Grey Wooded Forage Association

The Blade

"Creating an Awareness of Forages"

AUGUST 2015

Box 1448, 5039 - 45 Street, Rocky Mountain House, Alberta T4T 1B1,
Phone: 403 844 2645, Website: www.greywoodedforageassociation.com
Email: Albert: GWFA2@telus.net, or Ginette: GWFA3@telus.net

In this Issue:

Upcoming events:

GWFA Staff photo: Brendon Anderson's Cocktail Cover Crop

MISSION STATEMENT

To promote environmentally and economically sustainable forage and agricultural practices.

VISION STATEMENT

The community is engaged in regenerative agricultural production methods.

Join us for a Field Day!

on September 23, 2015, 2:00PM to 6:30PM

Discover the Soil Below Your Feet!

Learn about:

- soil structure in a soil pit!
- inherent characteristics of the soil!
- measuring water infiltration!
- assessment of meso-fauna (soil invertabrates)!
- measuring compaction!
- Biological soil analysis!
- Reading & understanding soil analysis!

ARECA

ACIDF
Alberta Crop Industry Development Fund Ltd.

Alberta Agriculture and Forestry

Graze for Clean Water Part 2!

- **Learn how to manage grazing for clean water!**

(It's all about building healthy soil)

- **Learn how to assess pasture health!**

at Mark Matejka's pasture in Ponoka County!

Refreshments in the field & Supper at the Ponoka Moose Hall included!

Only $20/person
Call 403-844-2645 or email gwfa3@telus.net
for information and to register!
www.greywoodedforageassociation.com

Ponoka County

Grey Wooded Forage Association

2015 International Year of Soils

WEST COUNTRY RV RENTALS

Manager's Notes:

By Ginette Boucher, Manager

Greetings to all,

Some great news to start with; we have received our funding from AOF (Agriculture Opportunity Fund). Thank you so much AOF for the continued support in our program and activities. We appreciate the recognition of our program and will continue to extend the latest and best possible information we can, to assist as many producers in these challenging times. We are always looking at ways to improve and for feedback to enable us to deliver the much needed information in a timely matter.

In this issue of The Blade you will see a Field Day poster for an upcoming event in Ponoka County on September 23rd. This is a combined field day, of which the first part will involve a soil pit funded by ACIDF (Alberta Crop Industry Development Fund Ltd) through our ARECA office (Agriculture Research Extension Council of Alberta. The second part will be Graze for Clean Water part 2 funded by Ponoka County. Being the year of the soils ARECA procured some funds through ACIDF to provide assistance to all forage and research associations in Alberta who were willing to deliver this soil health initiative thank you Janette. Our event poster shows what a pit looks like. The purpose of the pit is to be able to visualize the soil structure, composition, the soil profile, and compaction. You will be able to see the litter layer, the plant root diversity and how far each root reaches for moisture. You will gain a better understanding of the biological processes, and how we impact the land. The part 2 Graze for Clean Water will be an extension of the event held at Last West Hall in June. You will learn how to assess pasture health, and how you can build your soil through improved grazing management. This practise also improves water quality and air quality; and is environmentally sustainable. This is a great learning opportunity. I hope to see you all there.

We have had a very challenging season, with a lack of moisture over the winter which extended into a very dry spring. We've also had some extreme heat, and hail damage. Adversity is a continual challenge in farming and your strength amazes me. I thank each and every one who you who rise above it all and keep going in these trying times. The best asset our Country has is you, the producers. Let us know how we can assist you and we will do our very best to support you in any way we can.

I would like to extend a big thank you to all those who contribute to The Blade and make it an exceptional little paper for all to enjoy. I encourage you to send in articles, stories, pictures you would like to share with others.

All the best this coming fall for your harvest

Ginette

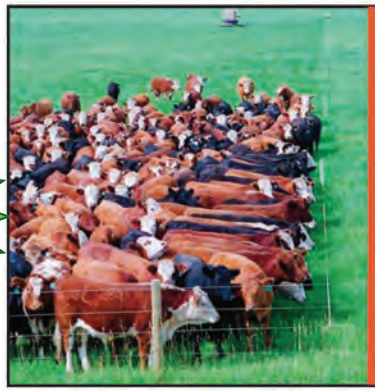
ARECA
AGRICULTURAL RESEARCH AND EXTENSION COUNCIL OF ALBERTA

Grey Wooded Forage Association
"Creating an Awareness of Forages"

ACIDF
Alberta Crop Industry Development Fund Ltd.

Sundog Solar
www.sundogsolarwind.com

3D Fencing Project Sponsor!



GALLAGHER
Looking for Gallagher Energizer Repair? You found it!
LONE STAR RANCH & SALES
is Western Canada's Gallagher Repair Centre!
Also carrying a full line of electric fencing supplies, weighing and tag reading equipment.
Toll free: 1-855-391-9314
Red Deer, AB.

Message from the Chair

By Ken Ziegler

Well folks, we hope you enjoy and find useful the articles that are in this newsletter! This past month has been an adventure for planning projects and workshops this coming fall. Kudos to the Projects Committee led by Deb Skeels and the Publicity Committee led by Ted Chastko. These two individuals are working hard in leading the two committees and certainly deserve a pat on the back!

It looks like 2015 will be quite the ride for those folks selling hay and for those buying. Stories abound as to the prices for hay and we certainly are happy for the folks selling as these prices have never been higher. Hope sellers have adequate yields from the first cut and good regrowth from the second growth to acceptable hayland profits.

For the buyers, this year is a very different story. The message for this fall is to be extra diligent in utilizing hay supplies efficiently and to mix off cheaper feed types like straw with grain.

This certainly will be the year to go the extra mile in doing feed testing and ration balancing in order to keep the costs a low as practical.

Enjoy this newsletter and the rest of the summer. I know I will.

