



How Healthy Is Our Soil?

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When someone says the words 'soil health,' what comes to mind? How would you define healthy soil? How do you know if your soil is healthy? Will soil tests help explain this? Soil health is becoming an increasingly interesting topic, and something worth paying attention to. Farmers, governments and scientists around the world are starting to pay more attention to our soil, and it has been said that we need to stop viewing it as only 'dirt.'

I had the privilege of attending the World Congress on Conservation Agriculture this past June in Winnipeg. It was an eye-opening and worthwhile experience for me; I had the chance to spend 3 days with other farmers, industry members and scientists from around the world. I was fascinated to learn about work being done in Iowa on issues with high saline soils, a new annual grain plant species being developed at the University of Manitoba, and how diverse farms are in Uzbekistan as a strategy to ensure family farms are profitable. But perhaps the most important thing I learned was the importance of our soil, that on a global scale, soil degradation is an under-appreciated crisis. Dr. David Montgomery, author of "Dirt: The Erosion of Civilization," said that soil is a strategic resource, and as a society, we don't talk about it nearly enough. Dr. Montgomery stated that over the past forty years, soil erosion and degradation has caused farmers around the world to abandon ~430 million hectares of arable land, which is approximately one third of all present cropland around the world. Much of this severe soil degradation and loss is occurring in the developing world where forests are being cleared, and land is only farmed for a few years and then abandoned because it isn't suited to cropping and the farming techniques are very primitive. In our own backyard soil degradation and loss may not be apparent, but is it something we should be paying attention to? Definitely.

In a 1937 letter to all of the State Governors of the United States, President Franklin D. Roosevelt wrote, "The Nation that destroys its soil destroys itself." In the letter, he urges all States to legislate programs for soil conservation in order to encourage the entire nation to take action in response to the devastation of dust storms, floods and massive crop failures in the 1930s. Legislation was put in place across the United States and Soil Conservation Districts were formed. President Roosevelt recognized the importance of soil, and across North America, including in Canada many practices changed in an effort to restore the soil. Over the past few decades, many advancements have been made in agriculture, including the adoption of reduced till and no-till on many farms, and cattlemen and forage producers have played a significant role in managing their land in a way that conserves and enhances soil health. In spite of these advancements, we are finding that there is a factor limiting production, costly inputs are needed to keep production at peak levels, and profitability on our farms is a challenge; learning about and improving soil health with a new way of thinking could be the answer to these issues.

How do you know if your soil is healthy? The first step is recognizing that soil is not an industrial commodity, and if not taken care of, it can be "used up." Soil is an ecosystem that we can learn about and work with to have healthy and productive land with minimal inputs. Work is being done by several scientists in Canada, Australia and the United States to gain a better understanding of measuring parameters of soil health that have yet to be examined. Work being done at Cornell University by Bianca Moebius-Clune has identified biological and physical factors that have never been examined before are limiting agricultural production today. The Cornell Soil Health website (<http://soilhealth.cals.cornell.edu>) states that there are three components to soil health: physical, chemical, and biological. The chemical components such as nutrients and pH have long been analyzed, but there is limited knowledge of the physical and biological components. The physical components include things like compaction and water infiltration and both are limiting factors of plant growth. The biological components are the least understood, and according to Canadian soil scientist Dr. Jill Clapperton, the biological aspect of soil health is the most important (WCCA Conference, 2014, Winnipeg). When we talk about the biological aspect, we are referring to the soil biota, which includes things such as earthworm populations, microbes, mycorrhiza fungi, nematodes, mites, protozoa, bacteria and many more things that work together to decay organic matter and take care of the cycling of macro and micro-nutrients into forms that plants can use. Healthy soil biota stabilizes soil aggregates to build a healthier soil habitat, improve the soil structure and productivity to result in healthier, more productive land and farms (http://www.rhizoterra.com/What_is_soil_health).

So what can we do to manage our land to improve our soil health, and especially focusing on the biological aspect? Some of the key techniques include some that are already practiced by Peace Country Producers. Dr. Jill Clapperton gives several tips (WCCA Conference, 2014, Winnipeg):

- Reduce or eliminate soil disturbance (tillage), as it destroys the soil habitat of the soil biota
- Increase soil organic carbon by keeping the soil covered at all times; the organic carbon in soil is feeding the soil biota which in turn feed the plants.
- Increase the diversity of species in our crop rotations and forages by seeding multiple species. Plant root diversity is very important for good soil health
- Livestock and perennials are both wonderful tools with a great potential to improve soil health and build soil when managed properly.

