



# Greenbelt Farmers: Sustaining Soil Health

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# Bowman Family, Bowmanview Farm

Eric and Jenny Bowman and their family have been raising livestock all their lives on their farm near Enniskillen, east of Toronto. "We only have six inches of topsoil to work with," says Eric. "If we don't take care of it, we're done." The Bowmans believe that putting carbon back into the soil is the key and that it can be done through a systems approach. "It isn't just one thing," says Aaron. "It is everything together." That means growing cover crops, minimizing tillage and including animals. They bring in organic mushroom compost and compost their own cattle manure in piles before applying it to their fields to build soil fertility naturally.

## Farm History

Eric grew up on the 192-acre farm that his grandfather bought in 1929. He says that he always knew he wanted to be a farmer, and after graduating from the University of Guelph with an Honours Degree in Animal Science, he was determined to make it happen. He married Jennifer, a neighbour and a farm girl herself, in 1975 and they milked cows for three decades, surviving the 21 percent interest rates of the 1980s. In 2005, they switched to raising grass-fed Angus beef cattle and certified their farm as organic.



Photo courtesy of Bowman Family

Bowmanview Farms covers a total of 300 acres and was run by Eric and Jenny, but is now in succession to their son Aaron and his wife Tasha and their kids. Aaron has a Master's Degree in Crop Science and worked on the University of Guelph research farm for several years while he was a student. Truly a family affair, Bowmanview Farms doesn't employ anyone else; they rely on each other to do the work. "Whoever can work, works," says Aaron, who is also employed as an agronomist and seed dealer.





The Bowmans are on the forefront of an organic, low-till system that incorporates a cover crop to act as a mulch for weed control. Cereal rye is planted as a cover crop in the fall and terminated in late spring either by grazing, cultivation, or by using a front mounted crimper on the tractor with blades that crimp the stem of the plant and kill it mechanically. This becomes a thick mat that protects the soil and suppresses weeds. Aaron began roller crimping in 2016 and is gaining confidence by starting small and seeking the advice of others who have experimented with it in the United States.

In 2018, he grew a tremendous crop of soybeans, and he attributes the success to a few key factors. First, in the previous September, he broadcasted 100 pounds of cereal rye and 'tickled' the seed into the soil with a high-speed disc, instead of planting the rye in rows. Second, he waited until the cereal rye was well into its reproductive stage, far longer than other farmers have typically waited, before rolling it. Third, he modified his planter to have proper seeding depth and seed trench closing so that the soybeans had the best possible start.

"We did nine acres this year," says Aaron. "And it is at the back of the farm where no one can see it driving by," he laughs. He doesn't recommend that farmers try this system on large acres but believes it will work well for smaller organic farms going forward. For them, the labour saving is key. "We planted that field on June 3 and didn't touch it until we harvested," he says.

"Do what is right for the soil, with the system and equipment that you have," Aaron advises farmers. As an agronomist, he works with both organic and conventional farmers and he believes that both have their place and can benefit the soil. "We have drawn a line in the sand between the two systems, and there really shouldn't be one," he says.

To Eric, another benefit and indicator of soil health is clean water leaving their farm. He doesn't want to see soil erosion and muddy water so a few years ago, he removed two acres from a field and created a grassed waterway to reduce erosion and improve water quality. "It creates a bit more work to mow it, reduces our workable land, and we still pay property taxes on it," says Eric. "It is good for the environment though, and I think it would be an easier sell for farmers to put these waterways in if there was some tax relief at the very least."

The Bowman family markets their beef directly to their customers, who drive to the farm to pick it up. Their customers like to see the herd and learn about how the animals were raised. The Bowman family loves to show them their farm. "I give them an experience and show them how their food is grown," says Eric. "One of the biggest problems is that people are so disconnected from their food, and it is partly our fault as farmers. We are so busy producing some of the world's safest and best food that we forget to teach the urban population what we are doing and how we accomplish our goals of soil preservation and food production."



