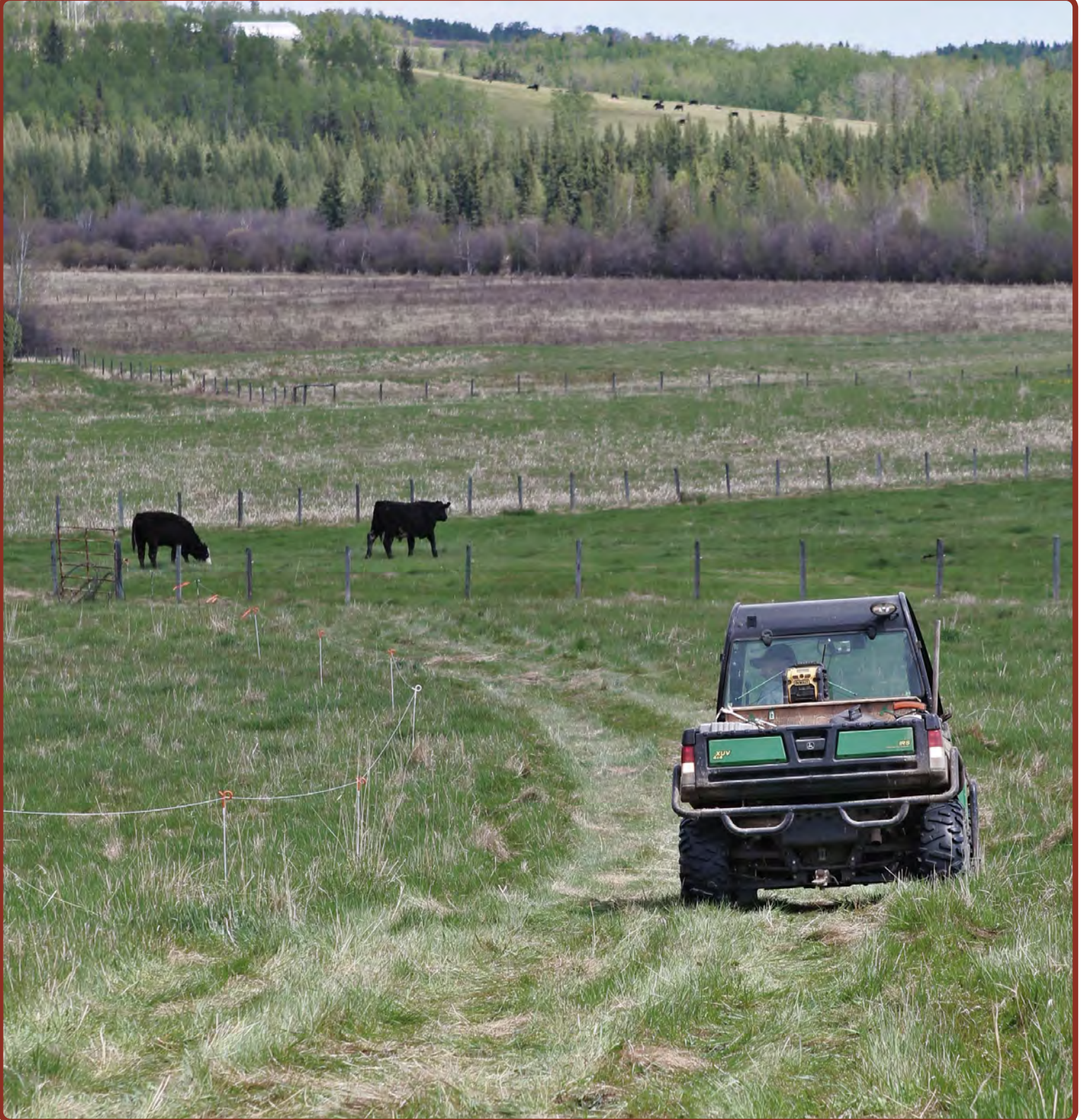




The Blade

Monthly Newsletter of the
Grey Wooded Forage Association

MAY/JUNE 2020



Announcing . . .



GREY WOODED FORAGE ASSOCIATION

Some restrictions remain in place as leaders in Alberta and beyond grapple to control the pandemic, Covid-19. Those measures have limited our ability to hold events. GWFA's staff and publicity committee are considering various ways to deliver information to you, in person and online, including a special event later this year. We will keep you posted!

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www.greywoodedforageassociation.com

Brenda: office@greywoodedforageassociation.com
Cell: 403-844-1621

Greg: field@greywoodedforageassociation.com
Cell: 403-506-4071

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Published by: Brenda Kossowan

Cover Photo: Introducing new yearlings at Darrell
Fipke's Pasture near Westeros.
Brenda Kossowan Photo

*Email your favourite photos and
we will consider them for the cover!*

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and Extension Council of Alberta

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Office Report

By Brenda Kossowan, Business Manager

The excessive wear and tear on my cheap rubber boots is definitely telling a story about moisture conditions so far this year. In an unusual break from our standard practice, this month's edition of *The Blade* includes an abridged version of Alberta Agriculture and Forestry's most recent moisture report.

While we haven't learned to control the weather, it can be useful to see what the picture looks like around Alberta, including areas that are abnormally wet. I hope the moisture information and maps as published will help producers in our region get a good idea of local conditions and how your place compares with the rest of the province.

We're introducing a couple of additional features with this edition, starting with a guest article by Alan Hall, executive director of ARECA (Agriculture Research and Extension Council of Alberta).

Membership in ARECA provides a number of benefits to GWFA, including access to projects that involve collaboration with other members. GWFA sits on ARECA's board of directors and plays an active role in decision making in areas of mutual concern. We also deliver the Environmental Farm Plan through ARECA and enjoy a group discount for staff health benefits.

Also new this month is a column by Oregon-based livestock and nutrition specialist Woody Lane, who has recently released his latest book as noted alongside his article.

Finally, this edition marks the first in a series on water systems, reprinted from the Beef Cattle Research Centre's website. The series provides an in-depth look at the importance of safe and clean water sources for your livestock and the ways and means of managing that resource.