Forage & Grazing Points to Ponder

By Albert Kuipers,
Forage & Grazing Specialist

Soil Health - The Pathway to Environmental and Economical Sustainability for Your Farm: Now there's a novel idea, or, maybe it's more like going back to a time when we didn't have all those high priced inputs we've grown accustomed to using on our land.

Over the past month I've had the pleasure of learning from not one, but two of the top soil health scientists in the world. First was a workshop on July 16th with Dr. Jill Clapperton on how to measure soil health.

It seems that a standard soil analysis of available N, P, K, S and micro nutrients doesn't quite cut it as most soils have every mineral needed for good soil fertility, just not in plant available forms. When there is a healthy, abundant and diverse microbial community in the soil, a variety of microbes are constantly busy converting unavailable plant nutrients into plant available nutrients.

So, instead of a standard soil test, we want to be looking at indicators of microbial activity in the soil. There are a number of relatively simple tests one can perform out in the field to get an idea of how well soil microbes are working, or not working for you.

The first test, a visual observation, is simply determining the diversity of plants you have covering the soil. You'll want to have lots of different plants with different root structures growing together. Most microbes are specific to certain plant species, so the diversity of plants on the surface are a good indicator of the diversity of microbes in the soil.

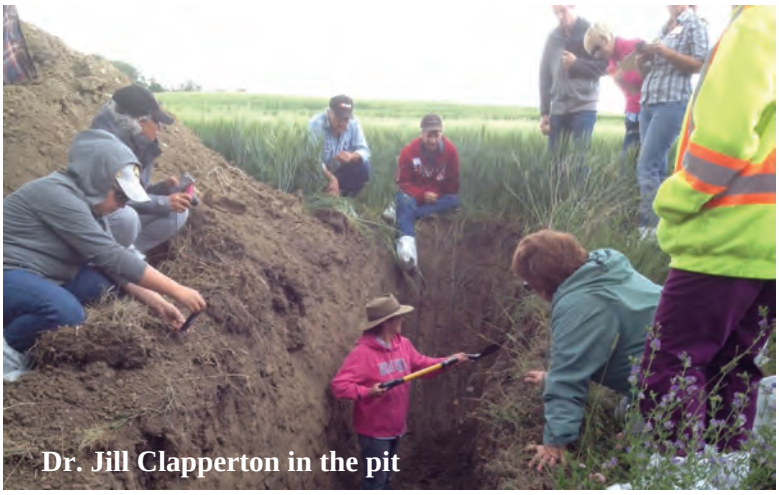
Another test is done by digging up a plant complete with as much of its root system as possible. Look at the soil clinging to the roots. The roots should be covered with soil clumps, or aggregates. Now, we're not talking about hard lumps of soil that breaks up in plates, or cubes, we're talking about small, irregular clumps with lots of room for microbes, water and air in and between them. These clumps, or aggregates are held together by bacterial glues and fungal threads called "hypha, or plural "hyphae". If you see these kinds of soil aggregates clinging to and covering the roots, you have a strong indication of a healthy microbial community working for you.

You can also do a worm test. In a shovel full of soil you should have eight or more earthworms. Below four is bad. April is usually a good time to check for earthworm populations. Typically, grey wooded soils do not have earthworms in them, but building of organic matter in these soils can improve that.

Plant tissue testing for nutrient content is a good way

of measuring what nutrients are actually getting into the plants. There are simple "clip-on-leaf" nutrient testers becoming available. The very simple brix test done with a refractometer is an excellent way to see what levels of mineral sugars might be in plant tissues.

Another test of soil health we learned from Dr. Clapperton is the "Solvita Test". This test indicates the respiration rate of the soil, which is an indicator of microbial activity in the soil, which is also an indicator of the soil's ability to mineralize nutrients. Mineralization is quite simply the conversion of plant



Dr. Jill Clapperton in the pit

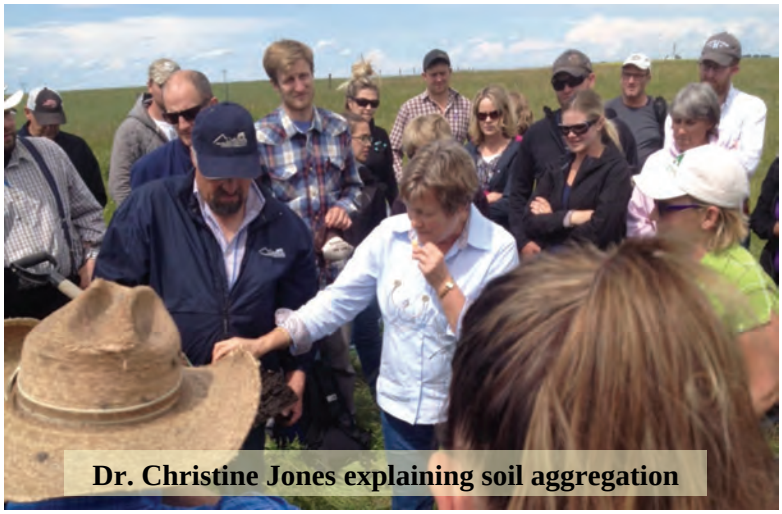
unavailable nutrients into plant available forms of those nutrients.

Now, to get the soil working for you, there are a few things you can start doing. Reducing, or eliminating tillage is a good place to start. Whether you're growing annual crops or perennial forages you can eliminate tillage. Lots of work has been done in the crop sector on reducing or eliminating tillage with excellent yield results. This is a huge way to reduce costs as reducing the ownership and operating costs of tillage equipment can be a great contributor to a healthier bottom line.

Increasing plant diversity is another way to get the soil working for you. As I mentioned earlier, most microbes are specific to certain plant species. To have a well functioning soil microbial community you need lots of different microbes doing their specific jobs for you.

Reducing fertilizer inputs, especially soluble chemical fertilizers in the form of salts, will reduce damage to the microbial community. Multiple, small applications could enhance microbial activity, so totally eliminating chemical fertilizers might not be the answer for you. In any case, a significant reduction in chemical fertilizer use without reducing plant yield would certainly add to your bottom line while also reducing the environmental impacts of using these products.

