



The Blade

Creating an Awareness of Forages

Monthly
Newsletter

of the
**Grey Wooded
Forage Association**



DECEMBER 2017



Photo Credit:
Jasmine Boucher

Message from the Chair

Amy Leitch

WOW, the past month has had more days of cloud than I'd like to experience leading us up to the Winter Solstice here on Dec. 21st. As I am typing this message with the sun at my back, gives me a feeling of warmth and I think it is a feeling which does us all a great amount of good. Many different things can bring that feeling to a person, but here in the grazing world of Agriculture, one I think isn't done as often as could be, is community sharing.

I will explain a little, as agriculture has evolved in the past 30 odd years, the community of ones' neighbour's knowledge and wisdom has gone to the wayside or been put in the shadows to be spoke of as something Old Timers did...This community's information has been replaced by Manufacturer Representatives for many items we all use in our day to day ventures. As I am reading and seeing lately people are now beginning to recreate the community that was pushed back into the shadows. In the grazing side of Agriculture, the knowledge of what has worked for neighbours and others of like minds is valuable in more ways than one. The failures are just as important as the successes, along with a minor tweak here and there. This knowledge can not be found as easily in a Manufacturers Pamphlet. The experience these neighbours can share and place in perspective builds a strong bond of knowledge sharing, trust and friendship. That bond then entices a community to want

each other to succeed in their ventures. Too often do we all think there isn't time to have a conversation or really listen to what happened in detail with our neighbours and friends, but we do have that time to cultivate the knowledge into something that will help us grow, we just have to make that choice.

As we finish this year and think of our own experiences on our own grazing operations we can come together and share that information and strengthen the grazing communities bond with the knowledge shared locally and in a broader setting. I invite you all to spread your experiences and knowledge with others into the coming New Year, make this a goal, which will in turn support the grazing community in growth and friendship. Drop in or give us a call at the GWFA office and start the conversation, we would appreciate to hear from any one who has been grazing or would like to be grazing. Possibly we can start the coffee shop conversation once again.

I will wish you all a Merry Christmas and safe travels in the New Year.

I invite you all to stop in or give us a call, we have lots of information to share. Visit our website as well and check out any coming events we have open to attend.

<https://greywoodedforageassociation.com>

403 - 844-2645



Amy Leitch

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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



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Manager's Message

Ginette Boucher

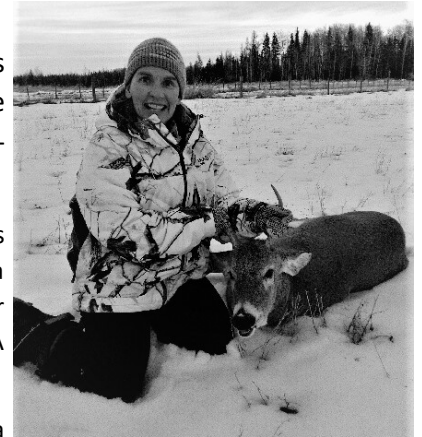


Hey folks,

I write this at 7:30am in the morning with no sign of day light. We are approaching the shortest day of the year, once we get over this hurdle the daylight hours start getting longer. I look forward to the warm days in February and spring around the corner with the promise of new life. December is a great time of year for reflection, evaluating our successes and accomplishment of goals as well as reviewing our shortfalls and how one can turn these into achievements. We look forward to 2018.

Our board member election was successful, we welcome Megan Snell and Gil Hegel as our newest addition to the board. We thank those who logged into the meeting. We also have another ex-officio on our board Maria Champagne. We look forward to learning from one another and advancing our association together.

Our Envigour HX producer meeting took place in Eckville on the 28th, with a dozen producers attending. A great presentation was given by Michelle Miller, Chief Executive Officer of Delta Genomics; there was a good level of interest from many producers. I am currently looking for some possible grant opportunities to assist those who are considering getting started with DNA testing. More to come.



On November 30th our most recent Environmental Farm Plan workshop took place in Ponoka County, another success. We had a small group of producers, one EFP was completed and submitted prior to the end of the workshop and the others are currently working on their farm plans. GWFA plans to continue to delivery EFP in a workshop setting.

Another successful hunting season. I would like to thank Bob Roper and his family for their assistance with the harvest of the animal and the use of the meat shop to cut and wrap.

