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December 2017

Director's Note

Well, how is everyone enjoying winter, so far? November 1st is generally regarded as the first day of 'winter', but for winter to come in with the sudden rush that it did, it caught a few of us off-guard... including yours truly! Luckily the weather forecasters had this nailed about week out and this time they didn't disappoint. As a result, we scrambled to get cattle home, hoses drained, lawn furniture under cover and snow shovels at the ready during that last week in October. Even still, mother nature had the last laugh as she often does!

Which leads me into the bulk of my article. If you happen to have read Director Alex Robertson's comments last month, you'd know that he and I had recently been to upstate New York on the 'Grassfed Exchange' conference.

As Alex mentioned, it is somewhat surprising to learn that we have more in common with the area producers, than you might first think.

One of the biggest differences is the weather. They get snow!! Up to 3 feet, at any one time.

Consequently, feeding cows presents a whole new set of challenges. One way they have combatted this is through bale grazing. The operator merely sets out his bales in the fall, then opens gates into the

various pastures to allow the cows access to the feed.

He does use some electric fence, but only when necessary. Oh, and his cows lick snow all winter. He refuses to pump a gallon of water. The country in upstate NY, is quite rugged, with very steep, treed slopes.

I cannot imagine the run-off issues in the spring! Still, they manage to raise cattle in this environment. Although swath-grazing is a non-starter, the producers we visited with were all trying different strategies in an effort to mitigate costs and work *with* their environment, not against it.

In the conference itself, there was much discussion around preserving and enhancing soils, much as we at FFGA routinely do.

Here in Alberta we should be proud of the government and private research that has been conducted, as twice within the conference, the speakers referenced soil and root studies that had been conducted here in Alberta. It made me proud to have a Canadian passport, right about then... until the "cool" discussion came up!! Actually, that discussion was okay too. At no time did I hear any producers grumbling about NAFTA, in spite of what has been portrayed.

I never got the sense that any of the American producers were against a fully integrated cattle and beef industry. Still, we must be mindful of all challenges that face our industry, and international trade is one of the biggest.

Sometimes, that includes swiping ideas from people/areas outside our bubble!

In summation, I'd like to wish all FFGA members a very happy holiday season and all the very best in the new year!

Morrie Goetjen

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Manager's Note



Photo courtesy of Stephen Hughes

Merry Christmas to the FFGA Membership!

As the holidays draw nearer and we spend time celebrating with family and friends, we are reminded of how fortunate we are to have those special kinships in our lives. In light of this, I'd like to announce that there will be some changes in the FFGA family as we enter into a new year.

Sadly Rachel McLean, our Environmental & Communications Coordinator, will be leaving us at the end of December in order to pursue a career opportunity near

her family farm in Viking, AB.

For those of us who have been fortunate enough to have met Rachel at one of our events or in completing their Environmental Farm Plan, I'm sure you'll agree that Rachel's exuberant and outgoing personality made for an instant kinship and you recognize the big shoes she has left to fill.

Rachel's savvy social media skills helped attract over 100 new members since December 2016 and she worked collaboratively with county partners and producers to ensure the successful completion of 75 EFP's since March 2016 – the most of any trained technician in the Province!

She has also been an immense asset to the CRSB Communications Team and did a phenomenal job representing the FFGA Membership at this table of industry partners.

The Grassroots News & Views Newsletter also received a healthy dose of modernizing and an extra four pages of thought-provoking information, which was compiled and edited by Rachel each month.

Rachel's tireless contributions were essential to the FFGA's success this year

and her absence will definitely be felt. I for one would love for her to stay as she has become a tremendous asset to this team and a dear friend, however I also want her to succeed with her personal and professional ambitions.

That said, on behalf of the FFGA Board and Membership, I would like to wish Rachel all the best in her new journey and to thank her for sharing her passion for forages and regenerative agriculture with all of us.

Sincerely,

Jennifer Duckering

Interim Manager

Foothills Forage & Grazing Association



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Managing Drought-Stressed Pastures



Photo Credit: Lee Gunderson

Recently, a panel of range and pasture experts offered four steps they're advising pasture managers to implement this spring.

1. Manage grazing - conservatively

Grasses stressed by months or years of drought, and, in many cases, overgrazing, will have weakened root systems and less vigor. In drought, grasses produced fewer buds and tillers. Some plants may have died, thinning a stand.

