The Blade

Creating an Awareness of Forages

Monthly Newsletter of the ***Grey Wooded Forage Association***

AUGUST 2017

Message from the Chair

Amy Leitch

WOW, it has been a warm summer in my short memory of summers, I am sure that those readers with more wisdom then I can remember many a summer like this but I, not as many. Leading into this note they call the message from the chair, I'd like to say welcome back to this edition of the Blade, now let's begin.

I am posing a question to you all… What do you think about when you hear/say grazing? Take a moment to jot down what comes to you. Grazing to me isn't just about the mouths above ground, we often forget about the mouths below and out of our sight. As we continue into our grazing season, I challenge the readers & members to linger longer in their pastures, possibly with a spade or magnifying glass (be careful it is dry out there). You may use these items to wack a rodent, fry a grasshopper, or dig a hole and act as a child might, and watch the ground with wonder. I, myself have been caught by my family in a state of wonder, watching the dirt as we were moving our Kiko goat herd to a fresh paddock. In that few uninterrupted moments I watched goats snipping off the brome and timothy heads, nipping off basal leaves and paused to think, this much activity up here, how much is going on out of sight, down below? It is unimaginable really the amount of activity going on below the surface from the insects, worms to the microorganisms so tiny only the microscope will see them; as a mother I thought, if only the magic school bus was real, I could then shrink with it and visit the bustling activity world below our toes. Ah, so back to reality and the studies of science to lead us on the path of nurturing that activity below to increase our capacity above. Which I think has and will continue to be an important development in all our grazing. Anyone else with me?

Thanks for taking the time to take in the August message from the Chair and as always, we at GWFA are interested in what your take on it is. Don't forget to let us know what you your thoughts are when the word grazing comes up in conversation. Contact myself, Amy Leitch, 403 845 8044 or the staff at the GWFA office 403-844-2645.

The Blade is a monthly publication produced by The Grey Wooded Forage Association

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GWFA Mission Statement

To promote environmentally and economically sustainable forage and agricultural practices.

GWFA Vision Statement

The community is engaged in regenerative agricultural production methods.

The Grey Wooded Forage Association is a member of ARECA

ARECA

Cover Photo: Enna Graham

In This Issue:

PC Amy Leitch

Manager's Notes

Ginette Boucher

Hello folks,

Its been a hot dry summer, plants have adapted to the conditions and went to seed quickly. This has become quite apparent when you travel and see the many fields. A lot of hay and silage was put up and most are working on their second / third cut depending on area.

Red Deer County is inviting producers to submit ALUS projects on page 9. If you are within the designated areas and fit within the project details please be sure to contact ken Lewis with your project.

We are still looking for two board members, unfortunately two of or candidates were suddenly unable to commit. If you have some extra time and you would be interested in contributing to your local forage association please contact us and we would be pleased to chat with you and provide the necessary information for you to consider the opportunity. A board position can be very rewarding, it is a great learning experience and contribution. We invite all members to consider a position. Our members are our best assets. We invite you to contribute ideas for projects and extension events as well as some farm stories we can include in the Blade. Our publication deadline is on the 25th of each month, please send in your content.

We have sent out two needs assessment survey to our members and have received approximately 10% replies. Our goal is to get 30-40%. We need to hear from all those who have not yet sent in their needs assessment. Our funders require that we deliver on based on needs, and your help is required to accomplish this. We have sent this out digitally. If you have not received it, please give us a call and we will mail out a copy for you to complete.

Devin & Enna continue to work on our projects, which include the sanfoin/alfalfa/brome plot at Murray Abel's farm in Lacombe, the alfalfa plots at Doug & Deb Skeels farm near Caroline, and we are awaiting the arrival of the weevils in late August to start several long-term projects with many municipalities. We hope that the weevils demonstration projects will be viable long term solutions to controlling Canada thistle in an environmentally sustainable way.

We are planning our fall and winter extension events and are always happy to hear from our members. We look for feedback on our extension events to ensure we are providing quality credible information on a timely matter. The more we hear from our members the better information and extension we can deliver. We are looking at delivering quality as apposed to quantity. We are considering hosting another Farm Transition Workshop in conjunction with Alberta Agriculture & Forestry and ARECA. We need to know if you would be interesting in attending this type of workshop it will make the decision much easier.