Wishing you a very Merry Christmas and a Happy and progressive New Years,

Ginette



Don't Forget About the Second Calf-Cows

Devin Knopp, PAg

For the most part, every producer is practicing different management for the mature cow herd and our heifers. Heifers are separated and fed different than the mature cow herd. That is incredibly important for the development of the heifers, the calves they are carrying, and when calving season starts. So, I ask the question what about the second calf-cows?

Once that heifer has calved successfully and mom and baby are doing well, a lot of producers tend to stop the special treatment right there. Once spring hits these 'cows' are dumped into the main herd and fed for a while or put on pasture. They are managed as a part of the whole herd. For some that works just fine. Others choose to keep these animals back and put them on pasture with their newly selected breeding heifers for a while and give them a chance to grow. There isn't anything wrong with that either. It comes down to the management of each group independently and as a herd.

I like to think of second calf-cows as the new kids entering their first year of high school. They are excited to be part of the herd, but don't know where they fit in yet. It is also a time where they are going to take a few swift licks to help them better understand exactly how things work, and where they fit in the pecking order. This can be quite stressful for these animals, since they came from an established hierarchy amongst themselves, its now gone and they don't know where they fit in. These young cows will be the last to the mineral, last to the water, and promptly chased away from the areas of best feed or graze. All of this takes time, and it can have effects on their ability to meet their daily requirements and often they will 'stall' in their growth. They are young and resilient, and often these subtle changes in body condition or stress markers go unnoticed, especially in a pasture setting. It is much easier to see in a confined setting, where these younger cows will be a constant target from older boss cows.

Once that pecking order is established these cows adapt and begin to fit in. However, they may fit socially into the herd now, but they are still young, growing cows. The nutritional requirement of a mature cow is different from a growing heifer. That's why producers tend to keep them separate so they can manage each group independently. These second and even third calf-cows don't fit in to either group. They are not young heifers and they are not mature cows. They fit somewhere in between. As a producer how do you manage this group? These young cows are going to become the cornerstone of your herd. If they aren't given a good foundation to produce from, they may be culled early. Now one argument

to that is, "I want the resilient cows in my herd and any that can't hack it are culled".

That is true, but early management issues in a cow herd can cause issues with longevity.

Once cows reach the age of four or five they are mature well-established cows. Many producers want to see these animals in the herd until they are ten plus years of age. There is absolutely nothing wrong with that. If they are still producing a calf that meets the standards you are looking for at that age, then why not. However, deficiencies of any kind in the early years of development will influence the longevity of these second and third calf-cows. Those "get-tough" second calf-cows might not last 10 years. They might be culled earlier than expected. That means you need to retain more heifers to replace a cull rate that might be higher than your expectation

So how do you manage this group during winter feeding? That depends on what you as a producer want to do. In an ideal world, separating these cows from the herd and feeding them with the older or thin cows would be the best way to manage. The thin cows need a little extra TLC and will generally fit in with what the second calf-cows need nutritionally or supplement wise to get back up to weight. Your ability to be flexible with your management is more easily achieved. Animals may be able to move in and out of this type of feeding system as the season progresses. Another option is to make sure when winter feeding there is adequate space for the cow herd to maneuver. If you are feeding in bunks, make sure to have more than enough bunk space for every cow. This will prevent the second calf-cows from being bunted away and forced to stand back and wait until everyone else has had their turn. If shredding or rolling hay out in a pasture or field. Make sure the line of hay or silage is more than adequate for cows to establish a spot to feed. You don't need to feed more hay or silage than the herd requires, you may just have to put feed in a few different spots or a long enough line. So, if they get chased from a spot they can move down and still have access to the feed. A third option is to put them in with the heifers and manage the second calf-cows more intensely. Aggressive or big second calf-cows may be left with the cow herd and the smaller second calf-cows or less aggressive animals be left with the growing heifers. Special attention needs to be paid here. It is most important to manage the heifers as their requirements differ. I only would suggest this, if you have limited space and you are noticing some of those younger cows really beginning to lose condition in the main herd. Always, always, ensure there is



Continued from previous page

mineral and salt enough for the entire herd available at all times. These young cows will be the last to lick at salt and mineral and if the other cows get it all first, this could lead to serious mineral deficiencies for these younger cows. You suddenly may have downer cows and be wondering why, because you feed test results are showing adequate.

