

MINIMUM TILLAGE AND BUILDING ORGANIC MATTER FOR LONG-TERM PRODUCTIVITY

BY: LILIAN SCHAER

In Ontario, farmers are blessed with a diversity of soils and climate conditions that allow them to grow a wide range of crops and support different types of agriculture. To varying degrees, they face common challenges related to drainage, organic matter and fertility – but also deal with conditions unique to their topography and geographic location.

This article is part of a series of profiles highlighting different Ontario farmers, their farms and soils, and how they're addressing the issue of soil health on the land in their care.

Doug Johnston farms with his brother Dave and their families in Perth County on a fifth-generation family dairy farm, milking 75 cows and cropping 1,500 acres. Succession planning is underway to bring the next generation into the farm business.



Challenges: Moving away from tillage, increasing organic matter, avoiding compaction

Soil health practices: Minimum tillage, cover crops, nutrient application, innovation

What are the biggest challenges that you face with respect to soil on your farm and how do they impact yield and productivity?

We have Harriston Clay Loam, which is great if you're patient and tile drain and don't abuse it. Don't get out there too soon in the spring or you'll compact it. I would love to no-till everything, but because we're in a colder part of Ontario, we try to do minimum till to gain a day or so. In our area, there are only a few days where conditions are perfect to let us no-till everything.

What are some of your practices to promote soil health?

NO-TILL

It started when I wanted to no-till wheat and I had to prove to my dad that it worked. I would love to no-till everything, but because we're in a colder part of Ontario, we try to do minimum till to gain a day or so. We transitioned into disc ripping or minimum tillage and for the last 15 to 17 years, we have been doing vertical tillage on the majority of our farms. I may not get top yields, but more economical yields than my neighbours.

NUTRIENT APPLICATION

In the last five to seven years, it's become our standard practice to have winter wheat, followed by cover crop and manure. We try for two different types of manure on every acre, whether animal source or biosolids. My goal is to give the soil different sources of nutrients. We have manure from the dairy cows, we've also used pig and chicken manure and we've brought in green bin compost. We're always looking for options.

COVER CROPS

We have been working with the same agronomist for 20 years. We use a multi-species cover crop mix that we fine-tune every year based on the type of manure we'll get and what the farm needs. Oats, radish and peas are standard; we add other species like turnip, clovers, rye grass and vetch, and we always put sunflowers in it.

ROTATION

For the last 12 years, we have had a tight rotation of corn to soy to wheat and cover crop to corn or summer seed alfalfa. We never plant back to back crops and we soil test in August after wheat every year so that every field is tested every three years. Our organic matter has gone from 2.5 to 3 and is approaching 4 on most farms now.



What is the most important change that you have made on your farm with respect to soil health? Or the one that has had the biggest impact?

We sold the plow and I'm not tempted to go back. I see way too many people go away from plowing and then going back again, but I'm determined to make this work. I like the benefits and the kids have no problem not plowing. I also think our fields are smoother and firmer than plowed fields.

We also consistently summer seed alfalfa. When we used to put in oats and take cover crop off with first cut, we spent the whole summer haying and had no family time. Now, we do the same number of acres in two days and we have no trouble getting everybody to pitch in and help for a couple of days.



What advice would you have for other farmers with respect to soil health?

Don't do what you've always done. Have a good reason to do what you do, but don't be afraid to step outside the box and do something different. I may not get the top yields in the neighbourhood, but we're trying to make sure the sixth generation has a good base from which to develop this ongoing operation more. Most of it starts with the soil and I treat rented soil as if it is my own.

Give it time. It takes time to make change and we're determined to make this farm go on. It's neat that the kids have picked up on minimum or no-till and that they're recognizing what we're doing by not plowing.