Healthy plants living on healthy soils are protected by microbes from most plant diseases and are undesirable to most pests due to increased mineral sugar levels in the plants. Most pest insects can't handle high sugar levels, so they avoid plants



Dr. Christine Jones explaining soil aggregation

with high mineral sugar levels. Chemical disease and pest control use can be significantly reduced, or eliminated resulting in more dollars to the bottom line, while also reducing the impact of these chemicals on the environment.

At a soil health tour/workshop with Dr. Christine Jones on July 23rd, I heard again that it's all about biodiversity. As Ralph Waldo Emerson put it "As above, so below". Lots of different plants growing on/in the soil means lots of different microbes living and working for us below the soil surface.

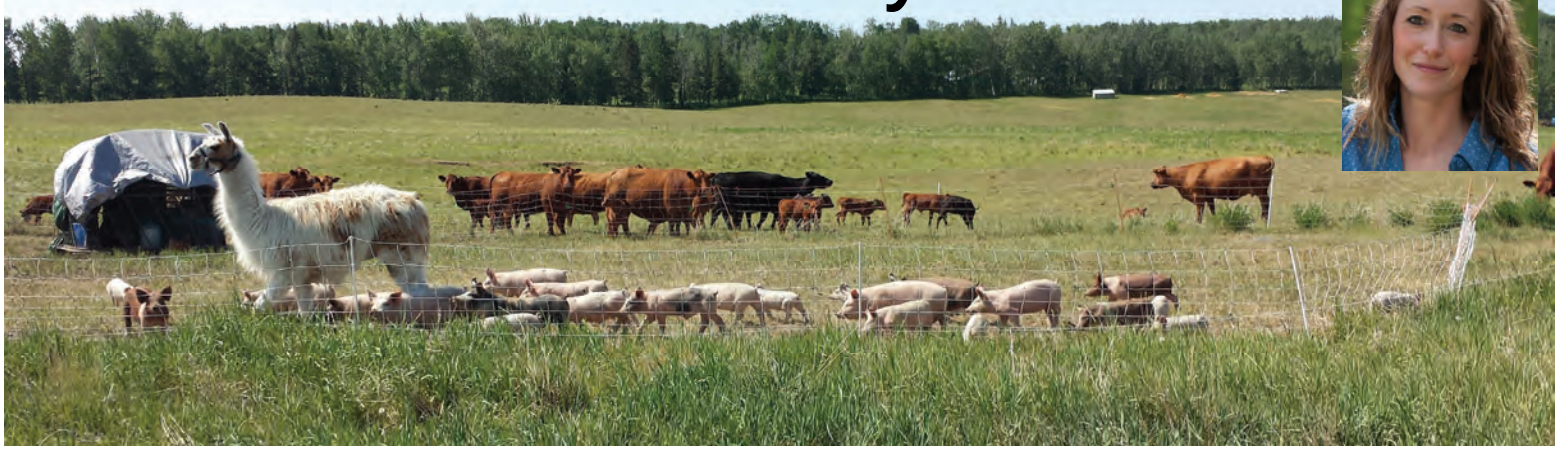
Ground cover is all-important! Bare soil is your enemy! Have the soil totally covered with a variety of living plant species throughout as much of the year as possible. Where our climate prevents that, make sure the soil is covered by dead and dormant plant materials. This can be accomplished in cropping systems as well as in perennial forage systems, especially on pastures.

Dr. Jones teaches that building soil is a photosynthetic process. In other words, building healthy soils with high populations of highly diverse organisms is done by increasing the photosynthesis rate and capacity - quite simply by increasing the green plant cover and diversity. Photosynthesis, as most of us learned in school, is how plants turn sunlight energy into sugars which translocate to the roots. Now here's the part I don't remember from my school days - these sugars seep out of plant roots and feed microbes. The microbes, in turn, access nutrients by turning plant unavailable nutrients into plant available nutrients which the plant's roots receive from the microbes. What this comes down to is quite simply that plants feed microbes and microbes feed plants. If microbes aren't there to feed them, plants would starve - unless fed a complete and constant diet of expensive soluble plant available nutrients. To me it's a no-brainer - Let's let the microbes do the work! They're happy to work for us. Their lives depend on it!

Just think about this - billions of tiny microscopic critters working for you for nothing but the sugars provided them by photosynthesis, or sunlight energy converted to sugars. Wow! What a concept and what a difference that would make to the bottom line.

Farm Sustainability

by Amber Kenyon



Recently it has come to my attention that a youth council has Edmonton City Council voting on whether or not to negate meat from their catered lunches due to the environmental impact that raising livestock has. I also recently had a conversation with a good friend of mine - he and his wife have been farming their piece of land for quite a number of years. Both of them have been working full time off farm jobs for the majority of their farming lives. Their farm has never made enough money to support their family, but they've made do, because they've loved their lifestyle and their farm. Although both were completely separate instances, they both spoke to me on the same level.

Both instances show me the intense need in the meat industry for sustainability. If we as the farmers can't support our families off of our work on the farm, we are not financially sustainable. This does not mean that you have to get rid of that off farm job that you love, it just means that you should be making a wage and a profit for the work that you do on the farm. Likewise, if we as farmers cannot show consumers that our treatment of both the land and our livestock is sustainable, our businesses can also not be sustainable. We can argue that many grain farmers fill in riparian areas and knock down thousands of trees in the effort to gain a few more acres of arable land. We can also argue that our pastures are primarily built on land that is mostly unable to be cultivated. Until we really show the consumer how grazing can increase water holding capacity; how it can build soil and introduce new aquatic life; how by bringing in the good bugs we can make sure that the manure from our cattle goes towards nourishing the soil rather than polluting our atmosphere; and how by doing all of the above we can support our families with the farm, we cannot be sustainable in our business models.