This month we are hosting our High Legume Field tour in conjunction with the Cow-Forage Field Day on August 22nd. You'll want to make sure to register for this upcoming field day. See the poster and write up on pages 6 & 7. We thank KeyAg Kubota and Jerry Oude Egberink for agreeing to provide a tractor and wagon to facilitate the transportation during the legume tour at Murray Abel's farm. We are currently in discussions with KeyAG Kubota about hosting another field day possibly in late August or September, more to come.

October / November upcoming events include, a Solar workshop, Tools to build the Cow Herd, a social license workshop along with multiple EFP workshops in several municipalities. Make sure to mark your calendars.

Kind regards,

Ginette

Bale Silage… Why it May Work for You

Devin Knopp, PAg

It looks like silaging is right around the corner and I think back to the 'old days' when we used to make pit silage on our farm. As a kid, it was rather fun to ride in the different equipment, it was a novelty because we didn't own any silage equipment. However, looking back we had quite the crew of people working to put silage in the pit and I understand now why we never bought that equipment and have since gone away from pit silage.

I mentioned just a moment ago, that we had quite the crew, and that's a benefit, but a downfall to making silage. There's a lot of big iron running around the field, back and forth to the pit, and of course the tractor making sure that silage is stacked and packed tightly. Each one of those pieces of equipment needs an experienced operator. For some that's not a big problem, but for us labour started to become an issue. The second reason we went away from pit silage is consuming the product. We background our calves, and when we had a large herd we could feed through that pit of silage relatively easy and maybe have a little left over to give our cows a taste. However, BSE, drought, and labour had us begin to downsize the cow herd and continue to downsize to the point where our herd is at a fraction of where it used to be. It became increasingly difficult to get through that pit silage, and it really wasn't worth firing up all that equipment to make a small pit-full. Thirdly, its really hard to sell pit silage if you make too much, and even more impossible to store it year to year.

Why might bale silage work for you. First and foremost, the technology around balers and their ability to make high quality silage has advanced rapidly. A few years ago, many manufacturers were toting their hay balers as silage balers. However, the hay balers just could not wrap the silage tight enough to get all the air out. This created a lot of spoilage and unhappy customers. In this very short amount of time some of the manufacturers have improved their hay balers to the point where they can match the quality coming from silage specific balers, and many of you may have a baler that can make good silage bales and not even know it.

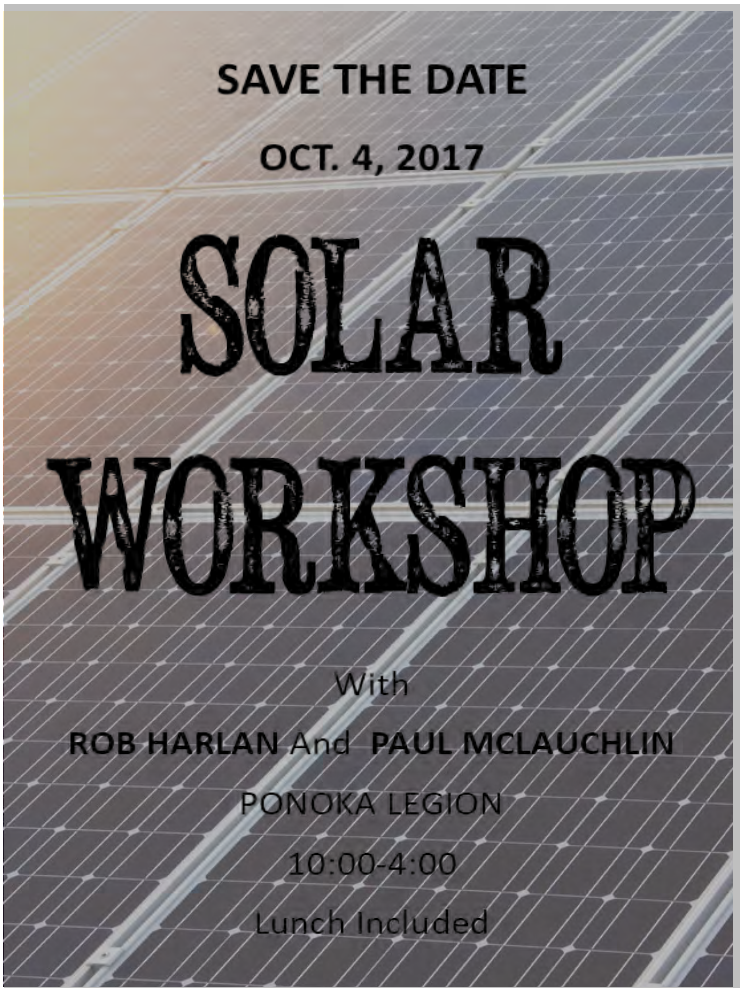
Secondly, bale silage doesn't need a big crew. We've made bale silage with a crew of 1 up to a crew of 5. To a point a few more people makes the process easier, but there's also a point to which you will be going as fast as your slowest piece of equipment. Thirdly, ease of handling. If you already have the equipment to handle large round bales of hay, this is no different. Silage bales can be rolled out, set in a feeder, processed in a tub grinder or bale shredder. They can be managed with the equipment and feeding processes you are currently doing. Now, one downfall is they are heavy, so don't make your bales too big. We saw, at the Kubota day a few weeks ago, a couple of silage bales weighed-in well over a ton. That could be hard on your equipment. If you end up wrapping up too many or are forced to make silage you hadn't planned on. There is a market developing for wrapped silage bales, where there is little market for pit silage, because its almost impossible to store outside the pit.