Special thanks to the GWFA members who joined our first effort at hosting an online Annual General Meeting in June. Your support, so vital to the continued success of your



organization, is truly appreciated by everyone involved in the work we do. Members had some good discussion on whether GWFA needs to adjust its course and were reminded by our founding members of the reasons the association was formed and value in continuing on that path.

Congratulations and a humble Thank You to directors Gil Hegel and Dallas Jenson, who were both re-elected by acclamation to a second three-year term on the board. Dallas is the new Chair, taking over from Gil, who wished to step down from the chair after holding the position for two years. The board has appointed Gil as its ARECA rep, replacing founding member Ken Ziegler in that capacity. Ken has chosen to step back for awhile after spending most of the past 36 years serving on the GWFA board in one capacity or another, including Chair, Secretary and ARECA Rep.

You will find the full board listed on Page 4.

GWFA still has a need for additional directors to help bring fresh ideas to the table and to ensure that there are enough bodies available to fill quorum at monthly meetings.

In closing, thanks to all producers and supporters who have put their faith in this organization. We are in the process of analyzing your comments from membership forms, meetings and workshops to mete out the ways we can best serve your interests as livestock and forage managers.



Introducing Olivia Handel, GWFA's 2020 Summer Technician

We are pleased to announce the hiring early in June of Olivia Handel, a resident of Sherwood Park and a student in the Wildlife and Rangeland Resource Management program at the University of Alberta.

Olivia brings a wealth of research experience with a background in field work and a homelife involving livestock and pets of all sizes. She is familiar with the operation of various types of machinery and, as a summer staff performing weed control for Strathcona County, developed the tact, wit and patience that are so vital when dealing with difficult people.

Olivia's primary role this summer will be to assist Greg Paranich, our Agricultural Field Specialist, with the collection and management of soil samples that are at the heart of various projects in which GWFA is involved. She will occasionally be seconded to the office to help with some inside work, including collection and tabulation of data from membership applications and various events to help GWFA hit the right targets in conducting and sharing farmer-directed research.



Grey Wooded Forage Association Board of Directors, 2020-2021

Chair	Dallas Jenson	Bluffton
Vice-Chair	Lee Eddy	Spruce View
Secretary-Treasurer	Alex Neal	Caroline
Director, ARECA rep	Gil Hegel	Olds
Director	Greg Campkin	Sundre
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A good plan today is better than a perfect plan tomorrow

The approaching days of summer grazing will soon be upon us. Livestock will have moved or are ready to go onto the summer pastures along with the hopes of this year's grass gains for the fall.

For livestock producers, pastures are the keystone to our success. As pasture composition, topography, and forage content differs so do the levels of grazing management from operation to operation. Grazing styles and methods can vary amongst many operations with several descriptive terms and approaches. They can be rotational grazing, adaptive multi-paddock, strip graze, or intensive grazing. Amidst a lot of diversity some of the basic tools of grazing remain true. When situations sometimes get to be complicated, keeping to the basics will keep us on course.

Stocking rates are the starting point and can determine what your pastures can sustain. To properly match your forage production with the number of animals and the time they will spend there is key to your grazing plan. Know what shape your pastures are in at entry and their production level. Are they ready to receive cattle after last year's grazing? Do you need to wait a bit longer to allow them to grow to a sufficient stage for grazing? Determining how much will you take depends on if you plan one, two, or even three passes on that acre of pasture. The rule of thumb for most tame pastures is "take half, leave half", or in other words, 50 per cent utilization. Depending on how soon you plan on returning for the second, or final pass, that could be as high as 75 per cent. Recovery period would be the driving factor here.

Managing the cattle distribution will impact how even the forage removal is within a grazing cell. How do we get uniform 50 per cent forage removal when cattle will naturally focus on the most attractive, young growth and frequent the most convenient sites? Avoiding more mature growth, areas harder to access, places away from water, etc. tend to be under grazed while the new regrowth and frequented areas overutilized. Managing grazing pressure on larger areas can be influenced by placement of watering sites, salt/mineral stations, permanent fences or even drifting or moving cattle. Using temporary portable power fencing, where the circumstances permit, can greatly improve managed grazing as an important tool.

Managing livestock sometimes distracts us from what we should really be doing and that is managing our forage stand. Knowing and understanding what plants we are working with and how they respond to grazing pressures at various stages or growth is vital to managing how and when we graze. The more growth we allow before grazing 50 per cent will directly impact our critical recovery period for the next pass. Getting forage to late stage two (boot stage) to early stage three (flowering and early head stage) is generally a good guideline to use. This gives us enough above ground live leaf to act as a solar panel gathering energy for plant regrowth. More importantly, it is the stage when a healthy plant has developed its root system and has fully recharged its energy reserves for rapid recovery. The recovery to a regraze position is much quicker from 50 per cent utilization than from 75 per cent. How do we know how much we have taken from our starting point? Several producers have an exclusion area for comparison or use portable grazing cages to see how much has been grazed vs what you started with. In my opinion, this is one of the most important keystones to grazing success.

Leaving enough leaf is important to immediate recovery, as the more solar panel you have left gives you a bigger "engine" for energy



conversion and regrowth. In addition, more residue or leaf litter left behind also serves an important role in keeping the soil surface armoured against erosion or rainfall impact on soil structure. The insulation of litter contributes to cooler soil and better moisture retention/infiltration with reduced evaporation. Come winter it serves as insulation against the impact of cold temperatures. Leaving a good amount of

residue when leaving from the final pass will contribute to keeping pastures vibrant and have the resilience to persist under pressures of winter injury, erosion and weed competition.

Being flexible in changing situations will help minimize negative impacts during sensitive environmental conditions. Adjusting to protect the plants and pasture impacts during drought, flood, heat gives long term benefits for pasture recovery under stress. A plan B or deferred graze will buy you grazing down the road.

We all want to maintain or improve the productivity of our pasture stands, have long term sustainability, preserve the species diversity, protect the soil from erosion or degradation, and conserve soil water. This helps us build better conditions for grazing, wildlife, soil health and environmental quality. Focusing on the basics and introducing innovations will get us there!