"Don't expect drought-stressed pastures to return to pre-drought condition overnight," says Dr. Jerry Volesky, Extension range and forage specialist at North Platte, Neb. "Even with rain, there may not be an adequate root system there to support the production of new plants, although existing plants will likely increase in vigor."

On native pastures, some growing season rest is critical to recovery. In the Northern Plains, even a few weeks delay in turnout will help, Volesky says. In the Southwest, the ideal is rest for a full growing season, says Dr. Wayne Hanselka, Extension range specialist at Corpus Christi, Texas.

"Err on the side of caution," Hanselka advises. "Restock on the basis of production. Stock lightly and build up slowly. The drought is not over until sub-soil moisture is replenished."

Improved grasses in more humid climates are usually less sensitive to close grazing than natives, says Dr. Don Ball, Extension forage specialist at Auburn University in Alabama. "But if you have plants that were severely

stressed already, give them a break. They will need some TLC."

2. Manage weeds

Weakened grass plants, thin stands and bare ground, combined with moisture, make a recipe for robust germination of broadleaf weeds, especially annuals. Usually, the weed seed is already there, but a new supply may have arrived in purchased hay. Perennial weeds, especially noxious invasives, also benefit from drought and overgrazing, Volesky says. With adequate moisture, patches of leafy spurge, thistles and other weeds may expand and new patches may establish.

It usually takes more than a single moist year for native perennial grasses to improve in density, says Dr. Patricia Johnson, a range science researcher for South Dakota State University, stationed in Rapid City. So weeds may have a long period of opportunity, and many weed seeds remain viable for years. "Be careful where you feed, and remember to visit those feeding sites in years to come, to watch for imported weeds," she says.

Follow recommendations for weed control, the experts say. Identify weeds, choose appropriate herbicides, and time applications to best accomplish the goal. Prescriptions will vary by locale.

"Grazing may help with weed control in some situations, but not all," Hanselka says. Herbicides with soil residual activity may help with timing.

At appropriate labeled rates, herbicides with residual activity control weeds that have emerged, and they remain active in the soil to control many that germinate for a period after spraying, explains Dr. Vernon Langston, a field scientist with Dow AgroSciences. Not all pasture herbicides

offer residual activity. Some can be applied up to

waters edge, and have no grazing restrictions, even for dairy cattle.

Don't spray when it's too dry, Hanselka emphasizes. Herbicides are less effective then, and, for soil protection, even weeds may be preferable to bare ground.

3. Fertilize improved pastures

To help improved grasses, such as bermudagrass, bahiagrass, fescue and orchardgrass, take soil tests and follow the recommendations.

"Proper soil pH and adequate soil nutrients always enhance forage competitiveness, whether you've had a drought or not," Ball says. Pastures with poor fertility and low pH will be particularly slow to recover after a drought.

4. Prepare for the next drought

Most of all, experts advise, plan for the next drought. That's when good management really pays.

"After a drought, it takes five to seven years to recover to a post-drought level, and, on average, we have a drought every three years," Hanselka says. Proper stocking and grazing are critical.

Seasonal grazing rotations - not grazing the same pasture at the same time every year - will improve pasture health in drought or normal weather, Volesky says.

Don't set stocking rates by what pastures will carry in good years, Johnson emphasizes. Diversify cow-calf operations to include stocker or yearling numbers you can easily adjust. And, remember, she says, "The harder you graze, the longer it will take the plant community to rebound."

By: The Cattle Site

Source: www.thecattlesite.com/

The 7 “What If?” Questions Every Rancher Should Ask Themselves



Photo Credit: Beef Magazine

1) What if every replacement heifer was selected because she conceived as a yearling in the first cycle of the breeding season?

Over time, your yearling heifers and your entire cowherd will become more fertile and the calving season will become shorter. Because the calving season will be shorter, weaning weights will increase. Significantly more heifers will be exposed to breeding; and the environment and the bull will do most of the selection instead of us. That will find the good heifers.

2) What if every bull used for maternal matings (to make replacement heifers) was born to a cow that has always calved before or in the first 21 days of the intended calving season, recognizing that some cows calve before the intended calving season starts? If you are buying or keeping a bull out of a two-year-old heifer, the bull must be born in the first 21 days and then his dam must calve in the first 21 days as a three year old before you keep the bull. This is how we start to get at true maternal traits.

Bulls selected from cows that always calve early in a low-input

environment will bring adaptation to the cowherd in size, milking ability, functionality and temperature and pest tolerance. The ones that breed early get to stay and reproduce while those that don't get culled.

