



BRINGING HEALTH BACK TO EXHAUSTED SOIL

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 is one of a series of profiles highlighting Ontario farmers and how they're addressing soil health on the land in their care.

Scott Mabury farms in Northumberland County, where he owns 300 acres and rents two additional 50-acre farms. He grows crops in a four-crop rotation of corn, winter wheat, adzuki beans and canola, as well as hay.

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

I bought my farm in 2000. It had been farmed traditionally for decades, including many years in tobacco production before 1975 and 50 to 60 years of very heavy plowing and cultivation. It had a lot of sandy knolls, low organic matter and relatively low productivity. The first thing I did was put it into hay for four years with an alfalfa mix to give it a rest and start the conversion. One of the benefits is that the land we bought 20 years ago is in the same topographical zone as a farm next door that I started renting three years ago so I can compare the two farms. The soils originally started out the same and were farmed in the same way until we purchased our farm in 2000. Since then, my soil has a little over 1% more organic matter than the new farm and the yields are 10 to 25% higher.

What are some of your practices to promote soil health?

ROTATION

The rotation includes corn, adzuki beans – if they come off early enough, I plant winter wheat, otherwise canola and then winter wheat.

COVER CROPS

Cover crop always goes on after wheat, a four-way mix of oats, clover, usually a field pea, and sunflowers. After eight years, fields go into a three grass plus alfalfa hay mix for three to four years. The plan is to have four farms, one for each crop, and a fifth that is in the hay cycle.

NO-TILL

I'm entirely no-till, which I've been doing on the home farm since 2007.

SOIL SAMPLING

I do detailed soil sampling analysis by the acre after winter wheat every three to four years.



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?

The complete shift from conventional tillage in pure sand. On the home farm, the yield is 10 to 25% better now and it's financially sound: 175 bushell/acre corn, almost 100 bushels/acre wheat, 1,900 pound/acre adzuki beans and 1 ton/acre canola. The goal is for those other farms to get to the same level as my home farm.

For nine years I have had a joint compost project with Christine Brown (Field Crop Sustainability Specialist with Ontario Ministry of Agriculture, Food and Rural Affairs) on the home farm that uses green bin compost treatments from Durham Region. The compost has made a difference in yield that has been dramatic in corn, and with more modest yield boosts in winter wheat and beans.

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

Think long term. If your soil is resilient, you are less a victim of circumstance, like terrible weather. I lost a wheat crop on one of the new farms with the played out soil in 2019 but had 84 bushels per acre on my home farm. That kind of resilient system reduces stress and pressure.