

Forage Facts

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To Till or Not to Till?

By: Kaitlin McLachlan

Recently, we have been very fortunate to play host to many great soil health experts: Jay Fuhrer, Nicole Masters, Dr. Yamily Zavala, and countless more who spoke at the Soil Health Conference in Edmonton this past December. With encouragement from our board and great enthusiasm from membership, we are pleased to have soil health as one of our main focuses moving forward.

This year, the very dry, then very wet weather has posed some unique challenges. We have been getting calls about various weed issues in old pasture and hay stands as well as compaction issues due to travelling on the wet ground trying to get hay off. Traditionally, when dealing with worn-out pastures and hay stands, we pull out the trusty plow and fly at it. 'Renovating' a field is a costly and time consuming process. Furthermore, tilling a field may actually intensify weed and compaction issues!

From our past soil health workshops, we have heard time and time again to leave the tillage equipment parked. But why? Tillage has been a go-to solution for years.

One of the main reasons that we are being advised to mitigate tillage is because it causes soil compaction. Soil compaction occurs when soil particles are pressed together, reducing pore spaces between them. This reduction in pore spaces makes fewer channels for water and air to get through the soil. The lack of large pore spaces means that water is not able to move through the soil



Photo via: shutterstock.com

properly. Instead, soils become saturated and excess water will sit on top or run-off. Due to the compression of soil particles, we are also changing the structure of our soil. Compaction makes the ground hard and instead of nice, granular aggregates, the soil aggregates turn to hard lumps. This makes it extremely difficult for plant roots to venture deep into the soil to seek water and nutrients.

There are three main causes of soil compaction: wheel traffic, minimal crop rotation, and tillage. Tillage is unique in that it can be responsible for both surface and subsoil compaction.

Surface compaction is primarily caused by wheel traffic, however, tillage is also a major secondary cause. Tillage studies conducted in clay soils in Wisconsin involved a 10 year corn tillage study. They found that discing the field every spring led to the highest compaction readings of the options tested. A hardpan at the 4 inch depth was hard enough to be impenetrable to plant roots.

Subsoil compaction, as illustrated in



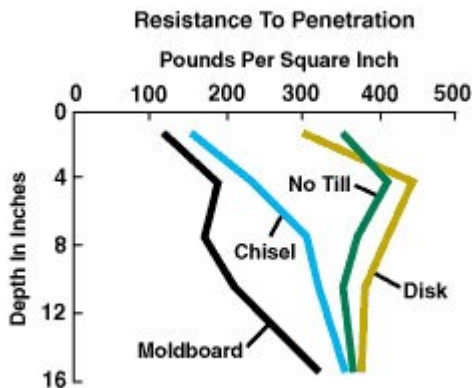
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With a PCBFA membership, you are eligible for 2 free feed samples a year! Get your samples in at a PCBFA office today!



the above graph, can be attributed more to deep tillage practices. Subsoiling is also noted as a major contributor to



Soil compaction due to disk, moldboard plow, chisel plow and no-till equipment. Photo via: extension.umn.edu

subsoil compaction. But why should we be concerned about soil compaction over 10 inches below the surface? Subsoil compaction shows up especially in wet years. Saturated soils facing subsoil compaction will not drain due to the lack of deep pore spaces. Saturated soils could result in an anaerobic root environment, causing root rot and limited nutrient uptake.

Simply put, compaction can affect:

- Water availability to roots
- Nitrogen and Potassium uptake
- Plant growth and yield

There are theories that we do not have compaction here in the Peace due to the freeze-thaw cycles. However, studies have shown that after nine years of cropping and annual freezing and thawing, there was no removal of compacted soil at the bottom of a plow furrow (Voorhees, 1983). This evidence, paired with the larger equipment that we run now, compaction is indeed an issue.

During our past soil health workshops with Nicole Masters and Jay Fuhrer, we learned that weeds can be seen as symptoms of soil issues. Some are nutrient related, but many are related to compaction. By alleviating compaction issues we can also alleviate some of our weed issues.

So what can we do? Reducing the amount of tillage and wheel traffic we are imposing on the land can help to decrease compaction. Also, studies have shown that practices such as rotational and mob grazing can help to boost grass production. Proper grazing can not only boost above ground production, but also root production. Over time, root action will eventually break up soil compaction.

Certain plant species have root systems that can help to decrease the effects of compaction. Tillage radishes are noted for their deep reaching, strong roots that are capable of growing through compacted soils and creating pore spaces. Tillage radishes are a short season annual and grow best when planted late in the summer.

Cocktail cover crops are also a potential solution for adding carbon to the soil and loosening up hard soil layers. Choose a variety of species with a variety of tap roots and fibrous root which helps to break up hard soil aggregates.

For many of PCBFA's research projects, we have been measuring the attributes of the soils the projects are on, including compaction and water infiltration. Watch for data in our annual report, which will be coming out at our AGM in February. We still have a lot to learn, but we are starting to understand more about our Peace Country soils!

Thank-You to the PCBFA Board of Directors

Jordan Barnfield
Thomas Claydon
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Joyleen Beamish

Have Project or Workshop Ideas?

We are always looking for ideas!
Give us a call!