It is easy to forget about your second calf-cows. In many cases most fit in and thrive to become the cornerstone of the herd in the future. However, if a little change in management could prevent a few from pre-maturely being culled. That could go a long way into helping you reduce some of your costs and keep more productive cows longer into their breeding life span.

Is your annual compensation review coming this year?
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For more information on Environmental Farm Planning, visit
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Workplace Legislation on Farms

Codie lee Yasieniuk: Peace Country Beef Forage Association



Who will the new labour laws effect?

Only farms with waged, non-family employees will have to apply the Employee Standards Code and Labour Relations Code to their operation.

The new legislation will not impact:

- Farm Owners
- Family Members Of Farm Owners
- Non-Employee Relatives, Friends And Neighbors Helping Out
- Children Doing Chores Or Participating In Activities Such As 4-H Or Helping Neighbors And Friends
- People Participating In Recreational Activities Such As Hunting On Farmland

When should we expect the code to take affect?

On January 1st 2018 Alberta will implement its Employment Standards Code . However, some parts of the code are still under discussion and will be announced later in the year. Alberta Labour still needs to update the list of 'Light Jobs' youth between the ages of 13-15 can complete safely, and the definition of 'Hazardous Work' as it applies to farm and ranch work.

How will youth in agriculture be effected?

This section applies only to youth, non-family, waged agriculture employees. Children 12 years of age and under, are not permitted to work, except for artistic endeavors approved by permit from Employee Standards. Youth ages 13—15 may complete 'Light Work', as long as it is safe for them to do so. Youth aged 16 to 17 are allowed to complete 'Hazardous Work' only after the employer has received a permit on their behalf, they have completed

adequate training to do the job safely, and they are supervised while doing the work.

Why is the Labour Relations Code being applied to farms and ranches now?

The Labour Relations Code has not been updated since 1988. In the past 30 years agriculture and workplaces as a whole have changed drastically, therefore codes related to the workplace should keep up with the times! Different pieces of machinery, changes in procedures, and new-age products (chemicals etc.) all pose a new risk to farm and ranch labourers. These employees deserve the same care to protect their health, and livelihood, as much as employees in any other industry do.

How will waged employees benefit from these changes?

The new legislature places heavy emphasis on providing hired hands with fair pay and safe work conditions.

Taking into account that farming is extremely time sensitive work, the provincial standards of 'hours of work and overtime' do not apply to agriculture employees. It would be unreasonable to govern the amount of hours a day a person could spend working during peak seasons like seeding, harvest, and calving!

Employees are now granted holiday pay, rest periods, and job-protected leaves for personal reasons (illness or injury, compassionate care, maternity etc.). A new rate of minimum wage has been set at \$15/hour, but this is not effective until October 1st 2018.

There is a lot of new information to understand before January 1st—so to learn more go to the Government of Alberta website.



Water Quality Considerations When Winter Bale Grazing

Sharon Reedyk

With support from the Alberta Crop Industry Development Fund (ACIDF), Agriculture and Agri-Food Canada (AAFC) initiated a study to determine if bale grazing the same location twice in a three year period had any positive or negative effects on pasture productivity and quality. The project also monitored soil nutrients and water quality to assess environmental risks associated with high nutrient loading from the bales at the site. This fact sheet highlights results from the water quality monitoring.



Two old perennial pasture sites in the Central Alberta were selected for study. One site was located north of Caroline in the Dry Mixedwood Subregion of the Boreal Forest Nat-

ural Region on an Orthic Gray Luvisol and the other site was located south of Vermilion in the Central Parkland Subregion of the Parkland Natural Region on a thin Black Chernozem. The Caroline soil is classified as a loam (top m: 47% sand, 15% clay) whereas the Vermilion soil is a clay loam (top m: 34% sand, 36% clay).

The hydraulic conductivity of the till measured 10^{-5} cm/s at the Caroline site and 10^{-6} at the Vermilion site. Snowmelt runoff at both sites collected in ephemeral (Caroline) or semi-permanent (Vermilion) wetlands.

Each site was bale grazed twice in three years (winter 2012/2013 and winter 2014/2015). Bale spacing for both treatments was 12.5 m (40 feet) with the second treatment offset from the first for better nutrient distribution. Nutrient concentrations were measured in surface runoff water and in shallow piezometers (maximum depth 7 m).

