



News, Soil Health & Events

By: PCBFA Staff

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FOR
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Our New Cropping Program!

The goal of this new program is to fill an extension gap that has become prevalent in the Central Peace region. We will be extending this new program to grain producers in areas not already receiving crops applied research and extension, including; MD of Fairview, Clear Hills County, MD of Peace, Saddle Hills County, MD of Spirit River, and Birch Hills County. Our cropping program will be administered out of the Fairview Office by our new Crop Program Coordinator, Kaitlin McLachlan, and any small plot research will be done at the MD of Fairview Research Farm near the Fairview Airport. We are also going to be partnering with other organizations and experts in the region such as NPARA out of Manning and Calvin Yoder as we develop and administer the program.

As the cropping program is in the developing stages, there will be a large focus on extension events to reach our area grain, oilseed & pulse growers. Currently in the works are; a sprayer technology workshop, a controlled traffic farming workshop, and a crop production series workshop that will include information on pests, pea standability, and more! Much of the programming will complement work that PCBFA already has underway, such as trials to improve soil health.

The coming year will be very exciting for PCBFA, and we are looking forward to developing our cropping program! We are actively seeking producer input and suggestions, so if you have any ideas please contact Kaitlin at (780) 835-6799, or kmclachlan@gprc.ab.ca

Employee Introduction!

Hi everyone! I'm baaaaack!

For those who don't know me, I'm Kaitlin McLachlan and I am the new Crop Program Coordinator with PCBFA! I was a summer technician with PCBFA the summer of 2012, and I am very excited to be back on the team.

Since my summer with PCBFA, I have completed my diploma in Agri-Business majoring in agricultural marketing from Lakeland College in Vermilion. I worked at AFSC as an Insurance summer student, and was working with AFSC insurance and lending product lines for the past 7 months. I am also currently farming with my mom Val and brother Allan on our family ranch south of Fairview near Dunvegan, where we run a cow/calf and backgrounding operation.

I have a passion for the agriculture industry, the Peace Region, and all it has to offer. I am excited to get going with PCBFA's new crop program and help our local producers get the most out of their resources. Feel free to stop by the Fairview office and chat or give me a shout!



Interpreting Your Feed Test

Winter is here. With the arrival of frigid temperatures, thoughts turn to winter feeding and to feed quality. With your membership to PCBFA, you receive 2 FREE feed tests, but what do the results mean?

| Cow Feeding Ration Rules of Thumb | | |
|-----------------------------------|--------------|--------------|
| Animal Type | Energy (TDN) | Protein (CP) |
| Mid Gestation | 55 | 7 |
| Late Gestation | 60 | 9 |
| After Calving | 65 | 11 |

When reading your feed test, look at the "Dry Matter" values, these values have the moisture of the feed factored out, so you can compare feed types, from silage to hay to grain.

The most important numbers to look at on your feed test are the "Crude Protein – CP" and "Total Digestible Nutrients – TDN". These values will tell you the protein and energy level of your feed, respectively.

A good rule of thumb to remember is for every degree drop below -20°C, a cow's energy requirements increase by 2%. Monitoring Body Condition during the winter months is very important, as with decreasing temperatures, and advancing pregnancy, the energy in the feed we provide can easily be used up by the cow to keep herself warm and by the growing calf. This can result in thin cows who may not cycle as quickly after calving because she is putting energy towards building condition instead of reproduction.

Other aspects of your feed test including the Calcium to Phosphorus Ratio (C:P) and minerals like magnesium (Mg) and potassium (K) are also worth looking at. Your Ca:P ratio should be between 2:1 and 7:1. Ca:P and other mineral requirements can be addressed by using commercial mineral or with feed blends.

For more information on feed testing and developing a winter feeding program, contact us here at PCBFA and we would be happy to help you. Agri-Facts: Beef Ration Rules of Thumb from Alberta Agriculture, Food and Rural Development is another good resource for producers.



Diversity Builds Soil Health —

Agriculture is an evolving industry, and though change and shifting our thinking isn't always easy, it is something that all farmers, ranchers and other sectors of agriculture need to be open to in order to thrive. Recently, PCBFA, along with other applied research groups and some producers have been exploring new methods of building soil health with things like cover crops and increasing diversity on our land and it has opened up a whole new way of thinking about how we manage our land. It has brought up questions about seeding monocultures year after year with limited crop rotations, the use of synthetic fertilizers and the value of livestock on the land.

