PRODUCTION

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Citizen scientists explore the roots of soil health

A Soil Health Coalition pilot project is training volunteers in how to collect and assess soil health data

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Sarah Hines of Hamilton, left, and Wolf Chrapko, right, prepare soil carbon samples to be transferred into containers marking either a 15 cm depth or a 30 cm depth as part of the Soil Health Coalition program.

Hillsburgh - Wolf Chrapko carefully rolls out a soil core sample onto a cream colour canvas in the middle of an Everdale farm field.

Chrapko is one of a dozen or so volunteer 'citizen scientists' participating in the Soil Health Coalition (SHC) pilot project looking at soil carbon and water filtration as function on the landscape and a look at soil regeneration.

"The Soil Health Coalition is unique because we're using outcome-based measurements and not offering any one approach up as a best practice over others," says Ruth Knight, SHC project coordinator. "We are looking to farmers to share what has worked in their experience. It's a farmer-driven approach with an opportunity for the community to be involved as volunteers."

The pilot project, which runs from May to October, will focus on training citizen scientists how to accurately collect and record data from a managed (worked) and unmanaged (wind row) site at each of the 27 farm sites currently in the program. Knight is optimistic that the exchange of information generated will create a solid enough baseline to secure funding for another four years.

The land being tested ranges from hay and pasture, to organic, no-till or cover crops and each plot will provide eight soil carbon samples in the pilot year and again in the fourth year. Additionally there will be a yearly water filtration test and soil density tests recorded.

Knight hastens the project is exploratory and the group will figure things out as the data is collected, measured and analysed. She anticipates there could be a lot of surprises.

"As opposed to defining a management practice this is actually gathering the knowledge of making the first measurements. these are are a reflection of how we made decisions in the past," she said. " and then going beyond that how people have significantly changed their land management incorporating these principals what kind of impact does it have?"

TOM BOWERS, research manager for Friends of the Greenbelt Foundation, said the project received a research grant from them because it concentrated around a community and aligned with their core objectives around agriculture viability in the Greenbelt.

"This kind of work helps with resiliency, helps with maintaining productivity and it's got huge environmental benefits in terms of minimizing some of the impact agriculture can have," said Bowers, adding half the Greenbelt is agricultural land. "If farming practices like this can be adopted on a large scale we can actually store more carbon.If you can start building soil carbon in half of that (Greenbelt) landscape, that's a lot in terms of climate change mitigation."

In addition Bowers is pleased to see volunteer involvement in the project, especially given the degree of separation most of Ontario residents have from food production.

"Maybe their interest is in terms of climate change, but they're going to be learning more about what it actually means to be a farmer," he said. "It's great to talk about the theory of storing more carbon in the soil, but what does that mean in reality?"

He said rather than being an armchair advocate the volunteers are out in the field learning how to test soil and understand the realities of what a farmer does in order to make money while also storing carbon.

"I think it's really important to make that connection and try and spread the word," Bowers said. "Everybody here will hopefully talk to somebody who isn't here, and spread the word about some of the things they have learned."

The pilot program is concentrated around Erin but there has already been interest from other communities in running a similar approach and the amount of knowledge sharing already taking place between farmers is heartening for Bowers.

"I think (that) is a really interesting part of the project," he said. "Formalizing knowledge sharing between participants, so interest grows beyond this initial pilot, gives us hope it will be a model that will be relevant and could be replicated in other areas and other communities."

For Chrapko, Everdale farm manager, the citizen scientist soil school has already yielded a bounty of information that is shaping the farm's management plans.

"I've got a totally different sense of what true soil health means, and I'm looking more towards resiliency of the soil," Chrapko said. "The composition of the soil, in terms of how much water and air content there are, the level of organic matter and the carbon levels which are crucial for organic matter."

Whether or not the program continues Chrapko has a new lens in which to look at the farm's annual soil tests and the tools to more accurately test and decipher the information available to her.

Chrapko said that, as a teaching farm, Everdale is driven to adapt and improve their farming methods so they can pass the most up-to-date and cutting-edge sustainable farming advice to others.

"The cutting edge of agricultural initiatives that are looking towards things like soil science, like larger ecological rehabilitation and things of that nature, it's something we (at Everdale) are passionate about," Chrapko said.

"I think we need more citizen scientist engagement in general if we're going to make a collective effort to u-turn impending climate disaster. To see the every-day engagement of our neighbours and fellow community members is a great start."