Key Findings

Nutrient concentrations in wetlands were elevated in the spring of the years immediately following winter bale grazing. Export of nutrients from the bale grazing fields to the wetlands ranged from 7-25 kg N/ha and 1-4 kg P/ha and were up to 20 times higher than the export from non-bale grazed areas. These loading rates were similar to other studies of winter grazing practices in

Saskatchewan and Manitoba.

The monitoring results showed a clear difference between the two sites in the potential for nutrient movement into shallow groundwater. The data indicated that at the



more coarsely textured soils of the Caroline site there was evidence of inorganic nitrogen leaching whereas there was limited evidence of downward nitrogen movement under the finer textured soils at the Vermilion site. Elevated phosphorus concentrations were also evident in the top meter of soil at the Caroline site, and contributed to higher dissolved phosphorus in the shallow groundwater.

Best Practices

Siting to reduce the risk of runoff reaching other water bodies is important when implementing winter bale grazing. Sites where runoff is captured in temporary depressions and allowed to infiltrate are ideal; however nutrient buildup in those depressions could lead to increased soil phosphorus if the sites are used frequently. At sites with coarser grained soils, shallow groundwater can be impacted by rapid leaching of nitrogen and slow downward movement of phosphorus. The risk to groundwater can be mitigated by reducing the frequency with which bale grazing occurs at the same sites. Within a pasture, bale placement should be considered for subsequent treatments in different areas of the same pasture to ensure runoff from those treatments does not influence the same runoff collection / groundwater recharge area of previously bale-grazed tracts.



Grey Wooded 2017/2018 Board of Directors



Back row left to right: Andrew Ritson-Bennett—Director & Project Committee Chair, Cy Newsham—Director, Megan Snell— Director, Vance Graham—Treasurer, Benz Rufenacht—Director, and Yadeta Kabeta—Ex officio

Front row left to right: Ted Chastko—Director & Publicity Committee Chair, Maria Champagne—Ex officio, Ken Ziegler—Secretary, Amy Leitch—Chairman, and Gil Hegel—Director

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Winter Feeding and Downer Cows

Barry Yaremicio: Beef and Forage Specialist | Ag-Info Centre | Stettler



Forage quality has been an issue this winter because of the weather conditions experienced last summer. Feed test results have shown that protein levels are down 20 to 25% in many hay and silage samples compared to the long term average. Delayed cutting has also increased the amount of fibre in the harvested forages which results in reduced energy content as well. Other quality concerns also exist with the forages grown last summer.

Calcium, magnesium and potassium

Test results are also indicating that potassium levels in mixed hays are almost twice as high as the long term average.

As we get closer to calving, dietary requirements for calcium and magnesium increase because of higher requirements of the calf and the production of colostrum. Three to four weeks prior to calving calcium and magnesium is moving from the blood into the mammary tissue to produce milk. Older cows have a more difficult time to mobilize calcium from the bone and are more prone to be downer cows. High milking cows are also at high risk because of the daily calcium and magnesium requirements. High potassium levels in the diet reduce the absorption of magnesium which can increase the number of downer cows.

Feed test results and feeding systems

Feed test results provide a starting point to develop a balanced ration. What is recommended on paper can be quite different to what the cows actually consume. Research conducted at the Agriculture and Agri-Food Research Station at Lacombe found that feeding hay with a bale processor on snow can result in up to 30% of the calcium reported on a feed test report can be lost because of feed waste. The amount of magnesium lost can also be 25% or higher.

The loss of nutrients can result in downer cows, even when everything appears to be normal on the ration report.

Adjusting the ration

If there is a problem with a downer cow, talk to your veterinarian and have a diagnosis made when a farm call is done. If the animal responds to intravenous treatment, it can be an indication that calcium or magnesium (or both) could be borderline or deficient in the ration. Changes to the feeding program are needed.

If the feeds have not been tested, do so. Until the feed tests results are back, increasing the calcium and magnesium in the ration is recommended. For a 1400 pound cow in late pregnancy or early lactation, the addition of 4 ounces of limestone and 1 ounce of magnesium oxide (per head per day) to the ration will help the situation. Fine tuning can be done when the results are back.

