

Forage Facts

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The Principles of Soil Health

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How many of you at school, at college, by a parent or a mentor, have been told that we should farm in nature's image? That we should work with nature and not against it? That we should nurture it, synergize with it? Not to spray several times every year, not till every year, but to understand the natural workings of our soil? My guess is probably few of you.

Soil Health isn't a new issue. It has been known for a long time. Think of the Sahara, which was once a thriving ecosystem with grazing animals. Think

of the 5 ft of top soil reported by settlers when they came to America. We're now at a few inches in the Peace Region. Even though the principles have been known for years, our

soils are widely degraded. It's not just in Canada or US. It's everywhere. The estimate is that we are now losing about 1 percent of our topsoil every year to erosion, most of this caused by agriculture (D. R. Montgomery, *Dirt: The Erosion of Civilizations*, 2nd Ed.) In fact, some experts fear that the world will run out of usable topsoil to grow food within 60 years (<http://world.time.com/2012/12/14/what-if-the-worlds-soil-runs-out/>) How long can your operation survive without topsoil?

How can we fix soil degradation? First we need to be an observer, willing to do critical thinking. Second we need a shovel. The tools are easy. The hard

part is changing perspective. Understanding is critical.

The Five Principles of Soil Health

There are 5 principles of soil health. These 5 principles were developed by nature, over eons of time. They are the same any place in the world where the sun shines and plants grow.

1. Cover the soil
2. Reduce chemical, biological and physical stress
3. Add diversity
4. Keep a living root in the soil
5. Integrate diversity of animals

"As to methods, there maybe a million and then some, but principles are few. The man who grasps principles can successfully select his own method."

- Ralph Waldo Emerson

And we need to understand our social and ecological context.

It's easy to be so focused on the methods and tools that we forget the goal.

Learning about the methods is good. But if methods are applied without true understanding of the principles, it can be a wreck. Never forget that no-till is a tool, cover crops are a tool, grazing management is a tool – always remember the goal. Understanding the principles is the key.

Everything in nature is connected. If we want to heal our climatic issues, we need to heal our soil. Who should learn about soil health then? Everybody! If you're reading this, hand out this newsletter to your children, to your grandchildren. Do a slake test with them. Google names like Gabe Brown, Ray Archetula or Allen Williams. Come to our work-

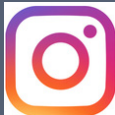
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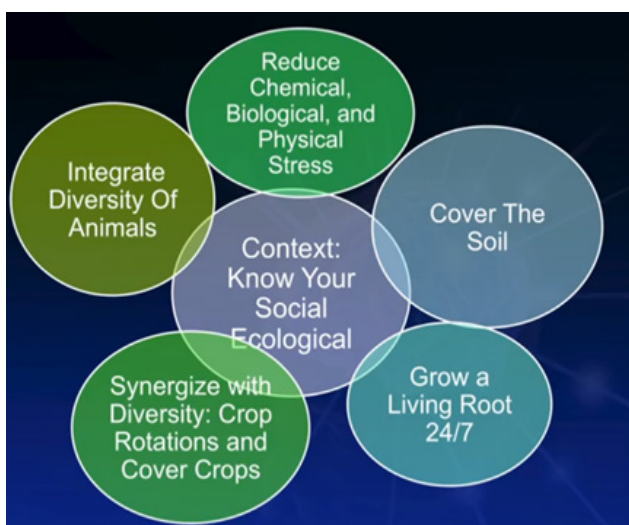
DID YOU KNOW?

Alberta is Canada's largest beef producer, with 40.1% of Canada's beef cows. The average herd size in Alberta is 228 head.

shops. I don't know about you, but I want my children to have topsoil to grow food on. You can farm without fertilizers, you can farm without herbicides. But you can't farm without a living plant. Because that's what feeds the system.

Let's apply the 5 soil health principles, understanding our contexts, and keep our farms alive!

In the next five months we are going to present each principle, one per month. My goal is that this mini-series will help you gain understanding of the principles so you can successfully select your own method. Remember, soils are meant to be resilient. Learn and understand these principles and you'll find a way to make it work.