Because most farms sell to auction houses, we have lost that connection with the average consumer. Although our beef may still be being sold every year, we still need to make sure that our consumers are happy with the end product and how it was raised. Although the odd company lunch veering away from meat isn't going to make or break our businesses, if the general consumer attitude follows in that direction, it just might.

I personally think that one answer to these problems is to know your gross margin. Steve and I use the gross margin analysis for every profit center on our farm. Everything from land rent, hog feed and how much stinging nettle to pick is dictated by our gross margin analysis. We need to know where we're making money and where we're losing it and we figure this out with our gross margin analysis. By knowing our numbers, we know where we need to make advances to keep our business profitable, and which profit centers we might need to drop altogether.

Because we lease all of our land, this tool also helps us decide the maximum rent that we might be willing to pay for a specific piece of property. A gross margin analysis is a way of looking at all parts of your farm and putting it together in the form of numbers.

You'll want to look at each profit center individually and deduct all of the profit center's costs from the revenue that the profit center generates. In this calculation you'll want absolutely everything, from feed costs, trucking costs, the expense of operating your equipment (for this we figure out how much that piece of equipment would cost us per hour if we were to rent it, for instance a quad we might charge out at approximately $15/hr), opportunity cost (which is how much your assets might be able to make you if you were to invest that money in an account that would pay interest) fuel costs, and above all you'll want to add in your labour. How much would you make if you were to work on someone else's farm with your experience? I know that it is considered absurd in farming to believe that we should be paid for our hours worked, but we are the owners of our businesses, we pay our hired hands, shouldn't we be able to make a wage as well?

Once you have all of your expenses figured out you'll want to subtract those expenses from your income. What's left over is the gross margin from your profit center. This is how much profit that this piece of your farm is generating. If the number that you end up with is a negative then it's definitely time to start digging a little bit deeper into your operation and consider making some changes.

If we take our pastured pork center as an example, we would take last year's sales, as well as the income that would have been generated from our family's freezer full of pork, and the product that we used for marketing opportunities when doing events such as Greener Pastures Walk. (This product would come out of the company's expenses.)

Once you have your income from the profit center figured out, it's time to work out the expenses. This can be a little bit

→

more complicated, only because some of the expenses might be shared between profit centers, in which case you can either put these numbers under the entire company, we call it the business overhead, or divide them out between your profit centers. Things like a farm pickup truck would be one of those shared items, whereas on our operation, things like the feed truck, that only work for our pork profit center, are an obvious expense under that heading. Again definitely include your labour! If you're in the positive when you subtract your expenses from your income then you're making a profit.

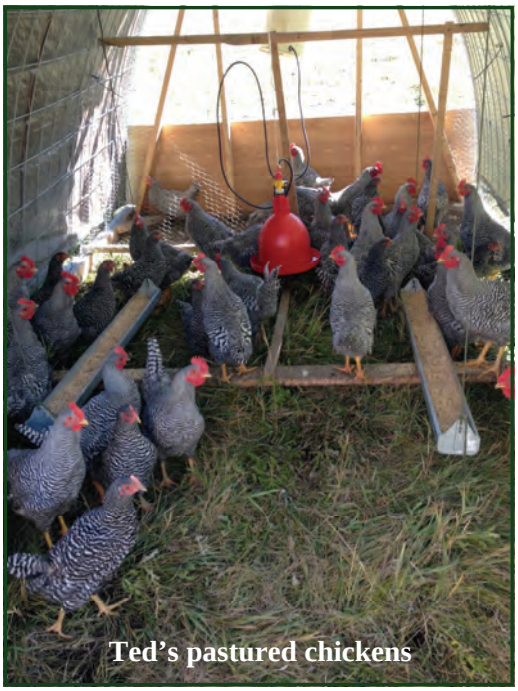
This is a great tool to use when trying to make decisions on your farm. Of course you always want to be as environmentally sustainable as possible, but you also need to be financially sustainable as well in order to make your business succeed. We'll calculate out gross margins on everything from each grazing cell that we run our cattle on, to the gross profit margin on the stinging nettle that we pick. We would not be able to make informed decisions on our farm without it. With consumers paying more and more attention to the farms that raise their food, we need to start looking at things from their perspectives. The average consumer wants to know that their meat was raised in a humane and sustainable way. Most also don't want to pay more for that quality meat at the grocery store till. As our costs of production rise, it's up to us to figure out ways to bring a more sustainable product to the consumer and still be able to feed our families off of it as our forefathers did. We are not making a living at it when we don't count our hours. We deserve to get paid for the work that we do! Let's show the next generation of consumers that our farms are sustainable, in all ways!

Director's Corner

My name is Ted Chastko and I am new to the board of GWFA in my first term. I am very pleased to be able to be a part of a group of likeminded individuals that are focused on the management of grasslands. I am new to this area, having moved from Edmonton to Lacombe in 2013 to focus more on farming, and have found great opportunity to network at GWFA events and meetings. Our farm consists of grass-fed beef, lamb, and pasture raised chicken. Pasture quality is the foundation of our farm and portable electric fence is what makes it possible.

The land I currently manage had a past history of over use by horses and cattle but with the introduction of two electric reels, 30 pigtails and a portable energizer we were able to renovate the existing pastures without tillage. Initially moving from 5 permanent pastures to 14 portable paddocks made a difference by allowing more of the pastured area to rest and recover while increasing animal density in the paddock being grazed.

I have used a few different methods to increase biomass production in the pastures and have had good success with broadcast seeding in the spring using a mix of alsike clover, red clover, cicer milkvetch and sainfoin. The reason I have focused on legumes is they can fill in the understory of the existing grass, help add nitrogen to the soil and increase biodiversity in the pasture stand. I have also had good results with using bale grazing to build a mulch layers and improve soil health. The first summer after bale grazing the area can look a bit sad but by the second summer grass will have covered over the residue. Bale grazing has resulted in an increased pasture stand in the long run. I also use pastured chickens in my grazing plan. Pastured chicken pens are very good at concentrating nitrogen rich manure and makes almost instant pasture improvement.