Look for upcoming events from Grey Wooded Forage Association for field schools on annual forage cover crops, soil health, power fencing essentials and watering system innovations this summer. Until then, stay safe and be well.



Ask Greg about options for completing or updating your Environmental Farm Plan

Fuzzy Logic

By Woody Lane, Ph.D, Lane Livestock Services, Roseburg, Oregon

One word can make a difference.

Recently, I attended a seminar where the speaker said, “Stocking rate, stocking density . . . whatever.” As if these words mean the same thing. They don’t. For intensive graziers on improved pastures, one term describes a powerful tool and the other refers to a kind of fuzzy concept that is not very useful at all.

Let’s first talk about “*Stocking Rate*” — that venerable workhorse term found in many reports and government documents. Stocking Rate means, simply, the number of animals that graze in an area over a period of time. Notice that stocking rate includes the concept of a *time period*.

People often use this concept in questions like, “What is the stocking rate on your farm?” Meaning, how many animals do you run on the place for the year or growing season. Typical answers would be one cow per acre or 1.5 cows per acre or, in dry range country, maybe one cow per fifty acres.

Cows? What about sheep and horses and yearling steers? Since, in the United States, stocking rate is usually expressed in terms of cows, we need adjustment factors to convert sheep to cows or horses to cows (but we shouldn’t tell our animals —



they would get offended). There are lots of published reference lists, but typical conversion factors are that one cow equals 5 sheep or 1.7 weaned calves or 0.8 adult horses or 1.0 yearling horses or 5 deer. This standardized cow is legally called an *animal unit* and is defined as a 1,000-pound adult cow with a calf by her side. Of course, there is also the issue of really large cows like Chianinas. I suppose purists would want to convert those cows to cows, but that gets a little weird.

Without doubt, however, stocking rate is a valuable concept *for range operations*, where ranchers have little control over vegetation or soil fertility. One of their few tools for manipulating forage growth is to adjust the number of animals in a grazing area. In a broad sense, stocking rate relates to the amount of forage produced in an area during a growing season, and, thus, the number of animals that can harvest that forage.

This concept nicely applies to range country where animals generally remain in the same area for an entire grazing season.

But *for intensively managed grazing operations*, with smaller, fenced paddocks, where forages can be improved, fertilized, irrigated, renovated, and grazed using many types of management strategies, the stocking rate concept simply falls apart. That’s mainly because everything is fluid on these operations, and a good manager can manipulate many factors during the growing period.

Let’s say I ask you about the stocking rate on your property. If you set-stock your animals, you would give me one number. But if you renovate and fertilize the pastures so forage yields triple, you would give me a very different number. Which number is correct?

Also, stocking rate implies that all feed comes from the forages grown on that land. What if you supplement your pastured animals with grain? Or with purchased hay? Or, taking it to the extreme: What is the stocking rate of a cattle feedyard?

Things can get even more complex. What if you buy and sell groups of animals to take advantage of the seasonal growth patterns of your forage? For example, you bring in a load of old-crop lambs to graze the spring flush of grass, or you allow a neighbor to put his steers on your land to graze a summer forage like sudangrass.

(continued on next page)

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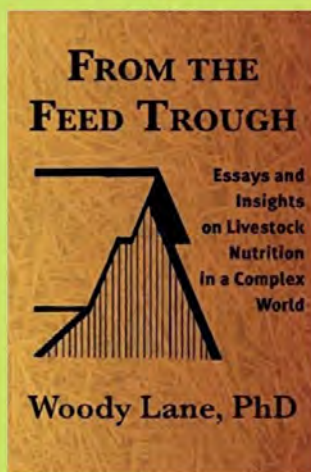
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PASTURES



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Fuzzy Logic (continued from previous page)

The calculations for stocking rate now become very complicated indeed.

If we consider feed supplementation, animal additions and movements, and seasonal confinements in barns, the stocking rate concept becomes so fuzzy that, even if we could somehow derive a number for stocking rate, what would that number really mean?

Now, let's switch gears and talk about "*Stocking Density*." We define stocking density as the amount of biomass grazing a given area *at a single point in time*, expressed as pounds per acre. Note that stocking density applies only to grazing animals; it does not involve hay or silage or fallow land. In effect, stocking density is a *snapshot* of a grazing situation. It is a precise number, easily calculated. For example, a stocking density of 25,000 lb means that an acre contains 25,000 lb of grazing animals — which could be twenty-five 1,000-lb cows, or one hundred 250-lb ewes, or possibly one cow weighing 25,000 lb (not likely, even with crossbreeding).

We can use stocking density on a day-to-day basis to describe the *grazing pressure* on a specific area, and also to compare grazing strategies over time and with other farms, regardless of the size of the operations, the species of livestock, or the type of grazing strategies. Stocking density automatically takes these factors into account.

Here's an example: If I set-stock 200 ewes averaging 160 lb on 15 acres, my stocking density would be 2,133 lb, which is quite low. But if I use temporary electric fence to confine those same 200 ewes on *one* acre, the stocking density on that acre becomes 32,000 lb. I could achieve the same stocking density by putting thirty-two 1,000-lb cows on that acre. (Of course, I wouldn't leave those animals on that acre for very long. When the forage was grazed down to my target residual mass, I would move them to the next grazing cell.)

But let's think for a moment: which stocking density allows animals the luxury of consuming only their favorite plants? Which stocking density forces animals to take out weeds? Which stocking density results in an even distribution of manure? Stocking density gives us no-nonsense numbers to analyze situations and make precise recommendations.

Even small operations can effectively use stocking density to

manipulate forage. Periodically on my place, I graze a flock of 20 ewes, averaging 160 pounds (= a biomass of 3,200 lb).

My pastures also contain patches of unpalatable tall fescue, which are clumpy, wasteful eyesores.

My sheep refuse to eat tall fescue when they can graze tasty plants like white clover and perennial ryegrass. If I fence the flock on one full acre, the stocking density is only 3,200 lb, and the tall fescue remains defiantly untouched. But if I section off a clumpy area with electric netting to create a tiny paddock of 1/10 acre (66 feet x 66 feet), I've increased the stocking density to 32,000 lb in that small area. Which is enough to convince the sheep that tall fescue isn't so bad after all. And, of course, then I move the animals before they eat the rest of the forage into the ground.