First Principle: Cover the Soil

How many of you like going out with no jacket in the middle of winter? What about with no hat, by 35C in summer? Same thing. Soils are no different. Soils need to be covered for protection. Protection against elements, against extreme temperatures. Perennials, no-till, cover crops, are all ways to keep the ground covered.

Soil armor or cover, provides numerous benefits for cropland, rangeland, hayland, gardens, orchards, road ditches, and more. Let's take a closer look at some of the soil armor benefits:

- Controlling Wind and Water Erosion – armor protects soil from wind and/or

water as it moves across the soil surface. It holds the soil in place along with valuable soil organic matter and nutrients.

- Evaporation Rates – armor reduces the soil evaporation rates, keeping more moisture available for plant use.
- Soil Temperatures – armor helps soils maintain a more moderate range of

soil temperatures, keeping soil warmer in cold weather, and cooler in hot weather. Like us, the soil food web functions best when soil temperatures are moderate.

- Compaction – rainfall on bare soils is one cause of soil compaction. When rainfall hits

the armor instead of bare soil, much of the raindrop energy is dissipated.

- Suppresses Weed Growth – limits the amount of sunlight available to weed seedlings.
- Habitat – provides a protective habitat for the soil food web's surface dwellers

At-Home Soil Test

If you've been to our Field Day or our Soil Health Schools last year you've likely seen it. A slake test is a simple yet very powerful test anybody can do at home. The Slake test compares two chunks of topsoil in water to see how well and how long they will hold together. Here are the steps.

1. Collect a chunk of topsoil—a size that would fit in your hand—from an area where

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you don't till, like a fencerow, or a field you've no-tilled or had in perennials for many years.

2. Get a second spade-full or chunk of soil from a field you've tilled consistently. It should be the same soil type as the first sample.

3. Find two clear glass jars, with openings large enough to hold the chunks of soil.

4. Put together some type of wire mesh that you can hook at the top of each jar that will allow the soil to be submerged in the water, yet be held within the top half of the jar.

5. Insert the wire meshes into each jar.

6. Fill the jars with water.

7. At the same time, submerge the tilled sample in one jar, and the untilled sample in the other.

Watch to see which soil holds together and which one falls apart. The soil with poor

structure is the one that will begin to fall apart, meaning it has less of the natural glues that hold soil together and protect it against erosion.

Now you can picture what happens to your soil when it rains. We want to keep our soil on our farm, we want it to hold together. Because that's the only way you can grow any plant on it, therefore survive as a farmer. Let's apply the 5 soil health principles, understanding our contexts, and keep our farms alive!



Soil Health School, High Prairie, Aug 14th 2018 L-R: Soil from a monoculture grain rotation, soil from a first year multi-species cocktail cover crop, soil from 3rd year perennial stand.

Notice of Special General Meeting

Please be advised that PCBFA will be holding a Special General Meeting at 4:30pm on Friday, August 23rd at the Rycroft Ag Events Centre, before the Cattle Market Outlook Evening.

All members will have received a written notice by mail. If you did not receive a notice, or would like more information, please visit our website at peacecountrybeef.ca/special-meeting, or call Liisa at 780-523-0443.



Upcoming Events

Event	Date	Location
WheatStalk	August 8th 9:00am - 2:30pm	Lyons Production Services Events Center, Teepee Creek
Cattle Market Outlook Evening & Special General Meeting	August 23rd 4:30pm Special Meeting 5:00pm Registration 5:30pm Event Start	Rycroft Ag Events Center
Tough Enough to Talk About It - Mental Health in Agriculture	Septmber 10th	Grande Prairie
Low Stress Cattle Handling with Dylan Biggs	September 14-15th	Grimshaw

For More Information or to Register for any of These Great Events, Visit peacecountrybeef.ca/upcoming-events
Email info@pcbfa.ca or Call 780-835-6799 ext. 3

IT'S
A BOY!



Congratulations to Monika, Mike & Big Brother Carter on the birth of Jared Henry Benoit on July 3rd! He was 7lbs, 6oz. All are happy & healthy!

Connect with Us!

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