Ted's pastured chickens

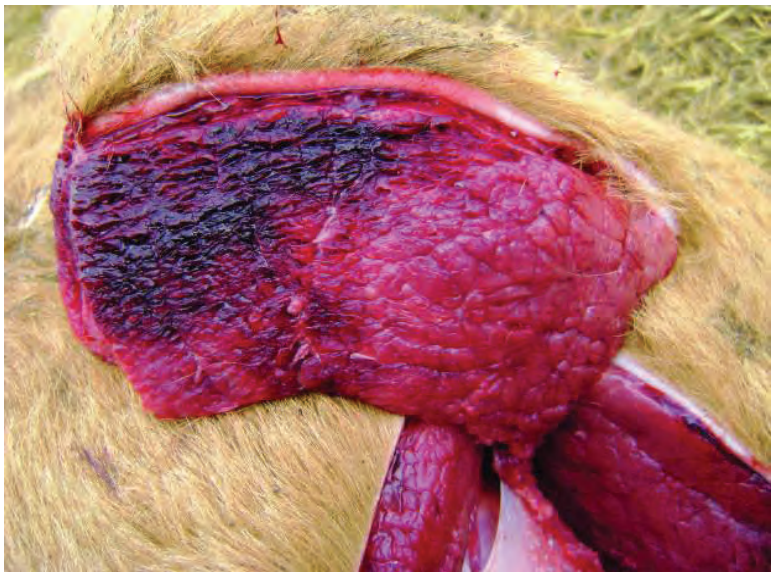
The ability to use portable fencing means anything is possible and paddocks can be made whatever way you imagine. I have set up a simple quad trailer to hold my fencing equipment so that everything stays together. There is a solar panel mounted on the trailer and a solar powered energizer. Side compartments hold pigtails and center bins hold reels and fence leads. I have also constructed a portable water trough out of an old fuel tank that is easy to drag around to different paddocks.

This is a brief glimpse into what I do and try to implement on my operation. I hope that it might get your creative side energized as to what you can do on your operation and what new or small changes you can make to make things easier and more fun. Feel free to contact me with any further questions. Happy grazing!

Ted Chastko

Blackleg: A Disease for both Extremes

Blackleg is a clostridial disease affecting mainly growing calves and also sheep. The bacteria responsible for blackleg, *Clostridium chauvoei is naturally found in the intestinal tract of animals and can survive as dormant spores in soil for years. Realistically, most clostridial bacteria are predominantly soil bacteria that have adapted to the occasional stint in the intestinal tract or damaged tissues of animals.* Calves as young as six weeks old (likely colostrum deprived) have been reported to contract blackleg and cattle up to ten to twelve years old have also been reported to have succumbed from it. It is characterized by the development of lethargy and painful stiff gaits in calves and subsequent rapid death within twelve to forty-eight hours. Tissue often develops a bubble wrap texture (crepitance) with an oozing black or crimson appearance when cut into.



Calves will ingest spores typically while grazing and the spores then cross the intestinal wall and enter the blood stream. From here the spores are then deposited into muscle tissues and wait for the opportunity to germinate. All clostridial bacteria require oxygen deprived environments to germinate, otherwise they will remain dormant. When tissue oxygen levels are depleted via bruising from fighting, injections, or wounds or even with excessive exercise, spores can germinate and outbreaks can happen. The spores will germinate leading to the vegetative form of the bacteria which then multiplies from perhaps one or a few spores into millions of bacteria. In sheep, outbreaks tend to occur following activities such as tail docking, castrating or shearing when skin gets accidentally cut and there are open wounds as opposed to ingestion of spores as seen in cattle. Typically producers can see a few cases a day for upwards of a week. Treatment is generally unrewarding and the disease is typically fatal.

At least once or twice a year, most veterinarians get a call concerning blackleg in calves. In years of drought, we typically expect more cases as is also the case when there are floods. This is because in drought years with less forage to graze, animals will be grazing closer to the soil surface and thus be more likely to pick up blackleg spores. After floods such as what was experienced in June 2013, spores can be spread along rivers and creeks and deposited onto areas that normally do not see flowing water. The flowing water can deposit spores and then when grazed later in the year, animals can consume those spores. Some people do not vaccinate simply because they never have in the past and have not had a problem, or they have what they refer to as a "closed herd". Fortunately blackleg and the other clostridial diseases are not contagious but this however means that a closed herd is not immune. I have seen people post on internet blogs that they do not vaccinate for blackleg because they do not have it in their area. In many instances this is true, we can see a geographical distribution, but there is a readily available vaccine available to producers that can minimize your risk to clostridial losses. Every year we have one or two clients who start using an 8-way (clostridial) vaccine as a result of significant calf losses because historically they had not had problems and thus did not vaccinate. Now they vaccinate annually as it is inexpensive and easily done at spring turn-out.

Blackleg has a world-wide distribution and as is the case with anthrax, another spore forming soil borne bacteria, we tend to see repeat cases on particular pastures or regions. Wood Buffalo National Park seems to have Anthrax outbreaks annually, just recently fifty-two bison were reported dead this summer.

When an animal dies from anthrax, blackleg or practically any clostridial disease, the bacteria go from a vegetative stage back into a spore stage resulting in millions of spores that can live in soil for many years. Typically this is because the carcass is scavenged and the anthrax bacteria in the tissue are exposed to oxygen. The bacteria cannot grow in the presence of oxygen so they revert to a spore form and wait for their next opportunity to grow and multiply.

As veterinarians, if we suspect an anthrax case, the government requires proper disposal of the carcass to reduce the risk of spreading the spores from the dead carcass. Typically we would prefer to see the carcass rendered or burned. If buried in a shallow grave or left for scavengers, the spores can be dragged all over the country side or be brought to the surface via soil disturbance.

In Wood Buffalo National Park it is difficult to track down every last bison carcass before it is scavenged to properly dispose of it and as a result the park is littered with anthrax spores. This is also another reason why veterinarians are reluctant to cut into a possible anthrax case as we can propagate the formation and dispersal of anthrax spores if we open the carcass.