We also routinely use the stocking density concept in pasture renovation. One unconventional but extremely practical technique for planting forage seed is the *tread-in method*, also affectionately known as the *hoof-and-tooth method*. Basically, we broadcast seed onto unprepared ground — usually at twice the standard seeding rate (or more) — and allow the animals to graze that area heavily. We hope their hooves will plant the seed. Sometimes it works; sometimes it doesn't. But one rule of thumb seems to give the best results: we should use a stocking density of at least 30,000 lb. Otherwise, there are too few hooves per square foot to drive enough seed into the ground properly.

Stocking rate, stocking density. Two terms, two meanings. It's good to know the difference.

Publisher's note: This is a copyright article, published here with the permission of Woody Lane, a livestock nutrition and grazing specialist who operates a private consulting business in Roseburg, Oregon. He is a Certified Forage and Grassland Professional with American Forage and Grassland Council and teaches forage/grazing and nutrition courses in Oregon. He has a Ph.D. in Animal Nutrition from Cornell University. His new book, Capturing Sunlight, Book 1: Skills & Ideas for Intensive Grazing, Sustainable Pastures, Healthy Soils, & Grassfed Livestock, is available on Amazon and through www.woodylane.com.



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ALUS Project Profile: Daryll and Pam Hirtle at Rounds Creek

Riparian Management Fencing, Alternative Watering System, and Creek Crossing

By Ken Lewis, Conservation Coordinator, Red Deer County

Back in 2018, Daryll and Pam Hirtle were talking to a local fencing company about hiring him for a fencing job on their farm. He mentioned he thought their fencing might qualify for the County's ALUS (Alternative Land Use Services) Program. So they gave us a call, and here's the results of the project (so far).

Daryll and Pam run sheep, goats and cattle. Rounds Creek flows through their place north to south, splitting the quarter in two. Managing this land base, in a way that produces traditional agriculture products AND increased ecosystem services, required some infrastructure.

After some chats and visits with different companies and with Tom Towers, one of our ALUS Farmer Liaisons, Daryll and Pam decided to do three projects that were cost-shared with ALUS:



Wildlife-friendly riparian management fencing. Four-strand for sheep, built on high ground, leaving room for riparian grazing management.

- 1). Riparian Management Fencing: both sides of the stream, up out of the flood plain and mainly at the top of the valley, to minimize corners and braces. They ran a 4-strand electric fence on the east side of the creek (where they graze cattle and the flock), and a 2-strand electric fence on the west side (where there are only cows). By putting the fence a good distance from the creek out of the valley, they left room to graze livestock between the fences, when it makes sense.



The water pump attached to this float, is located in a deeper, quieter part of the stream so it can pump to the trough on high ground.

- 2). Alternative Livestock Watering: the cows especially used to have to drink from the stream when grazing, especially in the paddocks west of Rounds Creek. So, Daryll and Pam put in a

solar-powered alternative watering system. This system can be easily moved to different locations as needed. It pumps water directly from the creek, controlled by a float switch when the cows come for a drink.



Rig Mat creek crossing, set above the channel, at a narrow point from high ground to high ground.

- 3). Since the creek runs the full length of the quarter, sometimes the livestock need to get across it. Daryll and Pam wanted to minimize how often cows were wading down through the creek. So, their solution was to find a narrow spot in the creek channel and set a rig mat down across it. This way, the cows can use it to cross (like a bridge), instead of wading through it. I asked Pam if the cows were OK with using the rig mat bridge. She said that once they figured it out, most of the cows used it all the time, even without fencing the crossing to force them to use it. To coax them onto the bridge at first, they trained them with a bit of grain.

With this infrastructure, Darryl and Pam can now manage Rounds Creek and its riparian area to produce increased ecosystem services. In two short years, the changes in the riparian area along the creek are already obvious.

During our visit in June, we saw many more young willows and trees, new flowering plants, lush grasses and riparian plants like sedges.

Like many of our ALUS Projects, Cows and Fish have done a third-party "Riparian Health Assessment" of Daryll and Pam's project when the fencing etc. first went in.

That gave us a baseline of environmental functions in the riparian area. They will be back in 2 or 3 years to do the Riparian Health Assessment again, to measure exactly how much things have changed thanks to Daryll and Pam's management efforts.

A huge thanks to Pam for touring me around her completed ALUS Projects in June, and for all her and Daryll's hard work, in managing Rounds Creek and its riparian area on their farm.

To find out how ALUS might work on your farm or ranch, please contact me at 403-505-9038 or klewis@rdcounty.ca or, connect with one of our ALUS Farmer Liaisons: Kevin Ziola (West) at 403-352-0662, Tom Towers (Central) at 403-352-6901, Stephen Smith (East) at 403-318-3371.

Inside ARECA: A Look at RDAR

By Alan Hall, executive director

Publisher's note: Alan has accepted our invitation to submit a monthly column to The Blade. We hope to help our readers understand ARECA's role in promoting sound research, spearheading province-wide projects and managing the Environmental Farm Program.

Please visit www.areca.ab.ca to learn more.

Hi everyone.

I am Alan Hall, Executive Director of the Agricultural Research and Extension Council of Alberta. ARECA has worked closely with Grey Wooded Forage Association over the years.

Farmers, ranchers and agribusiness have always been a big part of my life.

I grew up on a dairy farm in the Sangudo area. My brothers and brothers-in-law are still actively farming around Sangudo and Valleyview, and this helps keep my feet on the ground.

In my past, I was very involved in the development of Gateway Research Organization at Westlock where I was the district agriculturist. I moved to Red Deer in the 1980's where I managed Alberta Agriculture's public lands and extension services in Central Alberta, and then headed up crop research for the province.