If possible, mix the magnesium and calcium into silage or a grain mix. These two products are not tasty and the cows tend not to consume much. When including calcium and magnesium into a salt or salt / mineral mix, a flavoring agent or a product such as wheat shorts, dried molasses or dried distillers grains with solubles should be added to the mix to improve consumption. A rough guideline is to include one of these products at 8 to 10% of the total weight to improve intake. If intakes are still low, increase the inclusion rates of the flavoring agent, and if the intake is too high, reduce the amount of flavoring agent.

If additional nutritional advice is needed, consult with a feed company nutritionist, or a provincial beef extension. *March 5, 2013*

Contact Alberta EFP

For more information, go to www.AlbertaEFP.com or send an email to inquiries@AlbertaEFP.com

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Winter is Here... What About ALUS?

Ken Lewis, Conservation Coordinator

With the arrival of winter, can farmers and ranchers in Red Deer County still do new ALUS Projects?

Yes, in two ways:

- You can plan your project in the winter, so it's ready to go in the ground come spring / summer
- You can do an on-the-ground winter ALUS Project.

Winter is the time to plan out your "frost-free season" ALUS Project. You can figure out where you want to construct riparian management fences, dig in pasture pipelines, plant native shrubs and trees, write down grazing plans, etc. Let us know your ideas, and we can help you and/or find the experts who can.

On-the-ground winter ALUS projects might at first glance, seem limited by the white stuff on the ground, the lack of growing plants, or frozen soil.

But, remember an ALUS Project could be anything you do on your farm or ranch, that helps you produce more ecosystem services from your land. Here's a couple examples of things you could do, in the winter:

- Locate livestock winter feeding / bedding sites away from forested areas near streams, rivers, wetlands or lakes. Often, livestock seek shelter in these areas in the winter. Livestock spending too much time in these areas in a winter, can damage the trees, shrubs and other plants, and cause manure build-up that can run-off into water bodies in the spring. An ALUS Project could be some new portable windbreaks that allow you to provide alternative shelter for your livestock, away from streams, rivers and wetlands. This gives the trees and other plants a break, and min-

imizes run-off risk.

- Put up temporary electric fencing along creeks, or around wetlands to keep livestock out of these areas in the winter. Sometimes, providing alternative wintering/feeding/bedding away from creeks and wetlands isn't enough. Lots of people do all kinds of temporary fencing for their swath grazing every winter. A similar approach could be an ALUS project, where you put up temporary fences to protect sensitive areas on your farm.
- Install crossings over temporary wetlands, draws, coulees, seasonal creeks, etc. NOTE: you might need a permit for this kind of activity...please call and we'll help with that. Livestock and vehicles can compact soils, increase erosion, deposit manure, etc. in these areas. Often, winter is the only time you can get into these areas to do some work to address this. An ALUS project might be something basic like installing a rig mat in these areas when the ground is frozen, so these impacts are reduced when the soil softens up next spring.
- Put in waterfowl nesting structures, like boxes for cavity-dwelling ducks, or mallard nesting tunnels.

ALUS pays farmers and ranchers to do projects like these, in two ways: ALUS cost-shares with you (as much as 85%) on the costs of the equipment (the fencing materials, portable shelters, rig mats, duck nest structures, etc.), and ALUS makes annual payments to you (as high as \$50 per acre per year), for your management changes that produce increased ecosystem services.

To find out more, please contact me anytime at 403-505-9038 or kewis@rdcounty.ca, or have a look at alus.ca



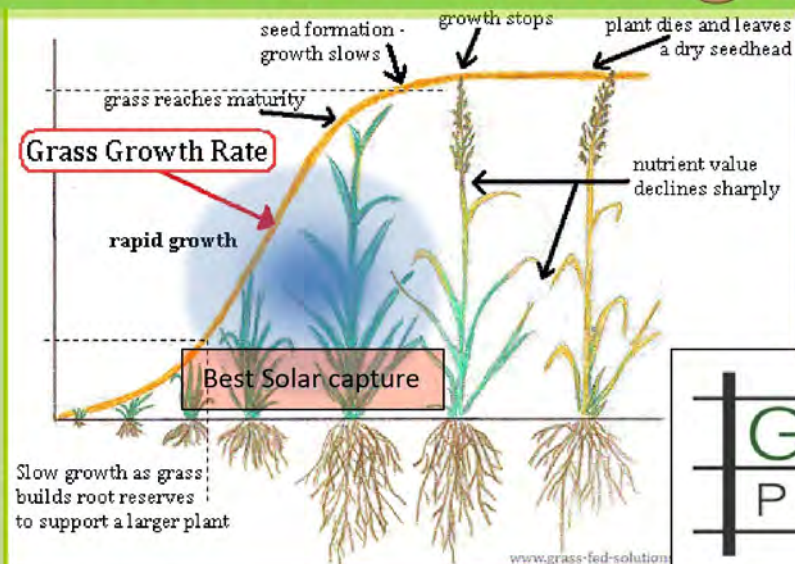
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A genomics and nutrition study in progress at Lacombe Research and Development Centre