It is better to leave the carcass undisturbed, covered to prevent scavenging and then disposed of rapidly to prevent dispersal of spores. Ideally we should treat any blackleg or clostridial case the same. If producers leave a dead calf with blackleg out in the corner of the pasture to be scavenged, we are essentially allowing blackleg spores to be dispersed where ever scavengers might want to take it. Interestingly, birds of prey have been found to carry blackleg spores from feeding on decaying carcasses and thus they can spread it along their migratory pathways. Adult cows are very unlikely to develop blackleg disease but the bacteria can be found in their feces.

Blackleg continued from page 9:

Knowing that we can find blackleg bacteria or spores in the feces of many animals as well as birds of prey, it is hard to think that some producers may not have to worry about the disease. In my opinion, the only producers who have 0% risk of their animals contracting blackleg are those who graze their animals on fluffy white watery things (clouds) miles above the earth (hopefully a hawk or eagle does not defecate directly into the mouth of one of their calves while grazing there).

Even hay that is baled from a piece of land that has had animals grazing on it in recent years can be a source of the spores. Hay rakes can disturb the soil enough to kick dust and spores onto the hay that is then bailed. Excavation from water lines, pipe lines or other sources of soil disturbance can bring to the surface spores that had been dormant for a very long time. There does not appear to be any quickly retrievable information on how long blackleg spores can survive but for comparison, *Clolstridium tetani spores are reported to be able to remain viable for over forty years under proper soil conditions. Once in a while we do hear of anthrax cases in areas where major soil disturbance has occurred and let us not forget about our pasture nemesis the pocket gopher/ mole.*

Calves born to healthy vaccinated cows and who have received adequate and good quality colostrum are typically protected against various clostridium bacteria until the maternal/ colostral immunity decreases around three to four months of age. Thus it is important to vaccinate calves around turn-out so as to provide protection for the summer grazing season. In the face of an outbreak, it is generally recommended to vaccinate any unvaccinated calves and booster them again in four weeks.

Cows should be vaccinated yearly or at least every other year where it is not a problem and do not forget your bulls. I have seen a very valuable purebred herd bull nearly die from red water and the owner had never thought to vaccinate his most important livestock investments with an inexpensive 8-way vaccine. Many veterinarians are recommending 8-way vaccines with the additional *Histophilus somnus component to help protect against histophilus pasture pneumonias in calves. Cows are typically fine with a straight 8-way vaccine. Any animals you plan on retaining should be revaccinated in the fall, ideally prior to weaning. Talk to your veterinarian for more information on what is the best program for your herd.*

Dr. Andrew Ritson-Bennett
Innisfail Veterinary Services

Is your feed supplier double-checking your mineral?

In the last two years, the U.S. beef industry experienced some of the largest recalls on record as Ranch Feeding Corporation announced a recall for 8.7 million pounds of "unwholesome" beef in 2013, and Wolverine Packing Company withdrew 1.8 million pounds of ground beef for E. coli O157:H7 contamination in 2014.

It is more important than ever to have a traceability program in place from farm to fork for both humans and livestock.

When it comes to heavy metals, dioxins and dioxin-like polychlorinated biphenyls (PCBs), the levels illegal in other regions such as Europe are not necessarily illegal here. The FDA does not have specified limits for heavy metals.

They do, however, state under Section 402(a)(1) of the Food, Drug And Cosmetic Act (21 U.S.C. 342(a)(1)), a food shall be deemed to be adulterated if it bears or contains any poisonous or deleterious substance which may render it injurious to health, but in case the substance is not an added substance such food shall not be considered adulterated under this clause if the quantity of such substance in such food does not ordinarily render it injurious to health.

Until better coordination among the USDA, the EPA and the FDA is reached and limits are set in place, the most troublesome and costly element to U.S. businesses from heavy metals, dioxins and PCBs is damage to their brand, more than any sort of "illegal" component.

A study by AMR Research, a U.S.-based international research firm, shows recalls are more common and costly than expected. Expenses often exceed $10 million per recall, with companies losing twice that much.

An effective traceability system could make many of these recalls avoidable. Safeguarding the quality of ingredients in animal feed is essential in ensuring food safety.

How do trace minerals become contaminated?

In recent years, contamination of trace mineral supplements has been causing more frequent problems across borders. China is a major supplier of inorganic minerals to the animal nutrition sector.

Recently, trace elements shipped from China – including sources of zinc, copper and manganese – have been included in a list of products subject to enhanced checks before being allowed to enter the European Union (EU). Cadmium and lead contamination have been identified as the potential hazards in these shipments.

→

Dioxin is a general term for a large group of fat-soluble organo-chlorine compounds, the polychlorinated dibenzodioxins and dibenzofurans, about 30 of which are significantly toxic.

Dioxins can potentially be formed whenever organic compounds, chlorine and high temperatures are involved. Common sources include volcanic eruptions, forest fires, exhaust emissions, incinerators and in the manufacturing of chemicals, pesticides and paints.

Dioxins can also be formed during the processing of inorganic minerals. Metals, especially copper, can act as catalysts in dioxin formation.

Dioxins are termed "persistent organic pollutants" because they are very stable, resisting physical and biological breakdown to remain in the environment for long periods of time. Dioxins are known teratogens, mutagens and carcinogens in humans and animals.

PCBs differ from dioxins in that they are intentionally produced for the manufacture of transformers, inks, plasticizers, lubricants and building materials.

PCBs are present in inorganic trace mineral sources due to the recycling of metal sources, such as copper wiring. At least 70 percent of copper sulfate is produced from renewable sources. PCBs are also a known carcinogen in humans and animals.

Heavy metals are a concern because they can enter the soil resulting in the contamination of inorganic trace mineral sources and can enter groundwater as a pollutant.