EVENTS

Annuals for Feed Field Tour

Oct 8, 3:00 pm
At John Prinse's near Enilda

Harvest Sunlight:

Feed the Soil with Gabe Brown
Oct 27th, 4:00 pm
Grimshaw Legion

Building Soil-Generating Land With Christine Jones
Nov 3rd, 9:30 am
Rycroft Ag Center

Peace Cattle Day
December 3rd
Fairview Market Updates, Geonomics, Bix & more!

Holistic Management Course with Don Campbell
Jan 15-17, 22-24
Location TBA

Contact Monika to RSVP
780-523-4033

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www.peacecountrybeef.ca

New methods for testing the physical and biological components of soil are being developed and labs in the US are accepting samples for testing. One test, the Haney Test, was developed by USDA soil scientist, Rick Haney. The Haney Test is designed to mimic nature's approach to soil nutrient availability (www.wardlab.com/haney) and is set up to be used to help determine fertilizer requirements. The Haney Soil Test has been found to show fertilizer rates can be reduced compared to what traditional soil tests would show, and it is all based on the biological component of the soil (The Western Producer, 08.14.14). Other tests are being developed and are now available for commercial use; there aren't any labs able to do these tests in Canada yet, but samples can be sent to American labs. PCBFA will be hosting two upcoming events that are focused on soil health and methods that Peace Country producers can implement on their operations to increase production and reduce input costs:

Harvest Sunlight: Feed the Soil with Rancher Gabe Brown of North Dakota

We are very excited to once again bring Gabe Brown up to the Peace Country! If you missed it last time, you won't want to this year! If you were in attendance for one of Gabe's talks last year, you won't want to miss this chance to get all of the questions you've pondered over the past year answered! This event will be focused on how to tie grazing and cover cropping systems together, in addition to information on how cover crops can be used in a cash crops system. There will be discussion on reducing erosion, increasing soil organic matter, managing excess nutrients, biological nitrogen fixation, increasing biodiversity, suppressing weeds and disease, managing soil moisture and improving water infiltration. We will be presenting results on projects that PCBFA and the North Peace Applied Research Association conducted this year, so there will be photos and results from trials done right here in the Peace Country!

Building Soil, Creating Land with Christine Jones

Christine Jones is an internationally renowned groundcover and soils ecologist. Jones works with landowners to implement regenerative land management practices that enhance biodiversity, maximize photosynthesis, increase soil biological activity, sequester carbon, activate soil nutrient cycles, improve water holding capacity and infiltration, increase productivity and create new topsoil.

"Organic carbon is the basic building block for all life on and in the earth. We cannot live without it. Neither can our soils. Rebuilding carbon-rich agricultural soils is the only real productive permanent solution to taking excess carbon dioxide from the atmosphere." -Christine Jones

Feed Testing

It is the right time of year to be thinking about taking some samples of your feed and sending them away for testing. Don't forget that with your PCBFA membership, you receive 2 free samples each year; you can also bring in additional samples for \$30 per sample and we can send them away for you. If you'd like to borrow a probe, we have several available to lend out to members, including silage probes. Drop in or call our Fairview or High Prairie offices to make arrangements.

It is important and well worth your time to get your feed tested so that you know what you're feeding and if extra supplementation will be required. Feed tests are especially handy if you are feeding a mixture of low and high quality feeds. For help interpreting your feed tests, call either of the PCBFA offices.

We have moved!

The PCBFA office in Fairview has moved across the GPRC Campus to a bigger office with a view! You will now find us in the Trades Instructional Building on the second floor, room TIB 229. The Trades Instructional Building is on the west side of the campus, behind the Administration Center. The easiest entrance to come through is just southwest of the entrance to the gym (directly behind and a bit north of the Administration Building), then you take a right up the stairs, and we're the corner office to the left. Feel free to stop in for a visit and a coffee anytime!

New Employee Introduction

Hello! I'm Stacy Pritchard and I will be starting Oct 6th as the Extension and ASB Coordinator. I am from rural Manitoba, where we had grain, chickens and pigs at one point or another in my childhood.

I graduated from Brandon University in 2011, while in Brandon I worked on the AAFC research farm with the beef and forage departments where I fell in love with research. I moved to Saskatchewan in 2012, where I first worked at the Western Beef Development Centre, and then transferred to the University of Saskatchewan and completed my Animal Science degree this spring. Most recently I have been working as an agronomist, and am thrilled to have the opportunity to get back to my love of livestock.

I am very excited to move to the Peace Country to work with the PCBFA! I am looking forward to learning about the region, your operations and of course getting to know all of you!



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