Last fall, we were very lucky to have the opportunity to host several workshops with rancher Gabe Brown of North Dakota. Gabe inspired some of our 2014 field trials, as well as several producers across the Peace to try something different, and the first cover crop experiments were conducted. This fall, we were once again given the opportunity to co-host an evening with Gabe Brown on Oct 27th in Grimshaw, and then on Nov 3rd in Rycroft we hosted a world-renowned soil scientist from Australia, Dr. Christine Jones, as she made her first trip ever to Canada.

Both Gabe and Christine presented information on improving soil health and increasing the production of our land by mimicking nature, allowing us to reduce our commercial inputs. The presentations complemented each other very well, especially for producers who were able to make it to both. These concepts contradict what is generally practiced in conventional agriculture, but a closer look at the science and the results may open your eyes to a whole new way of looking at our soil.

Christine Jones' approach to soil health can help us understand how plant diversity leads to improved soil health and increased production on our land. She explained that plants are conduits for the transfer of light energy to soil microbes. It is this concept that begins to explain why we should never have bare soil.



Comparison of soil profiles on either side of a fenceline
Left: Actively managed soil (cropped & grazed). Right: Conventionally managed (set-stocked). Source: Christine Jones—Carbon that Counts

“Diversity of plants above ground = Diversity of microbes below ground”

How exactly does that work? The carbon provided to the soil from plants above ground support the microbial activity in the soil. This increased activity by soil microbes can improve soil structure, increase nutrient availabilities (both macro- and micro-nutrients) as well as increase infiltration and water-holding capacity. These are all factors that increase the productivity of the land.



Mycorrhizal fungi colonising root system.

Source: Christine Jones: Mycorrhizal Fungi—Powerhouse of the Soil

Lets start with how we get carbon into the soil to support the microbial population – photosynthesis. Photosynthesis by plants converts sunlight into carbon. When there are beneficial bacteria and fungi present, the rate of photosynthesis increases, this process allows carbon to become available to the soil microbes through the plants roots. The link between photosynthesis and soil microbes can be broken or damaged if there are no green plants in the soil.

One of the concerns with conventional mono-culture systems is that it goes against what naturally occurs in nature. Just think about how many species are found in native pasture, or even in the bush! The good news is that we can mimic nature by using cover-crops. The key to successfully mimicking nature is to provide year-round groundcover with a diverse mixture of plant species. By using a diverse mixture we can restore the diversity of soil microbes, leading to increased microbial activity and healthier soil

What does increased microbial activity mean for productivity? One of the beneficial microbes that can be impacted by conventional farming practices is mycorrhizal fungi, which play a huge role in accessing soil nutrients and water that plant roots can't reach. When plants are colonised by mycorrhizal fungi, a symbiotic relationship is formed, in which the fungi supply the plant with P, Zn, Ca, B, Cu and organic N in exchange for photosynthate (soluble carbon product of photosynthesis). It is interesting to note that plants colonised by mycorrhizal fungi have higher photosynthesis rates and can grow 10-20% faster than non-colonised plants. This symbiotic relationship includes more than just the plant and fungi, there are beneficial bacteria that help the mycorrhizae colonize the plant roots, in addition to colonies of bacteria associated with the mycorrhizal hyphae that help solubilise nutrients that wouldn't normally be available to plants.

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Changing How We Think About Soil

By: Stacy Pritchard



Cover Crop Mixture in Peace Country

As you can see, there is a lot to be said for the power of soil microbes and a golden opportunity to manage our land more efficiently and profitably. In order to harness this and improve the productivity of the land we need to begin to consider how we manage land and the long term benefits to managing it for soil health.

Gabe Brown, once a conventional producer, has increased the soil health on his farm by changing his thinking. Gabe is from North Dakota, so he experiences similar growing conditions as here in Peace Country, although he is adamant that what works for him, may not work for you, so don't be afraid to try new species and combinations.

By switching from a monoculture system to a much more diverse plant population over the last approximately 20 years, the Browns have increased the organic matter of their soil, eliminated the use of synthetic fertilizer, pesticides, fungicides, and are down to one pre-burn herbicide pass every 2-3 years, with the goal of eliminating herbicide entirely in the future.

Gabe's operation incorporates forage production, cash crops and livestock. These separate enterprises complement each other and lead to the success of the operation as a whole. For example, a companion crop of hairy vetch seeded with corn provides ground cover while the corn is getting established, retains moisture and increases mycorrhizal activity in the soil which helps

both the hairy vetch and the corn. In the fall, the corn is harvested, and cattle are turned out to graze the hairy vetch. This is a very simple example, using only 2 crops, but the possible cropping combinations are limitless.