Along the way I did a stint managing the Ag Research Institute and spent the past decade with Alberta Crop Industry Development Fund Ltd, a company that invested in crop and forage research and development. The recent push to farmer-led research by our Minister of Agriculture, in my mind, is the right thing to do. A new not-for-profit company, Results Driven Agriculture Research (RDAR), is being set up and will have a farmer/rancher Board of Directors. RDAR is well backed financially.

RDAR's structure takes the best parts of previous research models, such as Alberta Livestock and Meat Agency (ALMA) and Alberta Crop Industry Development Fund (ACIDF), as it



ensures research reflects the priorities of farmers and ranchers.

It is imperative that agriculture research in Alberta achieves results that can be and are applied in the field and on the ranch. This is where Grey Wooded Forage Association comes in. They do excellent work in bringing practical application and adaptation of new technology,

products and practices to West Central Alberta.

All the agricultural research in the world is of little value unless farmers and ranchers can use the results in a practical and cost-effective way in their businesses. RDAR will rely on groups like your association to help take the research from the lab to the commercial farm and ranch and make it work well for you.

Working on your priorities, this research will help reduce costs per unit of production, help reduce production risk, improve quality and profitability, while at the same time helping maintain and improve our soil and water resources.

Grey Wooded Forage Association is part of a network of twelve similar associations across Alberta, all the way from Fort Vermilion to Lethbridge and from the Rockies to the Saskatchewan border. These associations are all led by farmer/rancher boards, have a strong work ethic and history of bringing good value to farms and ranches in their areas.

Being a key part of the pipeline from RDAR sponsored research to figuring out how to best use those research results in commercial settings is critical. It is a two-way road, associations being farm groups will also have influence on what research needs to be and is done.

Pretty good system in my mind.

Hope to see you around.

ARECA North to South

- ⇒ Mackenzie Agricultural Research Association
- ⇒ North Peace Agricultural Research Association
- ⇒ Lakeland Agricultural Research Association
- ⇒ Gateway Research Organization
- ⇒ Grey Wooded Forage Association
- ⇒ Battle River Research Group
- ⇒ Chinook Agricultural Research Association
- ⇒ Foothills Forage and Grazing



www.areca.ca

A Cautionary Tale of Ergot, Fusarium and Other Mycotoxins

By Karen Schmil, beef nutritionist, Blue Rock Animal Nutrition

Planting season has wrapped for most of the traditional broadacre crops by now and depending on your program you may be under way planting annuals for summer or swath grazing. As we start to watch the forecast and speculate about what this year's growing season is going to be like, we can be better prepared to spot conditions favourable for mycotoxin producing moulds and fungi.

Risk of moulds with the potential to produce mycotoxins is higher when conditions are wet, and temperatures are high during the time when crops are flowering. A cloudy season like last year extended time plants spent flowering, increasing their exposure, resulting in higher levels of ergot and fusarium than in years past. Less than ideal storage conditions that allow moisture to accumulate also increase the likelihood of mycotoxin producing moulds.

It is important to recognize that moulds themselves are not toxic. When moulds are stressed, which can occur by various environmental factors, they produce mycotoxins as a defense mechanism. It is these secondary metabolites that are of concern. In the grey wooded area, mycotoxins of particular importance are ergot and fusarium.

Ergot bodies overwinter in the soil and germinate in the spring, producing spores that become airborne to invade flowering plants. Contaminated flowers replace a kernel of grain and grow an ergot body in its place. Due to plant physiology, certain species are more susceptible than others. Rye is most susceptible to ergot, followed by triticale, wheat, barley then oats. Fescue and other cool season grasses including wild rye, brome grass, quackgrass, wheatgrass, orchardgrass and bluegrass can also be affected. There is little to be done to prevent ergot proliferation during a wet season, so your best prevention may be to choose a species less susceptible such as barley or oats.

Over 70 different ergot alkaloids are known to exist, with varying levels of toxicity. Traditionally guidelines are set at maximum levels of one ergot body per thousand kernels of grain, but this does little to determine the actual levels of

alkaloid present. Research now suggests ergot poisoning may occur at much lower levels than previously thought. Labs are able to test for some alkaloid levels, but research is ongoing to better understand what safe levels may be.

Symptoms of ergot poisoning in cattle are generally seen as either nervous/convulsive or as a loss of extremities due to gangrene. The nervous form, characterised by convulsions, tends to be rare, with symptoms normally disappearing when contaminated feed is removed. The more common, and economically concerning form of ergot poisoning is gangrene causing loss of extremities like ears, tails and feet. Ergot is a strong vasoconstrictor and even at low levels restricts blood flow to the body including the reproductive system.

Economic losses are often high and include more than the obvious abortions. Bulls develop with smaller testicles, stunting fertility. Breeding heifers do not fully develop their reproductive tract or udder tissue leading to future dystocia and poor milking ability. Mature bulls show reduced sperm count and motility. Cows may not consume levels high enough to cause abortions, but calves can be born smaller and less viable while milk production is dramatically reduced. According to Prairie Diagnostic Services, a toxicology lab based out of the University of Saskatchewan, the maximum level of ergot in a total ration for cattle should not exceed 200 ppb. Although it is not fully understood what the safe levels of ergot are for certain classes of cattle, it is generally recommended to avoid feeding contaminated feed if at all possible, especially to any animal intended for breeding.

When it is not an option to completely remove contaminated feed, dilute with clean feed to lower the ergot levels as much as possible. Although costly, color sorting the grain may be an option to remove the ergot bodies from the grain.

Vomitoxin also known as deoxynivalenol or DON, is one of the toxins produced by Fusarium moulds. Predominantly found in corn, fusarium also occurs in wheat barley oats and rye, and less often in triticale and forage grasses.

(continued on next page)



AFIN

ALBERTA FORAGE INDUSTRY NETWORK

Discussing Mycotoxins (*continued from previous page*)

Like ergot, the incidence of fusarium head blight is strongly associated with moisture at the time of flowering, and timing rather than amount of rainfall is critical. Fusarium spores can spread in many ways such as wind, rain and through infected grain or straw. Other fusarium toxins that may be associated with DON are T2 and HT2, which are even more toxic. Unfortunately, the level of mould present has little to do with the level of toxins present, so testing is the only reliable way to determine risk.