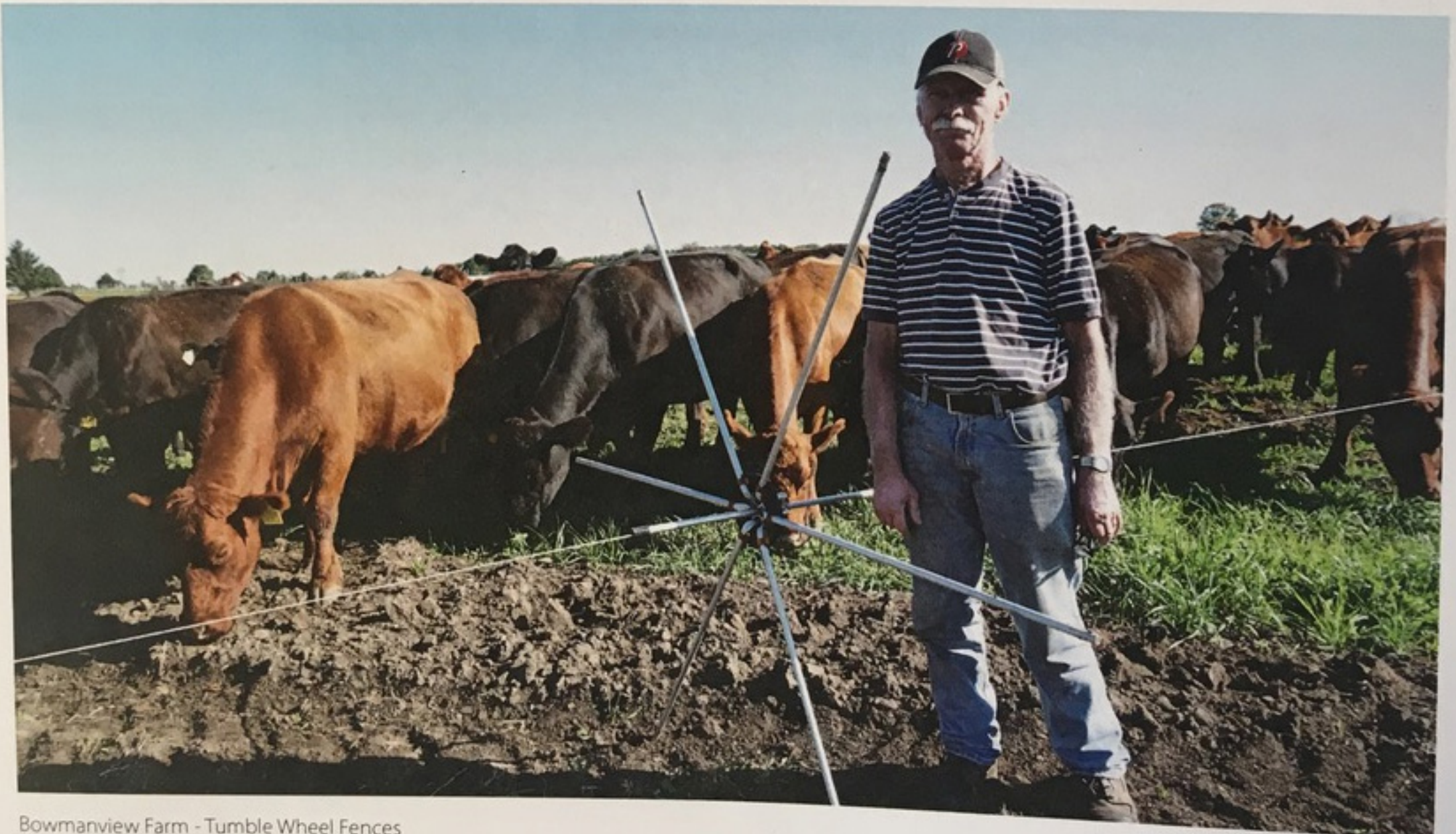
Over the years, Eric and Jenny met any challenge that came their way as a team. Jenny worked as a part time Registered ER Nurse at the Bowmanville Hospital, but also milked the cows and ran equipment. "We never got mad at the farm at the same time," Eric says. "We kept motivating each other. The trick was that I was lucky to have married a girl with the same goals as I had."