“What is your resource concern?”

Whether the issue is compaction, organic matter, weed pressure, soil structure, fertility, yield, pasture rejuvenation, nitrogen, carbon, infiltration or anything else, the answer to this question will help you choose species for your mixtures and design your system for what you don't have.

The Brown's aim to keep the soil covered 100% of the time, by seeding combinations including both warm and cool season grasses and broadleaves to use as forage, harvest as cash crops and improve the soil health on their farm. They have also seen added benefits including lengthening the growing season because the ground cover helps to increase soil temperature. This can allow you to get a new cover crop established between harvest and winter, which we all know can be a pretty narrow window some years. Diversity is the key to healthy soil. Both above and below ground.

There is much work to be done and many things to learn about these practices. PCBFA will be continuing to work on cover-crop projects in the Peace in the future. Watch for a Soil Health Conference in Dec 2015!

More information can be found on Gabe and Christine's websites:

www.brownsranch.com
www.amazingcarbon.com

Gabe's Advice for Getting Started with Cover-Cropping:

Ask yourself “*What is my resource concern?*”

Choose plant species accordingly.

Start with fall-seeded biennials, as they provide a lot of different options for the next year

Spray out grass and plant into cover crop in the spring

Leave the legumes to produce N

Use to build organic matter and for uniform emergence

Calve on it

Move cows every few days, can graze and re-graze with good management

Provides clean calving ground

Share-combine cover-crops for seed (Winter Wheat, Winter Triticale, Hairy Vetch)

Mob-graze high carbon biennials

Trying to add soil armor

Wait for seed set and terminate growth with grazing, then seed straight into residue

Put up for forage

Try to feed out on the land, as this removes nutrients

Leave armor on the soil surface

50% for cattle; 50% for microbiota

Want at least 1-2” of cover on the soil

Keys to achieving a healthy soil

Least soil disturbance possible (no-till/minimal till)

Armor on soil surface

Plant diversity!

Integration of livestock on cropland

Contact us for:

- Project Ideas

- Feed Testing

- Environmental Farm Plans

- Growing Forward 2 Assistance

- Ration Formulation Help

- Past Project Information

Upcoming Events!

**Thanks
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Peace Country Cattle Day

- * Dec 3, 2014
- * Dunvegan Motor Inn, Fairview
- * 9am-3pm
- * Hear from:
 - * Brenda Schoepp (Ag from a Global Perspective)
 - * Dr. John Basarab (Feeding Efficiency)
 - * Larry Thomas (BIXS Update)
 - * Dr. Bart Lardner (Alternative Feeding Systems)



Western Canadian Grazing Conference "Going Beyond Sustainability"

- * Dec 9, 10 & 11, 2014
- * Radisson Hotel, Edmonton South
- * www.wcgconference.ca
- * Keynote Speakers
 - * Judith Schwartz (Cows Save the Planet)
 - * Dr. Diane Knight (How Legumes Feed the Soil)
 - * Josh Dukart (Thinking Regeneratively...Beyond our Borders)



Holistic Management Course with Don & Bev Campbell

- * 6 Days-Jan 15-17 & 22-24
- * Where: Fairview
- * Cost: \$1495+GST
- * Registration & Deposit due Dec 8.



Cow-Calfenomics

- * Jan 20, 2015
- * Grande Prairie-Holiday Inn Hotel & Suites
- * 8:30am-3pm
- * Cost: \$25
- * Register by Jan 14, 2015 by calling the Ag-Info Centre 1-800-387-6030
- * Agenda
 - Opportunities & Challenges to expanding the Cow Herd
 - * Transition Tactics * Cost of Bred Heifers * Managing Prosperity * Innovative Business Models * and more!

Winter Watering Systems Tour

- * Warm Bus Tour & Learning Day
- * Jan 31, 2015
- * See innovate ways other producers in the area are using!
- * Helpful Tips to Help you Succeed
- * More details to come!



AGM

- * Feb 6, 2015
- * Fairview
- * 5pm registration
- * 5:30pm Meeting
- * 6pm Supper
- * 8pm Entertainment
- * \$55/person or \$75/farm pair
- Includes 2015 annual membership!



Peace Agronomy Update

- * Jan 15, 2015
- * Dunvegan Motor Inn, Fairview
- * Topics to be covered include:
 - * Crop Nutrition, Soybean Production, Wheat Midge & Cutworms, and a Market Update



For more information or to register for PCBFA events please call Stacy at
780-835-6799 or 780-772-0277!

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