Mercury, lead, cadmium and arsenic can cause neurological signs such as blindness, anemia, soft-shelled eggs, kidney and renal damage, and sudden death in livestock.

The use of mined versus recycled minerals has also been debated; however, both have had negative implications. Mined minerals tend to be higher in heavy metal contamination, and the mining process can cause contamination with dioxins and PCBs.

Dioxins can also be formed during recycling, and often materials such as PVC coating are not removed during the process of recycling.

Five-year survey

Recently, our company completed its fifth annual Heavy Metal Survey throughout the Asia-Pacific region on samples of complete feed, premix, inorganic minerals and organic minerals.

Almost 500 samples were submitted as part of the 2015 survey and analyzed for arsenic (As), cadmium (Cd) and lead (Pb) with inductively coupled plasma optical emission spectrometry (ICP-OES).

Results show 30 percent of 498 samples tested were contaminated with at least one heavy metal above acceptable EU levels.

A closer look into the results show 14 percent of inorganic minerals, 7 percent of organic minerals, 15 percent of premixes and a staggering 68 percent of the complete feeds analyzed were contaminated. Such contamination has been shown to have not only an impact on animal performance but also on consumer safety.

Extremely high levels of heavy metals were detected in some samples. For example, 2,019 ppm of cadmium were detected in a copper sulphate sample, while a zinc oxide sample revealed 3,023 ppm of lead.

High contamination levels are commonly found in inorganic minerals due to the mining and manufacturing process as well as less stringent quality assurance applied to feed-grade mineral sources.

It is important to remember that this survey is only a snapshot in time. Heavy metal contamination is an ongoing risk. The only way to ensure ongoing quality minerals, free from heavy metal, PCB and dioxin contamination, is to test every batch.

Quality control check

The risk of contamination associated with inorganic minerals is a concern for feed manufacturers of all mineral supplement forms because inorganic mineral sources are used to manufacture organic mineral products.

Cattle producers should confirm their feed companies are implementing a quality assurance program that addresses these concerns:

- Does the manufacturer use approved suppliers only?
- Does the manufacturer audit its suppliers?
- Does the manufacturer have third-party certifications from reputable groups to demonstrate its commitment to quality?
- Does the manufacturer test for dioxins, PCBs and heavy metals in all raw materials and prior to sale? Traceability from raw materials to finished product is a must for all feed additives.

Besides contamination issues, many beef feeds are turning to organic minerals to limit their impact on the environment.

Growing awareness of the environmental pollution caused by those unused trace minerals has led to concern and even new legislation in parts of the world controlling trace minerals in feed and manure levels.

Quality control has to be at the top of each beef producer's list when choosing trace minerals. As a result of past and current food crises, animal feed is an important area that affects the integrity and safety of the food chain.

In addition, legislation concerning the production of feed is getting stricter. Routine analysis of feed and food ingredients and the assurance of equally high standards of quality and transparency from suppliers will continue to be critical in a global ingredient market to protect the food chain from contaminants such as dioxins, heavy metals and PCBs.


Rebekah Ricketts

Written by Roger Scaletti, Alltech, Originally published by Progressive Cattleman.

Producer Feature: Chris Sande

Area fenced off so cattle have no access

Area cattle currently access to drink

Hello Everyone! I'm Chris Sande. My wife Brenda and I operate a cow-calf operation in the Bingley district, twelve miles northeast of Rocky. I am currently in my third year as a director on the GWFA Board, and was on the Board a few years back.

When I think back to earlier years, I realize how much useful information has come from projects, demonstrations, and presentations. One area that comes to mind is a project we currently have going on a pasture quarter. The land is mostly low, with peat soil and is divided in two by the Lobstick Creek. The creek is prone to flooding when we get several inches of rain. I can remember one year in the early 70's getting nine inches of rain in July and finding fish in the grass the other end of the quarter.

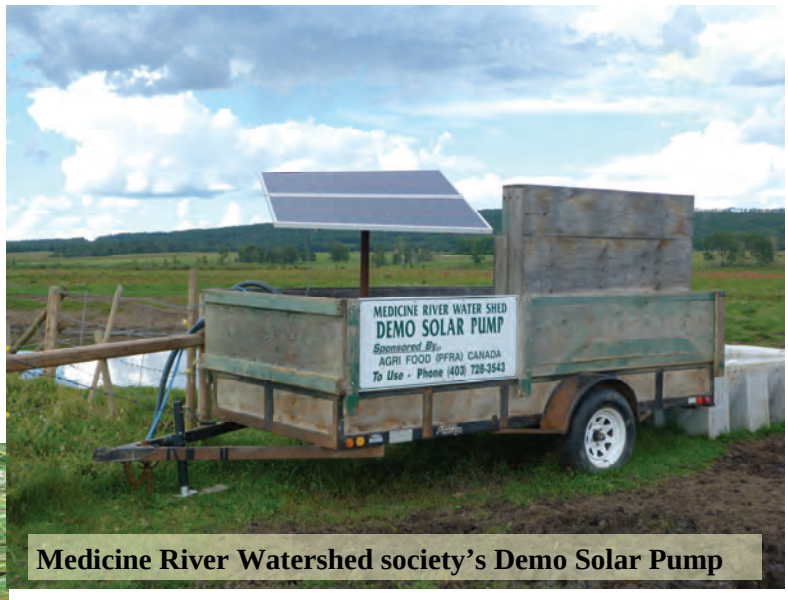
Beavers were always a problem back then, so we proceeded to clear some of the willow to try to reduce their ammunition for dams. We used to run about 80 cow-calf pairs in an attempt to keep the brush and grass down. The creek banks are the highest land, so they got severely overgrazed. The result was serious erosion every time there was a flood. The creek itself is probably two to three times the original width and has changed course in a couple of spots. Erosion also spread away from the creek, and the cows would struggle, up to their bellies in the mud, between the humps. In places, it is virtually impossible to navigate to check cattle.