The quality of bale silage is right there and in some cases better than pit silage. The reason I say this, because making bale silage is taking more of the human element out of the silaging process. What I mean by that, the baler is doing the work of chopping, packing and in some cases wrapping, but a poorly packed stack by an operator will lead to spoilage in the pit. The plastic is also applied by a machine, rather than unrolled over the pile by hand. Again, improperly sealing the plastic on the pit can lead to reduced quality in the feed. Now, the equipment must be maintained in a bale wrapping scenario to maintain its functionality, but as long as everything is working properly the process removes much of the human element, where major mistakes can be made.

Making round bale silage allows you a little more flexibility in timing as well. When putting the silage in the pit, generally the chopper is not far behind the swather or in some cases doing the cutting and chopping in one pass. So, the moisture level in pit silage is quite high, 60% moisture or more. In bale silage having that kind of moisture level is going to make very heavy, water-logged bales. Generally, in a bale silage scenario your cutting and waiting a few hours, or maybe making the bale silage the next day. For bale silage, you want the moisture to be 40% - 50%, for proper ensiling, without making them too heavy. This gives you some time and flexibility after cutting. You also have flexibility in the baling process. Silage bales can wait a bit to be wrapped before they spoil. Normally, you want to have them wrapped in plastic within 12 hours after baling to prevent any spoilage. This gives you lots of time to completely bale a field, haul into your wrapping location and wrap the bales. If labour or time is your issue, this gives you the ability to work silage baling into your schedule.

Some people argue that the increased amount of plastic required makes the process more expensive. That may be true to a point; it also depends on which process your using. Wrapping a single bale completely in plastic is considerably more expensive then wrapping bales in a long row. A single bale wrapped in plastic is going to cost somewhere in the range of $12/bale, where as in a long continuous line your looking at about $4/bale. However, I would argue you are saving on a per ton basis in fuel cost, labour cost, maintenance, capital cost of the equipment, and time. Time is probably the least accounted for. Time in producing the silage, time in feeding, ease of handling and the ability to market the product if you wish.

Bale silage was a process we jumped into with both feet. We've learned some new techniques, made mistakes, but in the end put up good feed, at a reasonable cost, that fit well into our operation. Bale silage works well for us, so maybe it'll work for you too.



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Clinton Brons

Livestock Gentec is dedicated to world-class livestock genomics research in Alberta, and to delivering the commercial benefits of genomics to the Canadian beef industry. Our focus is on applied research aimed at addressing challenges faced by the producer and is conducted with industry participation. It is through industry involvement from the beginning that adoption of novel technologies can be achieved to most rapidly improve the profitability of the livestock sector.

Through groups such as the Grey Wooded Forage Association new technologies can be introduced directly to member producers identified as being most likely to directly benefit from the introduction of new methods.

One new technology just developed and validated in the Alberta Beef herd by researchers at Livestock Gentec and Alberta Agriculture and Forestry is that of EnVigour HX™. From a few follicles of hair this DNA based technology allows producers to verify bull performance via parentage assignment, determine the breed composition of an animal (and herd), and evaluate the degree of hybrid vigour within the cow herd. With this data, producers can take steps to improve the economic impact of:

- Bull selection
- Feed efficiency,
- Fertility, and
- Longevity within their herd

On August 22nd the Lacombe Research Centre will provide producers the opportunity to see first-hand the impacts of these and similar advances in both the cow herd and forage systems at the **Cow-Forage Gentec Tour**. In conjunction with the tour, the Grey Wooded Forage Association is also providing the option to participate in a legume session at Murray Abel's operation showcasing the advantages of integrating legumes into beef forage systems.