3) What if bulls used to produce replacement females were never pampered? I must admit to a little frustration when I read articles suggesting how we should take care of bulls so they will get cows pregnant in the next breeding season. The bull never has to lactate or gestate. Why does he need or deserve better care than your cows—or even as good?

If a bull needs better care than your cows, do you want his daughters to become your cows? I think bulls should be able to easily pass a breeding soundness examination when treated a little tougher than your cows. If you have been pampering your bulls, and too many of you have been, you probably want to back away slowly until you know your bulls can deal with it.

4) What if producers really tried to fit cows to the natural environment as much as possible by

reducing fed feed inputs to an optimal level? In the first few years, you probably would have to cull a few more open cows—probably ones too big with too much milk or perhaps an inability to maintain body condition. However, this would make the first three “what if” points even more important.

The heritability of fertility is probably greater when the environment is tougher. If you are truly trying to adapt cows to their environment, your definition of maternal will probably change. There is reason to wonder about the BEST way to use EPDs for maternal selection. Without whole herd reporting and with varying lengths of calving season, what does a stayability EPD tell us? At what point does milk become a negative in a maternal index; and who knows the appropriate level?

I think first cycle conception as a yearling and subsequently first cycle conception as a two year old with minimal fed feed inputs are economically the most important maternal considerations.

5) What if producers each year would cull every cow that is open or dry, that needs to be doctored or assisted with calving, that weans a poor calf and any with poor dispositions?

Some would have a shrinking cow herd and therefore will need to ease into this much culling rigor. However, after doing it for a few years, most of the culls will be the open or dry cows. When the other problems are culled, it is amazing how fast those problems disappear unless you keep bringing them back in through the bulls you use.

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I know a good number of producers that range-calve cows and heifers, checking them once a day or less. Some of these same people don't even keep an antibiotic. They seldom treat an animal because good health is bred in. The few sick ones are like most of us with a common cold—they just get better without treatment. Appropriate immunization and minimal strategic supplementation should ensure that the naturally healthy ones perform.

6) What if most of the cows in the U.S. were bred to be highly maternal—very fertile, moderate size and milk, calving ease, maternal instinct and mothering ability,

healthy with parasite resistance, functional and with good disposition? There would be more heterosis. The average cow would be smaller and have less milking ability and be very easy to handle. In the hot and humid climates, more of the cows would be red, yellow or white.

7) What if 40% of those highly maternal cows (still moderate in size and milk) were bred to terminal sires emphasizing growth and carcass? Many operations would be much simpler and more profitable. The industry would produce more beef and do it more efficiently. Moderate sized cows adapted to their environment will function well in a low-input, low-cost operational environment.

Breeding them to high growth, high carcass bulls will result in a little more weaning weight and better performance for the feedlot and packer. In the meantime, the other 60% of the cows would be dedicated to making more cows—to replace themselves and the 40% that will be terminal crossed. Maternal and terminal matings should usually not happen on the same ranch.

By: Burke Teichert

Teichert, a consultant on strategic planning for ranches, retired in 2010 as vice president and general manager of AgReserves, Inc. He resides in Orem, Utah. Contact him at burketelj@comcast.net.

Source: <http://www.beefmagazine.com/genetics/>

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Making Compost Tea Specific to your Crop



Bacteria Feeding Nematode
Source: Compostwerks

process. Brewing tea specific to the plant's requirements is wise, since what you apply will be specific to the plant's root exudates (exudates feed the biology which is associated with the plant).

So Elaine, can we discuss some different ways that we can select for the biology that's missing from soil?

We commonly recommend employing different methods when

We are posting our interview with Elaine Ingham Ph.D, President and Director of Research at Soil Foodweb Inc.

According to Elaine, compost tea should be applied in order to replace missing beneficial organisms on the surfaces of plants so those surfaces will be protected. Those organisms should be present in high quality aerobic compost and given optimal brewing conditions, extracted into the compost tea. This layer of protection prevents the growth of pathogens that might compromise your plant, either on the roots or above ground. Generally our purpose is to nurture high numbers of the beneficial organisms that are in the compost, but which will grow in the ambient conditions of the brewing

producing compost tea so that the biology that's missing in the soil can be added. First it's very helpful to be able to test the soil so that you're not guessing. It's easy to take a shotgun approach by making a 'balanced' compost tea, but when we do this, we're just guessing. We run the risk of compromising the desired organisms in our compost tea when using shotgun methodology. That kind of approach can be just fine when dealing with healthy plants.