Hushton Block, Ph.D. , AAFC - Beef Production Systems Research Scientist



Residual feed intake (RFI) is the difference between the observed individual feed intake of an animal on a performance test and the intake expected for that animal. Lower (negative) RFI values indicate an animal required less feed than expected and was therefore more efficient. High RFI values indicate less efficient animals. The expected intake is based on regression analyses for the effects animal size, rate of gain, and composition of gain on feed intake for the contemporary test group. By definition, group average RFI is zero.

Tests to determine RFI typically require more than two months to collect individual intake and gain data of sufficient quality to allow accurate determination of RFI. The concept of residual feed intake is not new, first being used in 1963, but collecting individual animal feed intake data on a sufficient scale was labour prohibitive until modern electronic scales, tag readers, and computer systems were available for data collection and management.

Research has found RFI to be a moderately heritable trait that is independent of growth traits. Selection of lower RFI cattle should result in improved cow herd efficiency.

Anecdotal observations on mature cows in winter feeding studies at the Lacombe Research and Development Centre have also suggested that cattle with lower RFI values were better able to maintain condition during periods of extensive winter feeding.

If an interaction between RFI and management could be confirmed, then selection on the basis of RFI could mean more than just improvements in cow herd efficiency over time. Combinations of management strategies and performance targets that were previously not feasible could become real possibilities.

To test this possibility, we are looking for an interaction between RFI type and diet quality with backgrounding steer calves.

Steer genotypes from samples collected after birth and genomic tools were used to predict individual RFI. With backgrounding steer calves, there is not enough time between weaning and the start of the backgrounding period to allow conventional performance testing to determine RFI.

Steers were then randomized to pens based on whether their predicted RFI was in the first, second, third, or fourth quartile.

The diets for the steers were based on barley (c.v. Canmore) or triticale (c.v. Bunker) silage. Both varieties had been selected using a spreadsheet that evaluates the yield and quality of annual crops.

Silages were sampled prior to the backgrounding trial and sent for feed analyses. The feed analyses results were used in the 2016 Nutrient Requirements of Beef Cattle model to evaluate nutrient supply and predict feed intake and steer gain.

The evaluations found both silages had enough degradable protein to support rumen function, but that the combination of bypass and microbial protein would be inadequate to meet steer

requirements for growth, given the energy content of the silages.

Bypass protein supplement availability and costs were obtained from local feed mills and used with the beef model to evaluate the various supplement options. Based on the resulting cost of gain, a corn dried distillers grains with solubles based supplement was formulated for the silage based diets. Using corn dried distillers grains with solubles also increased diet energy content. The supplement also contained monensin, limestone, and vitamins A, D, and E.

The barley and triticale silage based diets each consisted of 75% silage and 25% supplement on a dry matter basis. Steers were also provided trace mineral salt blocks.

The backgrounding trial lasted 112 days. Steer gain during the trial averaged 1.9 pounds per day, and did not differ between silage treatments. Feed intake did differ between silage treatments and was lower for the barley silage based diet than the triticale silage based diet. The resulting feed conversions were 6.4:1 for the barley silage based diet and 7.5:1 for the triticale silage based diet.

A feed conversion of 11:1 for forage based diets was given as a benchmark for the Alberta Beef Forage and Pasture Centre.

The feed conversions achieved in the steer calf backgrounding trial represent improvements of 30 to 40% over the benchmark. The improvement in feed conversion is attributed to having silages selected on the basis of quality and a supplement formulated to complement the nutrients in the silages and improve nutrient use efficiency.

The supplement did increase the daily cost of feed. Even after accounting for the reduced intake of silage by having 25% of the diet dry matter being replaced by supplement, feed costs were increased by about \$0.40 to \$0.50 per steer per day. However, without supplementation, gains were expected to be about 30% (energy limited) to 80% (protein limited) lower for all silage diets. Providing supplement lowered the expected cost of gain (protein limited) to approximately 1/3 of the silage only diets.