The Cow-Forage Gentec Tour is an informative and interactive field day showcasing the impact of genomics in the areas of forage and grazing systems, and in improving the cow herd. Topics include:

- Selecting forage varieties and winter grazing strategies to enhance cow productivity;
- Best use of summer pasture;
- Bull selection;
- Benefits of managing mating,
- Breed composition, and of
- Increasing hybrid vigour in the cow herd (and EnVigour HX™).

Dr. Charlie Brummer from the University of California, Davis, will also talk about using DNA technology to develop forages with reduced dormancy periods to increase forage production.

This common interest in improving the efficiency and profitability of the cow/calf herd has led to discussions between Livestock Gentec and the Grey Wooded Forage Association to explore collaborations that would facilitate the adoption of these innovative practices / technologies by GWFA members.

Livestock Gentec also hosts the **One Genome, One Health: Our Animals, the Environment, and Us** conference in Edmonton October 17-18. This event provides the global perspective and looks at how the larger impact of technology that affects us all starting with food production (livestock and plant), human health, that of our pets, and ultimately agriculture, the environment, and our sustainability.

For more information on the Cow-Forage Gentec tour or One Genome, One Health visit www.livestockgentec.com

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Planning for Safety in Fencing Part 1

Precision Grazing

Safety concerns should be front of mind issues in the livestock enterprise today. With many extended tentacles affecting animal, environmental and human health the best time to be safe begins with the planning of the project, and the selection of materials and equipment. For the construction of a fence – whether replacing an old one or planning an entirely new one, Greenedge Precision Fence has developed the following guide to BMP's for fences. The central Alberta firm in Olds has pioneered in fencing technologies and planning through its joint venture with an aerial land analysis company, Fotocure; using UAV/drone technology for planning safe and efficient installation of livestock fences.

The ultimate goal of fence construction and improvement is to reduce liabilities, improve operating performance, gain more revenue from livestock, forages and crops, and increase human and animal safety with less lifetime maintenance and repair costs. That goal is achievable with a bit of extra planning effort at the outset whether on land being purchased or leased, or a redo on existing fences.

Planning around common obstacles to avoid conflict.

-Locate all underground, overhead and slope/water hazards

A fence will likely run past, under or over other utilities, powerlines and pipelines. Doing a First Call for underground structures and a thorough review of overhead lines and potentially unstable trees is an essential first step. Taking into account slope and water body obstacles and planning the fence line away from these issues can save thousands of dollars, injury and even life loss. Today there are abundant permanent records of property lines, fences are no longer the only or best way to demark these boundaries. Instead, the fence location should ensure functionality, control, and access for best lifetime results. As an example, often a corner-post is located too close to a phone line or power pole just to match the fence to a property peg, when a longer lasting inverted corner around the structures will be much less costly, more stable, and repairable especially if it is exposed to traffic damage from vehicle hits. Utility workers will thank you for the courtesy while animals will be prevented from added potential hazards

Low stress fence designs for human safety and humane animal care

-Plan fences that are safe for animals and humans

Animals will be more stressed if they are forced to travel along or around unstable slopes and narrow passages or through seasonal or permanent soft ground. Exposure to adjacent herds without separation distance can result in greater time spent in unproductive social behaviors and damage to animal and fence structures –not to mention wear and tear on family and neighbor relations. Greenedge recommends a variety of solutions including putting new fences a short distance inside the property boundary leaving a long narrow paddock for very selected grazing season or preservation of a shelterbelt and wildlife enhancement. Traditional shared fences are rarely a pleasant topic, with most neighbours in our modern and more litigious business climate. Under most Fenceline Act/ legislation the land owner benefiting from a fence is required to maintain it or share the costs if a new fence is built. A setback of 16 feet of width over a half mile is equal to an acre of ground, hardly worth the battle most boundary line fence projects create especially if the neighbour then has the benefit and obligation of maintaining the original fence. (a further advantage to this strategy is building a fence type that serves your needs best - like a permanent high tensile electric. (See "No More Injuries")

Use long lasting, durable materials and safe equipment

Consider using permanent electric fencing to support grazing rotations

The selection of posts and wire as well as anchoring devices is another issue at the planning stage.