Cattle tend to dislike the taste of fusarium infected feed and generally avoid it. When grazing standing corn, cattle will eat the leaves and stems, leaving the cobs where fusarium mycotoxins occur.

DON can be metabolized at low levels by cattle, as long as rumen conditions are stable, but this can be a challenge under extended grazing systems. Symptoms of DON poisoning may initially be mild and intermittent, such as reduced feed consumption, decreasing performance, and lower milk production. More severe poisoning includes blisters in the mouth, bloody diarrhea, lack of response to antibiotics, decreased immune function, and abortions. Pregnant cows and younger calves are at greater risk to fusarium mycotoxins.

Fusarium may be seen as ear rot in corn and head blight in small grains. Reddish-pink to white mould will usually be

visible on the ears of corn along with shriveled or underdeveloped kernels. If you suspect fusarium in a developing crop, contact a local agronomist to determine if the application of a fungicide would be beneficial. Prevention may be the best strategy to reduce the incidence of fusarium. When purchasing feed and straw do your best to ensure they are fusarium free and treat seed with an appropriate fungicide.

To reduce the damage caused by mycotoxins in your herd, you must be aware of their presence. As mentioned above, a visual observation of moulds or ergot bodies gives little information about the level of toxins present. Mycotoxin testing is recommended to understand both the type and level of toxin you are dealing with. Maximum tolerances have been established for most toxins, however as research continues these levels may change. Establish your limits and develop strategies to mitigate risk.

Every mitigation strategy comes with a cost but is often less expensive than the potential losses in production. Options may include replacing the feed, dilution with clean feed, or another may be to include a commercial toxin binder or even charcoal in the ration to help reduce toxic effects.

Ask your local nutritionist, Ag Specialist or veterinarian to help which option may be the best fit for your situation.

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Alberta Precipitation and Soil Moisture Update

Ralph Wright, Manager, Agro-meteorology Applications and Modelling Unit, Alberta Agriculture and Forestry

Synopsis

Over the two weeks ending July 8, rains have continued to fall across most of the province leaving large areas with excess moisture. Many lands particularly in the North West and through the western edge of the North East have seen at least two large events, delivering well over 50 mm to some areas in succession. In the days surrounding these large events, local thunderstorm activity has brought further rains, leaving very few drying days between rainfalls.

14-day precipitation accumulations as of June 24th, 2020 (map 2)

Over the past 14-days, most of the province, north of Calgary has received at least 80 mm of rain. With parts of the North West and southern Peace Regions experiencing more than 150 mm. The greatest amounts (210 mm) were measured at the Fontas Auto station, located approximately 150 km northwest of Manning. This is close to 40% of what is typically received in an average year (520 mm).

Areas north of Lloydminster and though parts of the Special Areas and some isolated areas in southern Alberta and the northern Peace Region received the least, ranging from 20 to 40 mm, which is still adequate to sustain crop growth.

60-day precipitation accumulations as of June 24th, 2020 (map 2 and map 3)

For the most part, mid-May marked the start of the current wet cycle that has not yet ended. Since that time, many areas through the Central, North West, North East and Peace Regions have received well over 240 mm of rainfall. The greatest amounts were recorded at the Eta Lake Auto station, where 395 mm was recorded in just 60-days. This is more than double the long term average (190 mm) for this same period.

Currently none of the provinces agricultural areas are rated as having below normal rainfall, and at least 60% of the province is estimated to see rains like this at least only once in 6 to 12 years. Several areas are estimated to see rains like this less than once in 50-years. These high rainfall areas are wide spread and include lands in all the defined crop reporting regions.

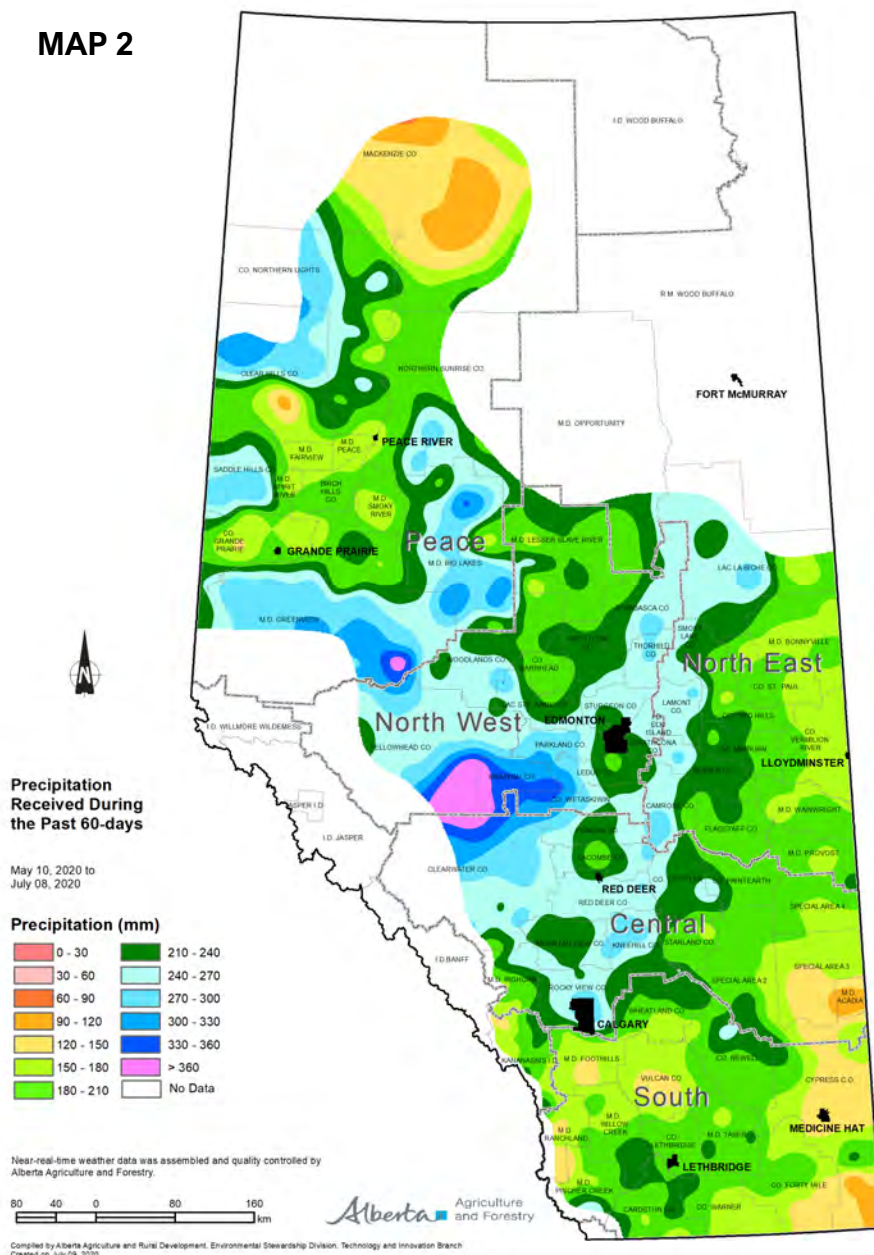
Highest measured 60 day precipitation accumulations (1961-2018) (Map 4)

