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Greater variability in streamflow is projected for New England, both in high flow events and low flow events.² This is in part due to climate forced changes in hydrological cycles,² including an increase in extreme precipitation.

Digger's Mirth has also experienced new weed species and crop diseases. In 2006 a new grass appeared after the fields flooded; the farmers believe that the seeds came in with the flood. S'ra cites a basil fungus as problematic as well. "We used to be able to grow [basil] until September, but now we can't." *Alternaria* is another fungus that attacks carrot tops, making them difficult to harvest. In terms of pests, the farmers notice some new insects such as the Swede Midge, but thus far haven't experienced significant damage from them. "It's mostly the same [pests] that we have always dealt with, the flea beetle and the potato beetle, which we know how to deal with."

Digger's Mirth was among many farms affected by Tropical Storm Irene in 2011. A total of 20,000 acres of farmland in Vermont were affected, with estimated crop loss and damage at over \$10 million.¹ Extreme weather events are projected to become more frequent in New England as a result of changes in climate.³

Response

Anticipating some flooding and extreme precipitation has always played a role in the planning for Digger's Mirth. They have long built raised beds to help with water drainage, and planted the highest fields first as floods are most likely in early season. However, in response to more severe flooding, Digger's Mirth has seriously reevaluated the location of where they plant; they have taken on new acreage and plan to put higher land that is currently marginal into production. Timing of planting is also important. S'ra says that they try to push the boundaries of when they can grow; they always plant an extra week of salad greens at the end of the season. "We never know if we will get to harvest them or not, but they are there in case we can." In addition, the farmers have learned to plant crops with a quick turn around,

such as mesclun, in their lowest fields. "It's a big crop for us, but if we lose it, we are back to having it in 3 weeks." By taking the possibility of flooding into account when determining the planting schedule, Digger's Mirth minimizes its risk of loss.

These measures may not be enough. After Irene in 2011, the farmers at Digger's Mirth bought insurance. They pay approximately \$3,000 a year for farm income insurance through the Rural Community Insurance Agency (RCIS). "The insurance is not that great," says one of the owners, "but it is nice to have because it ensures that we won't have a year where we lose money."

As far as pests and diseases? Digger's Mirth tries not to spray, but this year did spray for potato beetles. They found that getting a new field and incorporating better rotation helped control the *alternaria* on the carrots; there is now a huge decrease in the fungus. New diseases may be more difficult to deal with, and the farmers take advantage of their close proximity to the University of Vermont Cooperative Extension to ask for help when they need it. There is also a policy where they wash off shared equipment, to prevent the spread of disease and weed seeds into other farms. "I don't know how effective this is," says S'ra, "but we are doing it."

Challenges

One of the main challenges for Jordan's Farm is flooding is definitely the biggest challenge for Digger's Mirth. S'ra cites land tenure as problematic as well. They recently expanded into several more acres, but because the land is leased they don't have the security of knowing they will work on the same plot for a long period of time. This makes it difficult to implement long-term measures to improve resilience. Land tenure is related to flooding, says S'ra, as flooding is what is causing the farmers to look for new land.

Along with flooding comes the threat to public health. The farmers at Digger's Mirth say that the regulations and guidelines surrounding the safety of food after it has come into contact with floodwater are very challenging, mostly because they are unclear and inconsistent. Any produce in land submerged by river water is considered unsafe to sell. However, there are numerous instances when small volumes of river waters creep into the fields, usually through surrounding wetlands. "You can irrigate with the river water, but as soon as the river water touches your produce, you can't sell it. This

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The farmers are experimenting with alternative methods of building beds so they can avoid using a tiller.

is confusing!" says one of the owners. "With Irene it made sense, but what about smaller floods?"

On the financial side, there are many advantages of a collective business model, but it does make it challenging to carry over excess income from one

year to another. In January, the group divides up its income among the 5 workers. "Maybe a different model, like a family farm, could better save for next year," says S'ra. "If we have a bad year, we scramble." The farm usually hires the labor equivalent of 2 full time people, in addition to the 5 worker/owners. During bad years, they usually have to cut back on hours worked. Finding a way to save income during a good year could create a financial buffer for the farm during flood years.

Recommendations

Taking on more and higher land has been the best adaptation strategy for Digger's Mirth. This has allowed them to produce more consistently, and to have a safety net when the lower fields flood. What do they recommend for farmers who may not be able to expand? Stretching out the season as far as possible has been very successful, says S'ra.

Tillage practices are also incredibly important, both in managing water as well as reducing erosion. Digger's Mirth is working to optimize their tilling to make beds with the lowest impact on the soil. Heavy tilling can break up soil organic matter, which is important for well-drained soils. More organic matter means that the soil can handle heavy rains without



Every year Digger's Mirth devotes a significant portion of its acreage to cover crops. This helps regenerate soil, and control diseases.

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crusting (forming a hard "crust" on the surface layer)⁴ and will hold onto more nutrients during flood events.

Despite the challenges, farming at the Intervale has many benefits. For one, there is amazing soil. "Here, if we can get a good crop out every other year, and it floods every other year, its still better than having a crop that's a quarter as good every year." The owners all agree that staying in the Intervale area is well worth the risks.

Identified Needs and Opportunities:

The farmers at Digger's Mirth identified some areas of support that would help businesses such as theirs.

- Clear guidelines about the safety of floodwater and the produce that it comes into contact with. There need to be both clearer policies and more research.
- Support from hydrologists regarding construction of a berm. The farmer's are considering building a berm on part of their acreage to divert floodwater. They would like resources to help them design and construct this.
- Commitment to long term land leases

References:

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One of the advantages of close proximity to Burlington Vermont is easy access to markets. Digger's Mirth operates this vegetable truck, a mobile way to sell their produce.

Climate Change and the New England Food System Case Study Series

This case study was researched and written by UNHSI'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.