Modern metallurgy has brought us greatly extended lifetime service in the form of heavily galvanized, high carbon steel smooth wire. This is especially important along roadways that are salted in winter as well as in areas where sulphur is present in the air from energy plants or oil and gas processing facilities. Ensure that posts are treated and fixed using standardized procedures. The forest products industry has set standards for their member organizations. Posts should be dried before treating to ensure that the drying checks are well treated. Greenedge Fencing uses a drilling procedure to install wires, this further helps to dry out the inner moisture that may still be present within the posts.

No More Injuries: Thinking twice about barbed wire fences

Modern farming and ranching practices point directly at replacing barbed wire fences with safer, longer lasting high-tensile wire. Many land owners give little thought to the legacy of barbed wire. In-fact many people even idolize it and depict old barbed wire fences as a defining scene on a prairie landscape. This romantic depiction couldn't be further from the truth. Barbed wire turns out to be a costly and even deadly mistake that is the "elephant in the room" of most discussions around farm safety. The alternatives have not been well presented and many imported ideas about scanty light duty electric fences have failed to convince land owners to switch. Until now!

Greenedge Precision Fence of Olds, Alberta has demonstrated in over 100 projects that non-barbed fences when properly constructed, anchored, installed, and electrically charged are more economical, humane for animals, and safe for humans. Greenedge founder and President, Lloyd Quantz has developed a made-in-Canada system of hi-tensile fencing that dramatically improves the life time costs of fencing while making safety paramount. The system enables fences to follow straight or curved paddock boundaries and serves as the backbone system for rotational grazing.

For further information contact:

greenedge.com or call 403-556-0994

Ecosystem Services Produced Here...on Farms, Ranches, and Acreages All Over Red Deer County

Ken Lewis, ALUS Coordinator, Red Deer County

This summer, as you travel the roads of Red Deer County, hopefully you'll notice more and more signs like this one here.

These signs are going up where farmers, ranchers, and acreage owners have taken action to benefit the environment. They have done things like riparian management fencing, alternative livestock watering, tree plantings, crossings, and more.

When they do that, they are producing increased ecosystem services that benefit society at large.

The sign shows the many different supporters of Red Deer County's stewardship programs over the years.

The sign also depicts an Avocet. This bird can be found in wetlands and riparian areas throughout Red Deer County. It is highly identifiable due to it's unique bill and coloring.

To find out how you can do a project with funding support from either the ALUS Program (for farmers and ranchers) or the Green Acreages Program (acreage owners), call Red Deer County at 403 -350-2150 and ask for Ken (ALUS) or Aimee (Green Acreages), or check out www.rdcounty.ca

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Red Deer County

You can get up to 85% of costs covered for projects you want to do, like riparian management fencing, off-stream livestock watering, crossings, portable shelters, and more.

Red Deer County's ALUS Program has funding from many sources. One of our funders (Environment Canada) is looking to improve fish habitat. Another funder (Sylvan Lake Management Committee) is looking to support projects that can benefit Sylvan Lake.

ALUS works with farmers and ranchers that make management changes on their operations, so that there's an increased production of ecosystem services. ALUS pays those farmers and ranchers in two ways:

- Cost-sharing on the doing practices like those listed above (up to 85%)
- Providing annual payments for the acres involved, for up to 10 years. These payments are up to $30 or $40 per acre per year.

Fish habitat (for the purpose of our funding) is streams, rivers, lakes that have fish in them. AND it's also the little creeks, draws, coulees etc. that drain into those "fish-bearing" waters. AND, it's the nearby land where run-off can occur. So, any project you do in Red Deer County, that can help improve things for fish, could be eligible for the ALUS Program.

Please give me a call any time, at 403-505-9038 or email at klewis@rdcounty.ca to discuss your ideas.

Swath Grazing: More than just frozen TV Dinner for your Overwintering Cattle

Mustafa Eric, AFSC Communication Coordinator

The phrase in the above title to describe the practice of swath grazing was coined by none other than Dr. Vern Baron, a leading scientist on forage research at the federal government's agricultural research centre in Lacombe.

"Swath grazing is just like providing cattle with frozen TV dinners. And they don't mind eating them outside," he says explaining why this practice, believed to be tested and adopted by some 30 to 50 per cent of cattle producers, can be cost effective.

Dr. Baron says the practice of swath grazing has multiple benefits, including reducing farm labor to 34 per cent , diesel fuel required to 25 per cent and land required to feed cows over winter by 50 per cent. These are all possible if the swath-grazed crops are high yielding and managed to their optimum. The advantage is that more cows can be managed on the same amount of land, with the same or less labor with a reduced carbon footprint.