No one stays in one place too long at Bowmanview Farm. The entire family is driven to improve the farm and keep pushing the envelope by trying new things. "Our neighbour even jokes that when Jenny is tidying up the yard she will throw you in the truck that is headed for the dump if you are not moving," says Eric.

## Farming for Soil Health

The Bowman family had long worked to improve the environment by planting trees, protecting water and keeping pasture for their dairy cattle. They also paid careful attention to soil health and grew cover crops. But it wasn't until the family saw a TED talk by Allan Savory that they had their 'ah ha' moment about grazing and its link to carbon sequestration. "That blew me away," says Eric. "I now understand that we need to have split hooves on the soil."

When Eric saw Savory's talk, the Bowmans decided to make some changes on their farm, and they transitioned to high density grazing instead of letting the whole herd graze the entire pasture, selectively eating what they prefer and re-grazing an area before it has had a chance to recover. They now use portable fences to limit the herd to a smaller area, mimicking a herd on the prairie or savannah. In this system, cattle are in greater competition with each other, eat all the grasses, and trample the pasture more aggressively, before being moved to a new piece of the pasture. Aaron bought his dad a set of tumble wheel fences for Christmas one year and these have made the process of moving fences more efficient.



Bowmanview Farm - Tumble Wheel Fences



## Allan Savory and Rotational Grazing

Allan Savory is an ecologist and farmer from Zimbabwe who observed, and then demonstrated, that herd animals are the key to reversing desertification. In Africa, grazing animals of all kinds stay in tightly packed herds due to the threat of predators. When they graze, therefore, competition from the animal beside them forces them to eat unselectively, which is good for maintaining plant diversity. They also trample excess biomass and their manure into the ground and leave hoofprints. On the surface it looks like a mess, but rainwater pools in their hoofprints and germinates seeds from their dung. In effect, these animals have started the process of reviving the grasslands for when, months later, they may come back to the area. Healthier grasslands mean that more rainwater will infiltrate and wake up the soil micro-organisms, which feed the plants, just as the plants in turn feed them. Not just in arid grasslands, but all over the world, lush green fields pull carbon from the atmosphere and store it in the soil, improving the soil, water, and air quality.

This grazing technique improves the pasture and grasses grow back faster and greener. Short grazing periods with relatively high stocking density, followed by long rest periods, allow the plants to recover from grazing and pump carbon into the soil through their roots in the process. In this way, rotational grazing regenerates the soil by increasing organic matter levels and improving water infiltration. This creates a virtuous cycle, more biomass, and better daily weight gains for the animals. Some of the Bowman's fields are more than 6 percent organic matter and over the last years their soil tests have shown improvements.



The entire farm is surrounded by fences, laneways, and portable watering troughs to allow the cattle to graze fields all across their property. They graze pasture and the cover crops grown after they have harvested their organic grain crops. They even have their cattle grazing fields of standing corn. While Eric still cuts corn for silage in the winter, he loves to see the cows outside and enjoys bringing the cattle to the food instead of vice versa.

So, while soil health is important to their operation, they also do it for the labour savings. One of the issues with being an organic farmer is the amount of tillage that needs to be done to control weeds without herbicides. This often means driving a tractor up and down the field pulling a cultivator or scuffler up to six or eight times for each crop. This takes time and fuel, but disturbing the soil also releases carbon dioxide and harms soil microbes. The Bowmans do not follow this practice and are moving toward reducing tillage on their farm.



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