Can you give us some examples of how we can go about growing the organisms that are missing?

If protozoa (which are critical for nitrogen cycling) aren't present in the soil during a period of vegetative growth, plant

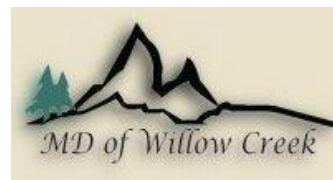
development is limited. To correct this, we must first find compost which has high protozoa numbers. Protozoa eat bacteria which are very high in nitrogen. To get high numbers of active protozoa in our compost tea, we must extend the brew cycle to at least 30 to 36 hours. In the case of adding fungi and bacteria, it's more a matter of adding specific food resources to the compost tea. If we are missing bacteria in the soil, we're able to create a compost tea which is skewed in that direction. This is accomplished by adding some simple sugars, like non-sulfured, blackstrap molasses. In the case of increasing fungal biomass, high carbon and protein based foods such as humic acid and grain flours are added as a food resource.

Tell us about adding nematodes. We know that can be a tricky task.

When there are low numbers of beneficial nematodes in soil, it's best to first investigate why they're not present. Commonly, soil compaction, low organic matter and excessive soil disturbance result in a lack of beneficial nematodes. Only the smaller plant feeding nematodes can survive under these conditions. These factors should be corrected before adding nematode inoculum.

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Thank you for your support!



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In order to efficiently add nematodes to the soil, you must first find compost which has high numbers of beneficial nematodes (which means, aerobic compost, since beneficial nematodes are strict aerobes) and good diversity.

A viable method of improving nematode numbers and diversity is through the use of compost extracts. When making compost tea, most of the organisms in the compost are extracted into the compost tea within a few hours. This is known as a compost extract.

Conversely, when making compost tea specifically for the tea itself, additional time is needed for the bacteria, protozoa and fungi to multiply. When preparing an extract, microbial foods are not normally

added. If your goal is to extract nematodes a short extraction cycle of about 4 to 8 hours will allow many more nematodes to survive.

A full compost tea brewing cycle can kill many nematodes. This may be a result of adding too many bacterial foods which drive dissolved oxygen levels too low for nematodes to survive the brew cycle.

Excessive agitation in the brewer may also kill the nematodes. It should be mentioned that nematodes do not reproduce during the compost tea brewing cycle. If you don't want to take 24 to 36 hours to make a tea, consider an extract instead. Extractions will extract the organisms of the compost, but no time is needed to let organisms grow up into high numbers or biomass.

Typically, extractions require more compost (say 5 to 10 times as much as a tea), but only take 2 to 4 hours to make, certainly not more than 8 hours.

Just make sure the compost you are using has the beneficial organisms that are missing and that they are extracted, and end up in the extract or tea, and on the surfaces of your plants.

If the organisms are lost anywhere along the way (lack of oxygen, filtered out in a filter, or killed by a pump), then you won't see the benefits of improving biology.

By: Carol Lake

Originally Posted on: Compostwerks

Source: [https://](https://compostwerks.wordpress.com/2010/11/30/making-compost-tea-specific-to-your-crop/)

compostwerks.wordpress.com/2010/11/30/making-compost-tea-specific-to-your-crop/



Brian Perillat,
BSc. MSc. P.Ag

Manager/Senior
Analyst – Canfax



Brian Perillat has been the Manager at Canfax since April 2010. Brian grew up on a mixed farming operation near Duck Lake Saskatchewan, and continues to be involved with the family farm. Prior to working at Canfax, Brian worked as a livestock production economist with Alberta Agriculture, and also spent over 4 years working with MNP as a farm management consultant. Brian has had the privilege of travelling and working on farms and stations in Australia and New Zealand, as well as visiting farms in north and west Africa.

Annual General Meeting

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**"More Cattle, More Grain,
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Cover Crops as Forage for Beef Cattle



Photo Credit: Rachel McLean

Cover crops are typically diverse, annual crop mixtures planted with the intent to build and improve the soil. Cover crops may also include biennial or perennial species, depending on the end-use and goals of the producer. Cover crops may be grazed, baled, or used for silage, depending on the species that are seeded. Cover crops may also be used as a green manure or plough-down crop.