Swath grazing is, in a sense, extending the grazing season and in doing so, saving on many expenses that might add up to a substantial total. Selecting this option for feeding overwintering cattle will save a producer from spending time, money and effort on the following operations: harvesting, hauling feed, processing and managing/hauling manure. As an added benefit, the cattle leave the manure in the field while grazing, effectively fertilizing the land without any effort on the part of the producer.

Another point to consider is that energy and fuel saved through swath grazing reduces the carbon footprint of the cow herd, perhaps as effectively as carbon sequestration. Dr. Baron's research found that compared to traditional feeding methods, swath grazing 100 cows for 100 days saved the equivalent of 2,534 L of diesel fuel. This amounts to reducing atmospheric greenhouse gas emissions by 67 kg CO_2 for each cow that grazes for 100 days. A carbon credit worth $12 per tonne for 300 cows at this rate would be worth $240. If the carbon credit increases to $50 per tonne the credit would be worth $1000 for 300 cows.

But while swath grazing is profitable, it is not simple and it charges the producer with some homework to be done. In many cases, producers assume that swath grazing requires no inputs. One of the most important tasks for the producer is to know the characteristics of his soil.

"One of the interesting things is that producers often feel that they don't need to use fertilizer because they are grazing, but that is not necessarily so," Dr. Baron said in an interview, explaining that manure spread through grazing is deposited above ground and often in patterns, so a good portion of the soil is unfertilized.

"But many producers just rely on manure, many producers use the same land over and over again for swath grazing. You will have to soil test and determine what they need for nutrients."

He adds that grey wooded soils, in particular, need nutrient support as they are known to be low in nitrogen and in phosphorus.

Another important element of management is the choice of the crop to be seeded for swath grazing. Research conducted so far seems to favour triticale as one of the most optimal crops for swath grazing, followed by corn. However, Dr. Baron recommends the use the highest yielding crop selected from trials in the producer's region.

Selecting crops with high yield potential may well lay the groundwork for freeing up land for other crops to be grown.

"The higher carrying capacity of triticale and corn resulted in less land required to grow crops used in winter feeding than the control and swath-grazed barley since land requirement is the reciprocal of carrying capacity," said the authors of a study, including Dr. Baron, published in the Canadian Journal of Plant Science in May 2014.

"Triticale was more consistent than corn from year to year in this regard. The significance is that as much as 50 per cent less land may be required by cow-calf producers to produce winter feed in central Alberta. This reduces the footprint of the cow herd, leaving the remaining land to be used for another economic alternative or for conservation purposes," the study concluded.

While everybody has a favorite crop, crop rotation is important as in any other cropping system. Crop rotation reduces the risk of crop diseases which can build up over time due to crop residues left behind. "Beware of cropping sequences from other farming operations," cautions Dr. Baron .

Other management concerns that producers should take into consideration include:

-The location for swath grazing: Thin cows that are not strong enough to endure harsh winter weather will need more nutrition than the average overwintering animals, therefore, it is important that the grazing area should be suitable for monitoring the herd during the period of grazing;

- Availability of windbreaks, whether natural or portable, is an important factor to ensure that adverse weather will not hamper grazing for an extended period;

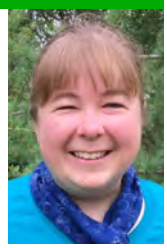
- Contingency plans should be made to be able to provide supplemental feed to grazing livestock in case conditions arise requiring emergency measures;

-Adequate steps need to be taken to protect the stock from wildlife intrusion;

-Availability of adequate water needs to be ensured in case snow is not enough or unsuitable as a water source.

As forage experts continue working on developing new crop varieties to generate higher yields, it is believed there may be further upside potential for cattle producers to enhance the profitability of their operations by adopting swath grazing and other extended grazing practices.

Nitrate Accumulation in Hailed Out Crops



Barry Yaremcio, Karin Lindquist

It is not unusual to have hail storms travel across the province this time of year. Damage to annual and perennial crops can result in minimal or complete destruction depending on the severity of the storm. There are many things to consider when salvaging damaged cereal, oilseed or hay crops after a hail event.