Looking back to 1961 there have been other 60-day periods outside the current 60-day window (May 10 to July 8th) that have been even wetter. In fact for some areas west of Highway 2, between Grande Prairie and the USA boarder, maximum 60-day accumulations have exceeded 500 mm at some stations. This is at least 100 mm more than what we have seen so far this season.

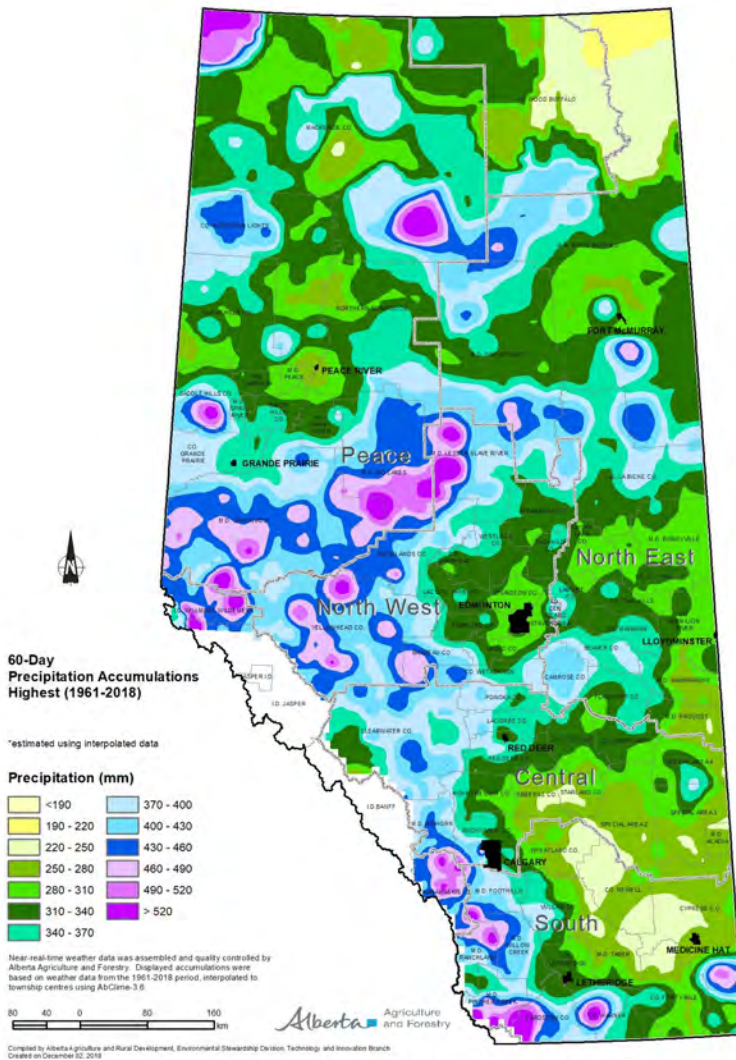
Soil moisture reserves relative to normal as of June 24th, 2020 (map 5)

As a result of persistent rains, soil moisture reserves are at least near normal for 95% of the province, with a large area lying north of Calgary, stretching all the way up to Smokey Lake showing many areas are near one if 50-year highs for this time of year. Similarly there are several pockets of one in 50-year highs throughout parts of the Peace Region.