Cover crops, often called “cocktails,” consist of plants that will benefit the soil ecosystem and support a variety of soil microbes, fungi, and other biodiversity, such as earth worms. Cover crops can enable soils to have improved water infiltration, increased organic matter, and more efficient nutrient recycling. Some cocktail crop species may be useful in utilizing excess water in a field that would otherwise be water logged, while other species may be selected for their drought-tolerant qualities and their ability to make the most efficient use of existing moisture.

Cover Crop Mixes

A mixture of cover crop species is usually recommended, and may include both cool season (i.e. C3) and warm season (i.e. C4) species, broad leaved species, legume species, Brassica species,

and grassy species. Using a mix of cover crop species maximizes photosynthesis, allowing solar energy to be captured at different heights and angles. Different cover crop species will also have different rooting zones, therefore impacting soils at different depths.

Cover crops can be a valuable and quick-growing source of forage for livestock, and provide grazing in the same year the crop is seeded. Cover crops also allow cropland and pastures to be more efficient with water and nutrient cycling, and less reliant on costly inputs such as fertilizer.

Grazing Cover Crops

From an animal standpoint, a forage cocktail also provides cattle with a diet that is nutritionally diverse. A mix may include species such as clover, a forage Brassica (i.e. turnip, radish), barley, or peas. Each plant species may reach maturity at slightly different times, therefore providing green forage continuously through the growing season. Using a combination of plants rather than a single forage species also helps to increase the overall yield potential of the crop. Producers will want to manage cover crops through grazing management strategies, such as temporary fencing, that allow appropriate and timely grazing that matches the species and their stage of growth.

Animal Considerations

If producers are planning on using cover crops for silage, greenfeed, grazing, or another controlled feeding methods, feed testing is required to identify any potential nutrient or anti-quality issues.

Depending on soil fertility conditions and

species selection, some cover crop plants, such as Brassica species, can accumulate excess nitrates and sulfur so cattle producers should pay attention to their animals for those symptoms. Other species in a mix may cause grain overload if animals are allowed to selectively graze, so take steps to prevent that from occurring by only allowing a portion of the field to be accessed at a time.

Some species within a forage cocktail do not have a lot of fibre, particularly as species regrow following grazing. Cattle producers may want to include roughage in these grazing fields, even by providing straw bales or slough hay, to slow down the passage of forage through the digestive system and increase the nutrient uptake.

Producers are urged to pay attention to their cattle when grazing or feeding cover crops. Use common management practices, such as the following, to avoid problems:

- ♦ Turn cattle out onto new cover crops only when they are full (i.e. avoid early morning moves)
- ♦ Avoid moving cattle to a new cover crop during weather changes;
- ♦ Avoid moving cattle to a new cover crop following a major handling event (i.e. processing, preg-checking, following a long trailing event);
- ♦ Prevent animals from selectively grazing (i.e. choosing the “best, leaving the rest”) by allowing them to graze a portion of a field at a time and ensuring an appropriate stocking rate;
- ♦ Monitor animals for signs of reduced feed intake, incoordination, panting, or other signs of nutritional toxicity.

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Cover Crops as Forage for Beef Cattle

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Cover Crop Considerations

Producers may want to incorporate one or several legumes in their cocktail mix to build nitrogen in their soils. Different legumes can be selected to meet different grazing needs, whether you're grazing in early spring, late fall or winter.

Seeding rates will vary according to the diversity of mix. Seeding rates also have a large impact on the cost, as does the number and variety of species.

There are several seeding cost calculators available to producers, including this version available at: <http://decision-tool.incovercrops.ca/>

Seeding dates may be planned strategically. Some producers may opt to seed two crops in a season, where they silage the first crop and graze the second

crop. Other producers sometimes seed fall or winter crops in the spring, for grazing later in the season and early in the next.

Interested in Using Cover Crops?

Evaluate your goals for cover crops. What is your intended outcome and what specific issues are you trying to resolve? Do you need to build organic matter or improve water infiltration? Are you concerned about soil erosion? What is motivating you? How will this fit in with your current cropping and grazing management?

Evaluate your existing infrastructure.

What sort of water development, fencing, or other infrastructure may you need in order to graze cover crops? Do you have the seeding equipment necessary to plant a cocktail?

Look for informational resources. Do you have experience seeding cover crops or grazing them? Do you have someone you can contact or resources available?

Evaluate grazing conditions as the season progresses.