Nitrate accumulation occurs in a plant when it is injured and is not able to convert nitrate to protein efficiently after a hail storm. In non-legume crops, water and nutrients are pushed into the plant from the root system as quickly after the storm as was provided prior to the hail event. Nitrate accumulates in the top leaves, and concentrations peak roughly 4 days after the injury. If the plants recover, and new growth is observed, nitrate levels can return to normal 12 to 14 days after the injury.

Soil fertility, particularly the nitrogen content in the soil, and stage of crop development are critical factors to determine whether or not there will be a nitrate problem in the plants. Crops such as canola and wheat have high amounts of nitrogen fertilizer applied. If the crop is thin and not overly productive, there could be significant amounts on soil nitrogen remaining in the soil into July and August. A crop that is thick and with high yield potential would use up the available nitrogen much earlier in the growing season. With less nitrogen left in the soil, there is less available to be transported into the plant.

Hay crops tend to have lower fertility than annual crops. The risk of a hay stand having high nitrate concerns is much lower. Alfalfa and legume crops have nodules in the root system that regulates nitrate transport into the plants. The nodules only allow as much nitrogen into the plant as is needed, therefore, it is extremely rare to have nitrate accumulation in legume forages.

Forage-testing labs can test for nitrates. If the sample is taken the fourth day after the storm, the results will indicate the "worst case" situation. Talk to the lab and request a "rush" analysis. The results could be available one to two days after the sample is received.

Ensiling the crop will not reduce nitrate levels if the product is put up properly. Adequate amounts of packing, sealing with plastic as soon as possible, and allowing the silage to ferment for 3 to 4 weeks produces a stable product. Silage that is poorly made can reduce nitrate levels; but the quality of the silage is greatly diminished. To get a representative sample when the silage is being made, take one handful of silage out of each load as the trucks bring it in. Put the handful into a plastic pail with a lid. At the end of the day, mix up the sample and collect a half bread bag full, squeeze out the air and freeze the sample. Send the sample in for analysis on a Monday or Tuesday so it gets to the lab without being in transport over the weekend.

Nitrate in a forage or silage can be managed so that there are no problems or difficulties encountered during the feeding program. Talk to your feed sales person or company nutritionist, nutritional consultant or contact the Ag Info Centre and talk to a livestock specialist.

For additional information there is a fact sheet "Nitrate Poisoning and Feeding Nitrate Feeds to Livestock" On Ropin' the Web, Alberta Agriculture and Forestry's website.

Barry Yaremcio
c/o Karin Lindquist
July 26, 2017
Forage-beef Specialist
Ag-Info Centre, Stettler

Scouting for Herbicide Resistance

Enna Graham

Herbicide resistant weeds are everywhere, the 2015 herbicide-resistant weed survey in Saskatchewan showed 57% of the fields surveyed had a herbicide resistant weed and 1 in 2 fields had herbicide-resistant wild oats. The results from Alberta's herbicide-resistant weed survey will be out next year, we can expect similar results to Saskatchewan.

Checking fields 2-3 weeks post-spraying is the optimum time to determine if you have herbicide resistant weeds. However, now that we're well past that time, kill two birds with one stone by scouting for weeds while checking to see if your crop is ready to silage. Some things to keep in mind while looking:

-Were other weeds listed on herbicide controlled adequately?

-Is the herbicide failure patchy with no reasonable explanation (spray misses, unfavorable weather conditions, misapplication, etc.)

-Is there a history of using the same herbicide group year after year?

-Do herbicide resistant weeds already exist in your area?

-Are there plants lacking signs of herbicide injury (if checking earlier)

If you're checking now and you spot the odd, juvenile weed, chances are it germinated late, however if you find irregular patches of weeds at or beyond the maturity of your crop, they may be herbicide resistant. Look back at the records for that field, to ensure that there weren't any reasonable explanations for weed patches (weather, equipment calibration, plant maturity, etc.). If you suspect there is resistance, testing will either save you from needless worry, or give you time to plan for the next growing season.

How herbicide resistance develops:

The development of herbicide resistance is a matter of chance and survival of the fittest. A naturally occurring chance that a mutation occurs in a certain plant, which allows it to survive herbicide application. When herbicide is applied, this plant isn't killed and can therefore produce seed containing the same beneficial mutation. Each subsequent application of herbicide removes plants without the beneficial mutation, giving more space for the resistant plants (the fittest plants) to grow.

How to limit the development of resistance:

Incorporating non-chemical management practices into your Integrated Weed Management strategy will put greater pressure on herbicide resistant weeds.