PCBFA Member Perks

- Two Free Feed Tests/Year
- Ration Balancing Assistance
- Growing Forward 2 Assistance
- Environmental Farm Plans
- Scale & Tag Reader available for member use
- Soil & Livestock Water Quality Testing

Thank-You to our Municipal Partners

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New Growing Forward 2 Program: Accelerating Agricultural Innovation



By: Jen Allen

Since some great projects were arising that were beneficial to the Alberta agriculture industry, but were not eligible under any other current Growing Forward 2 (GF2) programs, GF2 decided to establish a new program called the "Accelerating Agricultural Innovation Program." The purpose of the Accelerating Agricultural Innovation Program is to encourage investment in the demonstration, commercialization and adoption of innovative products, practices and processes that have the likelihood to provide sector wide Impact on the agriculture, agri-food and/or agri-product sectors.

There are two separate program streams available under the Accelerating Agricultural Innovation Program: Stream A: Collaborating Innovation and Stream B: Implementing Innovation.

The Collaborating Innovation Stream is aimed towards Agricultural Groups who are registered under the Societies Act, Industry Organizations, Producer Groups, and other non-profit entities operating within Alberta. This Stream will help such non-profit organizations with the "capital and non-capital costs for advancing the Sector-Wide Impact of agriculture innovation and collaboration through proof-of-concept and commercialization" of new products, processes or business practices in Alberta^(GF2, 2016). Depending on the activity, eligible applicants could receive funding to cover capital costs up to 70%, and non-capital costs up to 90%.

The Implementing Innovation Stream is geared more towards Primary Producers, Agri-Processors (including Food Processors, Bio Industrial Processors, and Agri-Based Product Processors), and other for-profit legal organizations working within Alberta. Through this Stream, for-profit organizations can receive funding for capital and non-capital expenses of "becoming Early Adopters of new technologies or practices that have the potential for Sector-Wide impact as well as supporting the demonstration or adaptation of sector-impacting technical innovations within their operations ^(GF2, 2016). Depending of the activity, eligible applicants may receive funding for capital costs up to 60%, and non-capital costs up to 80%.

Depending on the Program Stream (A or B) and the type

of project pursued, applicants are eligible to receive up to \$1,000,000 in project funding.

To apply for this program funding, applicants must submit a Letter of Intent by October 5, 2016 at 12:00 PM that includes a filled out Application Form, and a copy of a completed business case or feasibility study for the project. All projects must also be completed by February 1, 2018. Applications will be reviewed using a competitive system, so it is important to double check to make sure all requirements on the program application form are completed properly, as incomplete applications will be rejected and not assessed. ^(GF2, GoA)

PCBFA would be happy to assist you in completing any GF2 Applications, just give us a call!

Director's Corner with John Prinse

Hi everyone, my name is John Prinse. My farm is located in the High Prairie area, where we have rich, black soil on my land with being so close to the lake. Here I run a cow/calf and backgrounding operation. I have been involved with the PCBFA for a while now and have been on the Board of Directors for the past 2 years. I have tremendously enjoyed being a Director and being a part of the PCBFA community. Since being involved with PCBFA, I have learned a lot and have been able to take what I have learned and apply it to my own farm. I have fenced off my riparian areas, where I am seeing positive results in revegetation. I have also implemented a paddock grazing system into my operation, where I run 30 paddocks total. I have started to see the benefits that paddock grazing provides, such as healthier soil and soil carbon, healthier grass, and healthier cows. The cows are always eager to get through that gate into the next paddock and get on the fresh grass, which eliminates over grazing. I also have solar watering systems out at the paddocks. From information provided by PCBFA I have also learned to nicely divide my risks in feed. I have diversified my feed options and introduced alternatives to hay by using corn and swath grazing and cocktail cover crops. PCBFA puts on great events and workshops where we are able to get good information and has helped me broaden my horizons. I am glad to be on the Board with friendly group of people and staff members.

Watering Systems Tour

Looking to install a new watering system or to enhance your current one?

Join us to learn about innovative watering systems!



Date: *Friday Sept. 9th, 2016*

Time: *9:30am registration*

Meet at: *High Prairie Ag Society*

Cost: *Free*

Lunch & refreshments will be provided

Tour will include visiting project sites with unique watering challenges

With special guest speaker:

Marvin Jackson of Sundog Solar!

Beaver Workshops

Date: Mid-October

Location: One each in the East Peace & West Peace

Stay Tuned for More Details!

Thank You to our Corporate Sponsors



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Cattle Market Outlook Evening with Brian Perillat of Canfax



As the Manager and Senior Analyst at Canfax, Brian ensures Canfax maintains accurate and relevant market information, as well as provides and oversees market analysis provided for its members and the industry. Canfax maintains its independence as a third party source of unbiased market information.

Date: Monday, September 19th

Time: 5:30pm Registration, 6pm Start

Where: Teepee Creek Hall

Cost: \$10/Member

\$20/Non-Member

Supper Provided

For more Information or to Register for any of these great events, Call the Fairview office at 780-835-6799

or email Jen at

jallen@gprc.ab.ca

or Kaitlin at

kmclachlan@gprc.ab.ca

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