Have you performed feed analyses? Are your cattle receiving all of the nutrients that they need to stay healthy? Do the nutrients match the stage and class that your cattle will be at during grazing?

Source: Beef Cattle Research Centre



Research and Technology
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<http://www.beefresearch.ca/research-topic.cfm/cover-crops-91>

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Soil Aggregates Found in Great Soil 'Just Like Christmas'

Jay Fuhrer, soil health specialist at the Natural Resource Conservation Service, based in Bismarck, N.D., talked to producers about why cover crops were a vital resource.

"I used to think cover crops were important, but now I think they are essential," Fuhrer said. When production agriculture began, "We converted our grasslands from 50-100 species per acre of perennials into a single annual crop."

These diverse species of plants had a lot of root exudates, which provided food to the soil food web.

Then came long fallow periods, which were in the spring before planting, and another long period of fallow followed after harvest in the fall.

"What I tried to do with cover crops was find a fit to fill in the fallow time periods," Fuhrer said.

There are agronomic and economic reasons to planting cover crops.

Keeping a cover on the soil all year long and using a diverse range of plants benefits the soil in numerous ways.

Fuhrer brought up a shovelful of soil, and showed where the soil aggregates were.

"This is just like Christmas when you put your shovel in the ground," Fuhrer said. "This is really exciting stuff - these are soil aggregates."

He found the root mass coated with soil aggregates and fastened together with "glue (glomalin)".

"This is the start of infiltration. If you want to improve infiltration in your soil, this is where it starts," he said. "You have to have

pore spaces because water has a tendency to run off. That inch of rain you got - you want to keep it all and pore spaces do that."

Who puts soil aggregates in the soil? The soil food web.

What are they going to use as a food source? Green plants produce the food source.

"If we're going to take carbon dioxide out of the atmosphere into the stomata of the plant, this plant, in turn, is going to give off carbon sugars into the soil as the primary food. When you think carbon, always think food. All of sudden, we have all this activity going on right by the root mass," he said.

In a part of the soil Fuhrer had dug up, he pointed to macropores.

Who is going to build those macropores?

Tap roots (such as radish or sunflower) are one method of building macropores. They are often part of a cover crop mix.

"I also have an earthworm here. Why was he here in this root mass? Food. That's where the food is," he said.

Fuhrer said there was a combination of pore spaces (micropores) and macropores in the soil he had dug up from under the cover crops.

"All of a sudden, we have real infiltration and we can begin to build that infiltration," he said. However, after farming 100 years in the soil, horizontal compaction layers result.

Ryan Buetow, NDSU cropping systems specialist, showed a turnip that went horizontal at the compaction layer, before going vertical again.

"We know we have some work to do, because here is a compaction layer. You don't farm something 100

years and not have an impact," Fuhrer said.

Pore spaces are removed by compaction layers (tillage). In the forest or prairie, there won't be horizontal compaction layers. There will just be root mass.

To put the pore space back in, there needs to be a green plant.

"You can't go to WalMart and buy a pore space. You need to have a green plant," he said.

Green plants can harvest CO₂ out of the atmosphere, and bring it into the plant. The plant is 42 percent carbon, so it takes a lot of carbon to build a plant below ground and above ground.

"We take the grain at harvest, which is one-third of the carbon, but we leave the residue, which is another third of the carbon. The root mass is the other third of the carbon," Fuhrer said.

Sometimes, Fuhrer said he drives by a field, and he sees it has been harvested.

"And that's great. Agriculture is an extraction business: some of this crop will go to energy, some to food, some for livestock feed - but it all goes somewhere," he said.

But in some of those fields, there is little to no residue, left. And that means potential for erosion and lost carbon.

"As long as the above-ground residue is left in place, there is a greater chance of preventing erosion and carbon loss," Fuhrer said,

What happens when the soil aggregates and fibrous roots are put together? You build soil, and the more soil aggregates and fibrous roots, the better the soil.

Soil erosion is not completely laid to rest in 2017 in many areas of the state.

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Jay Fuhrer, NRCS soil health specialist, shows soil aggregates in the soil he dug up underneath cover crops

Continued from Page 10...

Soil and wind erosion, salinity and lack of water quality and lack of diversity are the resource concern areas in North Dakota.

"If we continue to plant large acres to low-residue crops like soybeans, even with no-till, what is that going to do to our soil?" he said. Soybean is a great crop, but needs additional soil protection.