In the fall of 2013 it was dry enough to disc some of the worst areas, and I was able to re-seed about 12 acres adjacent to the creek. I planned to fence these areas and also the creek to start the healing process. In the spring I saw an ad in the paper from AWES (Agroforestry & Woodlot Extension Society) looking for sites to do riparian planting. This seemed to fit right in with what I was doing, so I contacted them and they were interested in the project. Clearwater Landcare was also involved in planning and funding.

Spruce seedlings planted at the site

In May 2015, AWES was back to plant more trees, but due to being so dry, they had some difficulty. I see a lot seem to be surviving, so far and the grass is tall and covering most of them hopefully shading them from the heat.

I currently am using a solar watering system from the Medicine River Watershed Society and I am planning to purchase our own soon. Also we are planning to cross-fence so I can rotate pastures and do more re-seeding as conditions will allow.



Medicine River Watershed society's Demo Solar Pump

In conclusion, I look at this project as an indication of change of attitude, as well as priorities. I hope the next generation will benefit from some of the changes we make today and continue to look after our land and water.

Good luck to everyone.

WESTERN CANADA

Conference on Soil Health

December 8th, 9th & 10th, 2015

Radisson®
HOTEL EDMONTON SOUTH

ARECA

2015 International Year of Soils

This publication is made possible by funding from Alberta Agriculture & Rural Development & Alberta Environment and Water via the Agriculture Opportunities Fund (AOF).

Agriculture Opportunity Fund

Alberta

Free Buy & Sell Classified

FOR SALE:

4020 John Deere - Fire damage on cab. Good restoration project.
Call Les at **403-729-2354**

For Sale: 28’ 7550 Easy On Air Drill-5” rubber packer wheels-10” spacing. Also a 1720 Flexicoil Air Cart.
Call David at **403-586-5050**

Land for rent beginning 2016:488 acres crop & forage For more info **403 773 2125** or email:
brianbiggs@hotmail.ca

Custom Farm Fencing (Barbwire)
Contact Lee at Blue Rock Animal Nutrition:
403-804-4350

To submit an ad, please call Ginette at 403-507-5478 or email it to her at gwfa3@telus.net

12’ Pull Type Brillion Seeder on hydraulic transport. Needs large & small seed boxes. **403-895-1722**

2 tonne capacity feed mixer with weigh scale cells. 3 phase motor, but can be converted if necessary. In good shape. Located in Innisfail. Motivated to sell Contact Kristen at **403-358-1674** for more information.

WANTED:

Looking for a Highline 7000 HD Bale Processor
403-728-3992.

Grey Wooded Forage Association

"Creating an Awareness of Forages"

2015 –2016 Memberships are available now for $20.00
and run from April 1, 2015 to March 31, 2016
For more information phone 403-844-2645

Membership is open to anyone interested in forage production and grazing management in an economically and environmentally sustainable way.

Membership benefits:

- **Receive discounts on Controlled Grazing Courses, seminars, workshops, tours when discounts are offered.**
- **Farm calls at $100/visit and free consulting by phone, email or office visit on grazing management and any other forage production questions, effective immediately.**
- **Receive *The Blade* monthly via a link sent to you by email each month.**
- **Receive a printed copy of *The Blade* in the mail monthly for a $10/year printing and postage fee, in addition to the $20/year membership fee, effective July 1, 2015**
- **Receive up-to-date information on GWFA activities via The Blade, the website and by email.**

Please mail the portion below with a cheque for $20.00, or $30 ($10 printing & postage fee added) to:

Grey Wooded Forage Association
Box 1448, Rocky Mountain House, AB, T4T 1B1

PLEASE PRINT CLEARLY: Renewal____ or New Member____ Your preference: Canada Post____ or Email____

Name _____ Phone _____
Company Name _____ Mobile Phone _____
Address _____ Fax _____
Town _____ Prov ____ **Email** _____
Postal Code _____ **Confirm Email** _____

Please give us an idea of what area of forage production you are interested in:
Controlled Grazing & Pasture Management:_____
Growing Annual Forages for Extended Grazing or Swath Grazing:_____
Growing Annual Forages for Silage or Greenfeed:_____
Growing Hay:_____ Ration Balancing:_____
Soil Biology:_____ Pasture Rejuvenation or Renovation:_____
Low Cost Cow/calf Production:_____
Environmental Sustainability:_____ Economical Sustainability:_____

COMMENTS:_____

GWFA Platinum Sponsor!

LONE STAR RANCH & SALES

3D Fencing Project Sponsor!

QUALITY LIVESTOCK EQUIPMENT AND SERVICE

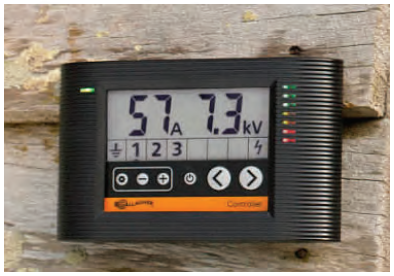
"We know what it takes because we live it everyday"

MORAND LIVESTOCK EQUIPMENT DEALER

- complete livestock handling systems
- squeeze chute (with patented shoulder holder)
- maternity pens
- loading chutes (portable and stationary)
- gates and panels (all sizes and configurations)

GALLAGHER DEALER AND REPAIR CENTER

- full line of electric fencing supplies and equipment
- Western Canadian Repair Center, and system design consulting
- weigh scales, load bars, and RFID readers



MIRACO LIVESTOCK WATERER DEALER

- designed with clean out plug and completely rust free
- all sizes available for any size of operation

PROMOLD DEALER

- solar pasture water troughs, bunk feeders, fence line feeders, mineral feeders
- calf feeders,calf shelters, stand alone panels and windbreaks
- Verified Beef Program reimburses 70% (up to $5,000.00) of the cost of a new squeeze, load bars, scale and RFID reader.

GALLAGHER

Phone: 403-391-9314
Toll Free: 1-855-391-9314
Fax: 403-347-1939
Email: lonestarranchsales@gmail.com

MORAND INDUSTRIES LTD.