

A Way to Stop the Decline of Soil Organic Matter

by Ralph C. Martin

“Where there is a way, there is a will.

Give players a chance to do it right and they will.”

Ken Dryden

In Ontario, based on 12,000 to 23,000 annual samples from the SGS Agri-Food Labs, from 2002 to 2016, soil organic matter (SOM), on average, declined from just under 4.3% to below 4.1%. The data were compiled by Chris Brown of OMAFRA.

It was concerning to see in the same report that Lambton County, in 1957, had an average SOM level of 7.14%, whereas the average level of the last 15 years was 4.16%. That’s a drop of 3 percentage points in about half a century; speeding downhill, in soil time.

Our home farm was on the border of Waterloo and Wellington counties. I took it personally when Brown said the average SOM level in Waterloo-Wellington was above 5% in 2002 and by 2016, had dipped to less than 4%, below the provincial average.

I appreciate that some Ontario farmers are doing an excellent job of arresting SOM decline and in fact are on the long, slow, upward climb. Nevertheless, according to AAFC data presented to the Ontario Soil Health Working Group, SOM levels are now decreasing on 82% of Ontario farmland.

My farmer-researcher colleague and a committed cover cropper, Woody Van Arkel, notes that it is much tougher to increase SOM than to lose it, so at the very least we should manage crops in order to stop losing SOM. SOM undergirds productive capacity, especially in bad weather years.

Another disturbing number, is that over half (54%) of Ontario farmland currently has an erosion risk that is too high. It takes 200 to 1000 years to form 2.5 cm of soil with natural processes. This is a renewal rate of 0.3 to 2 t/ha/year, while soil is disappearing faster than that, on many fields.

My long suffering students over the last 28 years have had to memorize the gospel according to Martin; ‘keep your soil covered.’ Today, across Ontario, only 1 in 5 acres of cropland have high to very high cover (i.e. more than 300 days covered). When bare ground is pounded by rain, it erodes and loses SOM.

Beneficial management practices (BMPs) are important but it is crucial to adopt them in appropriate combinations for each specific field, in a persistent manner. It is not enough to promote putative practices, especially if they are only done when it suits or in response to temporary incentives for one BMP at a time.

We need the ongoing attention of all operators and all owners of farmland in Ontario. Part of the problem is that owners increasingly rent their land to operators or consolidators of large land bases, who spread costs over more acres, with just 2 or 3 crops, and then accept the collateral damage of declining SOM levels.

In order to stop the decline of SOM, it is time to link SOM levels to farm property taxes. The outcome needed on Ontario farmland is to stop the decline of SOM levels and then to improve SOM levels.

Now farmers pay a preferred property tax rate because they are farming. Fair enough, but to be more fair, those who have good to very good levels of SOM or who are increasing their SOM levels should pay even less property tax. They are investing in the foundation of food production.

On the other hand, land owners with SOM levels that are poor or declining should reasonably pay more property tax. If that were the case, they would make sure their rental agreements required good soil management to prevent SOM losses.

I understand that municipalities should not be hit with less revenue. The provincial government can underwrite a property tax program, adjusted to SOM levels. All citizens, now and in the future, deserve a system that will ensure proper soil management and increasing SOM levels, in all parts of Ontario. Our civil servants and government can make it happen if they put their minds to it.

The tangible action is to measure SOM with a consistent scientific protocol in every Ontario field, every 5 years. This data base and some math will make property tax adjustments possible. Let's design for the outcome of SOM levels that we need.

Farmers are clever and adaptable. With research and peer support programs they will figure out how to improve SOM levels and reduce their taxes. Like Ken Dryden's hockey players on a level ice sheet with a chance to do it right, Ontario farmers given a chance on a level field, will also do it right. "Where there is a way, there is a will."

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