If soybeans can be planted green, that can work to control soil erosion. This practice refers to no-till planting primary crops into actively growing cover crops. This practice can be used when planting a crop such soybeans into a cover crop.

Salinity is a good reason to plant cover crops. Recently, some 65 farmers showed up in one North Dakota town to listen to a salinity workshop - that is how much interest there was in the subject.

"The salinity is significant in some areas," he said "If we grow out our water through plants, instead of soil evaporation with tillage, it will help control salinity."

Rye and barley are good salt-tolerant plants, while alfalfa can be used to harvest out large quantities of water.

In the Northern Plains where there are cold, wet springs, with a limited growing season, it is

important to plant "green" and a fall rye cover crop plays a part in that. In terms of water quality, that green plant will absorb inorganic nutrients.

"Plant green: bring a cover to that land," he said.

Soil organic matter has a carbon to nitrogen ratio. The C:N ratio is important due to the fact that it has a direct impact on residue decomposition and nitrogen cycling in our soils.

"If I take a high-carbon plant and I add a low-carbon plant, I have a mid-carbon mixture. I can adjust my carbon to nitrogen ratio that way," Fuhrer said. As a rule of thumb, the higher the ratio, the longer it takes for the material to decompose, and the smaller the ratio, the more rapidly the plant material will decompose. A mid-carbon plant or mixture, works about right.

He explained the C:N ratio of soil is about 10 to 1. Cover crops help because there will usually be more than one crop planted, some with high C:N ratios and some with low.

This also opens the window for livestock grazing. Grazing the top half of the plant and trampling the bottom half of the plant to the soil, assures the livestock above and below the soil are on a high plane of nutrition. The majority of the nutrients consumed by the livestock returns to the soil surface.

"A year ago, the Menoken Farm near Bismarck, grazed a field of corn that was just starting to make cobs. It was fun to watch the heifers grazing the corn. How they looked in May compared to how they look by fall was amazing. They looked great," he said. "The beauty of livestock is their ability to recycle nutrients, especially carbon."

Maintaining body condition of cows is important and cover crops

role.

The DREC ranch near Manning, N.D., has been doing this for many years, using both grazing corn and cover crops to improve soil and the condition of cattle.

Nutrient export is a huge item that everyone will face as agriculture continues in the future. When crops are grown and exported, thousands of pounds of nutrient leave the state every year that never comes back.

"That is why I like grazing livestock in the field," he added.

Fuhrer has several combinations of rye as cover crops planted this fall at the Menoken Farm. Next spring, the cover crop will be terminated early if conditions are dry and later if conditions are wet. Cover crops are planted every fall at the farm.

"If we are truly going to address salinity, erosion, and lack of diversity in North Dakota, we need to think about introducing cover crops into the system," Fuhrer said.

Soil health principles consist of five principles, which are: soil residues (armor), minimizing soil disturbance, plant diversity, continual live plant/root, and livestock integration.

When a cover crop is brought into a field that never had a cover crop, there is going to be an adjustment.

Fuhrer suggests farmers start out small at first when trying cover crops.

"When we bring in a cover crop, that is a game changer. All of a sudden we see a carbon spike, and that is a food spike," he said. "The goal is more root mass with soil aggregates; and ultimately more carbon."

By: Sue Roesler, Farm & Ranch Guide

Source: <http://www.agupdate.com/farmandranchguide/>

Ladies LIVESTOCK LESSONS

2018 LLL

SATURDAY, JANUARY 20TH
ACME COMMUNITY HALL

9:00 AM - 4:00 PM

(8:30-9:00 Registration)

Succession Planning

Shauna Feth, Alberta Business Family Institute

Riparian & Grassland Management

Kelsey Spicer-Rowe, Cows and Fish

Fawn Jackson, Canadian Cattlemen's Association

From Farm to Plate & Social Licence

Shannon & Danny Ruzicka, Natures Green Acres

Breakout Sessions:

1. Calving Clinic

Dr. Gord Krebs, Didsbury Veterinary Services

2. CowBytes (beef ration balancing software)

Barry Yaremico, Alberta Agriculture

3. Plant Identification

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\$50 (Includes lunch, coffee, and snacks)

Pre-Register online on Eventbrite at:

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Registration Deadline: January 15th 2018

For more information or for registration details contact

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Vision: We envision a global community that respects and values profitable forage production and healthy soils as our legacy for future generations.



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