-Rotate Crops

Winter cereals, like winter wheat and fall rye are competitive crops that may not need herbicide treatment. Silage crops that can be harvested before weeds set seed will reduce weed populations. Perennial alfalfa has also been shown to combat wild oats, green foxtail, cleavers and Canada thistle.

-Crop Competition

There are a few ways to set up your crop to be more competitive; use high seeding rates, seed shallowly if moisture permits, choose competitive crops such as winter wheat and barley

-Manage Herbicides

When using herbicides diversifying is key, rotating between groups of herbicides. Group 1 and 2 herbicides have a higher risk of resistance, they should only be used once every three years, rotating with moderate or low risk herbicide groups. Ensure you are following label directions for rate. Tank mixing herbicides from different groups that control the same species reduces the risk of herbicide resistance, but ensure that they are compatible, otherwise the effectiveness may be reduced.

Weeds with group 2 resistance include: false cleavers, kochia, common chickweed, spiny annual sowthistle, common hemp nettle, green foxtail, wild mustard, smartweed, Russian thistle and stinkweed. Different strains of wild oats have developed resistance to group 1, group 2, group 1 and 2, and group 8. Across Canada there are weed resistance issues in at least 6 different herbicide groups.

Even if you happen to be one of the lucky one with very few, or no herbicide resistant weeds, taking a proactive approach now will save you headache and money in the future.

Clean Eggs, Healthy Chicks

A project funded by Growing Forward 2 found wide variation in how hatching egg producers clean eggs, and developed best practices to minimize bacteria and the need for antibiotics.

Between the hens, the roosters, and the dirt, the environment in a hatching barn isn't pristine. Almost as soon as eggs are laid, they'll pick up some degree of dirt. If an egg is left that way, bacteria can grow on the shell and could affect the chick once it emerges.

That's why hatching egg producers normally clean or wash their eggs. The cleaner the egg, the less likely a bacterial infection will occur that may require the use of antibiotics.

"Farmers are using many different methods to clean their eggs," says Brenda Schneider, poultry research technologist with Alberta Agriculture and Forestry (AF). "Some dust them off, others use an egg-washing machine or another method."

In 2014, in a six-month project funded by *Growing Forward 2*, Schneider and AF colleague Valerie Carney, a poultry research scientist, developed recommendations for the best way to clean eggs in a hatching operation. Since then, these have increasingly become standard practice, allowing producers to increase their hatch rate and reduce the need for antibiotics.

Cleaning Method Comparison

These AF professionals began by surveying Alberta hatching egg producers on exactly how they clean their eggs. Of thirty such operations in the province, they received information from fifteen.

"Of fifteen hatching operations, we found that eleven different methods were being used," says Carney.

As she explains, each egg has thousands of tiny pores where bacteria can hide. Even though an egg may appear reasonably free of dirt, it could still harbor bacteria. A thin cuticle on the shell provides protection for the shell – and the chick inside – but if the cuticle is compromised, it could expose the chick to bacteria.

To determine which egg-cleaning method worked best, Carney and Schneider visited egg barns, gathered eggs, and cleaned them in the eleven different ways producers were using. They then sent the eggs to an *AF* lab for testing, to determine which cleaning method minimized bacteria most effectively.

The Top Two

The most effective method was to use an egg-washing machine. These machines use water warmer than 42 degrees C, as water temperature was found to be significant in taking out bacteria. At a cost of $7,000 to $8,000, an egg-washing machine is a significant investment, but one that, given what's at stake, more producers may consider making.

The second-most effective method was Clorox wipes. Considerably cheaper than the egg-washing machine, this method nonetheless did a good job. The active ingredient in the wipes is known to be

benign for chicks.

In the next phase of this project, Schneider and Carney developed a range of printed information detailing which cleaning methods are preferable. You'll find their poster on many hatching barn walls, guiding workers through the correct process.

Schneider and Carney's findings have since been incorporated into technical materials published by both the provincial and national organizations that represent hatching egg producers.

Recently, AF conducted a survey of producers to ask whether the new egg-washing recommendations were being implemented. The survey indicated the procedures have been widely adopted in the industry.

Cleaner eggs means less chance for bacteria to develop, which in turn means healthier chicks and less need for antibiotics and the associated cost. To Schneider, this is a worthwhile dividend from a relatively simple change in management practices.

"One producer told us that washing eggs more effectively had increased his hatch by 1 percent," she says. "That's quite a difference and this project made that possible."

Growing Forward 2 is a federal – provincial – territorial initiative.

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