Improvements, and savings, of this type should be possible for other segments of beef production.

When evaluated on a pen average basis, we found no relationship between the observed and predicted RFI values, and no evidence of an interaction between diet quality and either predicted or observed pen average residual feed intake. This suggests that improvements are needed in the accuracy of predicting RFI from genotype data, although this could also just be a failing in the current study.

The second year of this study is currently in progress at the Lacombe Research and Development Centre. The study is funded by Agriculture and Agri-Food Canada.



Beef Genomics Overview

By Dawn Trautman; Director of Knowledge Translation, Livestock Gentec, University of Alberta



Producers are increasingly making breeding decisions using DNA-based tools, AKA genomic tools. But what do they really mean? And how can you use them to maximize the potential for your operation?

Animal Breeding

Humans have been applying *the study of inheritance* to select for superior breeding animals for hundreds of years. Mathematical sciences, including genomics, are more recently added to the mix to make improved selection decisions.

EPDs (expected progeny differences) provide an estimate of an animal's worth as a parent and how their traits will be passed to their 'progeny' or offspring. It's based on phenotype and pedigree, where phenotype is made up of the interaction of the genetic composition of the animal (aka, the genotype) and the environment. These values can be based on any one of, or a combination of phenotypes of the individual and measures of performance of relatives to the individual animal.

Phenotypic data allow researchers to link genetic variances with measurable traits such as weight gain, feed efficiency, reproductive success, disease susceptibility, temperament, and carcass quality. Phenotype is also influenced by the environment – if you don't supply livestock with proper nutrition or protection from environmental stress, then this will be evident in the observed characteristics of the animal.

So then, what are gEPDs?

Genetics is *the study of inheritance*; and genomics is the branch of biology concerned with the structure, function, evolution, and mapping of genomes. It addresses all genes and their inter-relationships in order to identify their combined influence on the growth and development of the individual animal. gEPDs are the 'genomically enhanced' version of the EPDs. They are *the best* estimate of an animal's genetic worth as a parent as they make use of all available information, including known pedigree, performance and genomic information about the animal, its progeny, and other relatives.

Accuracy matters

Both EPDs and gEPDs are *estimates*. The more sources of information that can be used in these estimates, the more accurate the estimates will be. As the beef industry increases the collection of genotypes and phenotypes, the accuracies on young breeding stock increases, which decreases the risk of buying or retaining a bull not suited to your breeding and operational goals.

When making purchasing decisions, remember to check the EPD accuracies. The lower the accuracy number, the more risk you're taking, as the outcome is less certain. The range is larger with lower accuracies so while it's possible you get the desired outcome, it's more due to chance.

Breeding goals

The value of something all depends on your objectives. For that reason, the first order of business is defining the goal of your operation. Do you want to focus on fertility, longevity, efficient rate of gain, or any other variable that makes economic sense to your operation? Genomics can help with DNA assisted selection, prove parentage with greater accuracy, test for recessive lethal conditions, control inbreeding, and start the application of DNA based management tools.

Once you've settled on your goal, the annual rate of genetic improvement depends on the trait genetic heritability, the genetic correlations of the trait and the traits on which selection is based, and the generation interval. The greatest rate of genetic change occurs for traits with high heritability that are also favourably correlated to other traits in consideration, and bred early to decrease the intervals between offspring.

Making the decision. Which genotyping test is right for you?

There are several genotyping options out there; choosing the one that's right for you is the next step.

The most basic is SNP parentage. The benefits with this test is sire assignment in multi-sire pastures. While useful, this test does not collect enough information to generate gEPDs.

Next in test "density" (measuring more SNPs) is low-density SNP genotyping. This is a good tool for both SNP parentage verification and to calculate prediction equations for breed specific gEPDs, and at the lowest cost. A new, Canadian made, low-density test available for commercial cattle producers is **EnVigour HX™**, available through Delta Genomics (deltagenomics.com). This test provides commercial cattle producers with parentage assignment, genomic breed composition, and a vigour score to assess hybrid vigour.

Finally, high-density SNP genotyping tests perform all the same functions as above, including to be used to develop the prediction equations for gEPD calculations, but with more information. Bovine 50K genotyping is often used on highly prolific animals, including AI sires, embryo transfer dams, and prolific herd sires, as they contribute a great deal of genetic material to the entire herd.

Final thoughts

Genomics is one more tool in the toolbox to help producers reach their breeding goals by more accurately selecting the right animals today, which will greatly influence the genetic merit and profitability of future animals. If you plan to genotype, be sure you also have a plan as to how you will use that information to help you improve your profits. And help is always available! Through your Grey Wooded Forage Association, members have access to expertise at Livestock Gentec at the University of Alberta and Delta Genomics. For more information, contact us or sign up for our newsletter at livestockgentec.com.



Gate to Plate

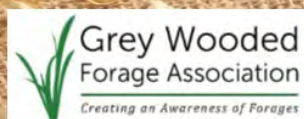
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**February 15
2018**

**Ponoka Legion,
Ponoka**

Registration

9:30am

10:00am—3:30pm

Register By:

February 11th

To Register:

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Members

\$30

Non-members

\$40

For Information:

Contact GWFA

403-844-2645



No Idle Matter: The Consequences of Idling

Daniel Sale, Communications Intern, Alberta Environment & Parks



Whenever we find ourselves stuck in traffic, crawling through a restaurant drive-thru, or waiting for passengers, our vehicles' engines idle and spew harmful pollutants into the atmosphere – pollutants that eventually make their way into our air, water and soil. We generally don't give idling much thought, but its cost to the environment, our communities, our health and our pocketbooks cannot be understated.

Environmental Damage

Canadian motorists release millions of tonnes of greenhouse gases a year by idling their vehicle engines. The major emissions in vehicle exhaust are:

- Carbon dioxide (CO₂)
- Nitrogen dioxide (NO₂)
- Nitrous oxide (N₂O)
- Fine particulate matter (PM₅)

When burned, a litre of gasoline produces 2.3 kg of CO₂. Fortunately, technological improvements to vehicle engines have resulted in reduced emissions of other pollutants. Nevertheless, those kilograms of CO₂ and other pollutants quickly add up with millions of vehicles, and those improvements are offset as the number of vehicles on the road grows.

CO₂ and N₂O are potent greenhouse gases that contribute to climate change. Other pollutants can reduce air quality and wreak havoc on local vegetation, wildlife, and bodies of water. For example, NO₂ is a key ingredient of both smog and acid rain, and PM_{2.5} can be absorbed into the soil and reduce plant growth.

The damage caused by motor vehicle engines is not always direct, either. Emissions occur when oil is drilled, refined into gasoline, and transported to your gas station. These emissions are in vain when you idle and waste the fuel produced.

Financial Loss

When you come right down to it, idling is a massive waste of money. Ten minutes spent idling wastes about 0.3 litres of gasoline in an average modern car. That might not sound like a lot of fuel, but idling can consume significant quantities of costly over time.

Millions of cars cruise Canada's roadways every day. In one day, with an average idling time of five minutes per vehicle, one million vehicles will collectively spend more than 80,000 hours idling and consume 150,000 litres of fuel. Over the course of a year, a million idling vehicles will consume more than 54 million litres at a cost of more than \$54 million.

The indirect costs associated with idling are steep, too. They include:

- Investments in the drilling and production of gasoline is wasted with and the loss of hundreds of millions of litres.
- The pollutants in vehicle exhaust are known to cause and exacerbate respiratory diseases like asthma, and some pollutants are even carcinogenic. Air pollution from idling can lead to lead to rise in these diseases and require millions of dollars to be

spent on treatment.

- The damage pollutants can do on our crops and forests can increase food prices, and cost the agriculture and forestry industries millions of dollars in lost production.

Idling gets you nowhere, costs money, and wastes energy. The best and most immediate course of action is to reduce idling whenever possible, by turning your vehicle engine off while parked, limiting warm up time in the winter, and ensuring your vehicle is properly maintained. Idling may be the quintessential example of wasteful activity, but it may also be the easiest to eliminate.

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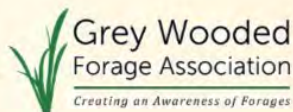
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**January 25th
2018**

Registration
Begins at 9:30
10:00-3:00

**Lacombe
County Office**

Lacombe

**For Information
Contact:**

Ginette (GWFA):
403-844-2645