MAP 2

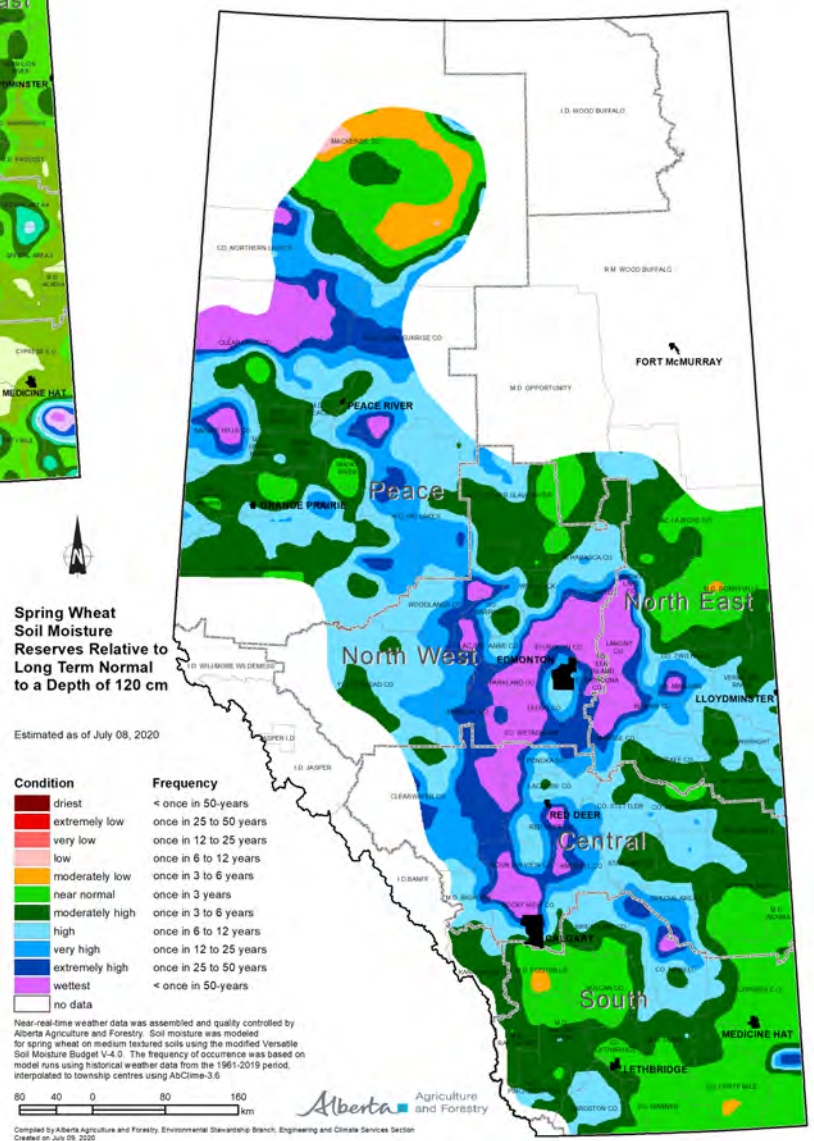


MAP 4



MAP 5

Publisher;s note: Maps 1 and 3 are excluded from this publication to save space. Please visit weatherdata.ca for additional maps and meteorological data.



Forage U-Pick: A New Tool For Western Canada

Reprinted from the Beef Cattle Research Council website, beefresearch.ca

The Forage U-Pick project was supported by more than 13 different organizations through contributions of time and expertise. Funding was provided by the Beef Cattle Research Council, Alberta Beef, Forage and Grazing Centre, Saskatchewan Forage Council, and the Government of British Columbia and Government of Canada through the Canadian Agricultural Partnership.

Forages for hay and pasture are essential for beef production. Ensuring forage species are well-matched to growing conditions improves establishment rates, yield, vigour and quality. This can reduce costs, improve utilization and number of grazing days, and increase profitability. Using accurate production information can produce positive impacts on beef and forage productivity, sustainability, and competitiveness.

Forage U-Pick (upick.beefresearch.ca) is a tool designed to provide users with information for forage selection, forage seeding rates, and weed management.

While every effort has been made to compile accurate and useful information, this tool should be considered a starting point for decision-making. When selecting a forage or forage mix, the Forage U-Pick tool should be used in conjunction with additional feedback from local professionals, other available technical resources, and the latest forage research.

What can Forage U-Pick do for you?

Forage U-Pick can help you find the forage species that are best-suited to your field, and your end use.

Forages Suited to My Field allows you to choose your province, your soil zone or a regional zone and then starts with a list of forage species that are suited to your selected zone.

Researchers have been documenting forages suitability to specific zones, under different climatic conditions, for 60 years. That list is updated continually, and all those updates are included in Forage U-Pick.

The Forage U-Pick tool allows you to select specific criteria to narrow down the options of forages best-suited to your situation. The most important criteria will be “in my field” or “how I want to use the forage.” There are 10 criteria to choose from, but selecting your top two or three priorities will give you the most species results and options.

If you want to see all the forage species suited to your zone, simply leave all as “no preference” before selecting view results.

More information about each forage species can be found when you click on each individual species picture and name. Detailed species information was provided from the BC Rangeland Seeding Manual in combination with other provincial resources.

Single fields often have combinations of many different characteristics such as saline and non-saline, or different flooding durations. For these areas of variable topography or

field characteristics, consider running different scenarios for different areas of your field.

The seeding rate calculator is used once you have selected the forages you want to seed. It will ensure that you put the right amount of seed in the ground to have the best possible chance for a good stand.

Why is a calculator so important? Say you’d like 20 per cent hybrid brome grass and 20 per cent tall fescue in your field when the stand establishes. Even though you want 20 per cent of each grass, seed size and the number of seeds per pound will vary, so you won’t seed both of those forages at the same rate.

Another important factor to consider is the Pure Live Seed (PLS) of the seed lot you are purchasing. Pure Live Seed is the per cent germination multiplied by the per cent purity. If a seed lot has lower germination, more seeds must be planted in order to ensure that the right number of seedlings will begin to grow. Forage U-Pick starts with default minimums, based on the Canada Seeds Act, where possible. It is best to work with your seed supplier to determine accurate germination and purity values for the seed you have purchased.

Forage U-Pick has also provided guidance for scenarios where an increased seeding rate will help set the stage for a successful forage stand. Share the table you create at the bottom of the calculator with your seed supplier.

Economic success in forages can increase with proper weed control. This section provides great resources for weed identification, provincial information and overviews of common weeds in forages for each of the zones in western Canada. The presence of weeds during establishment, and those in established stands, often vary greatly. Both can have an economic impact on forage stands.

The goal of the Forage U-Pick project is to help Western Canadian producers be successful by selecting the best forages for individual conditions, and ensuring that seeding rates are adequate for healthy, profitable stands.

Producers are encouraged to subscribe to the BCRC blog to receive email notifications when content is updated.

Water Systems For Beef Cattle

Publisher's note: This article is the first part of an online information page published by the Beef Cattle Research Council and reprinted here with permission. The page will be published as a series in *The Blade*, with the next issue to cover a discussion of water quality issues. The entire page can be viewed online at beefresearch.ca

Water is an essential nutrient for cattle, accounting for between 50 and 80 percent of an animal's live weight. For livestock to maximize feed intake and production, they require access to palatable water of adequate quality and quantity. Factors that determine water consumption include water quality, air and water temperature, humidity, moisture content of feed/forage, cattle type (calf, yearling, bull, cow) and the physiological state of the animal (gestation, maintenance, growing, lactating). Producers must consider individual grazing management strategies, site characteristics and economics when designing water systems.

Access to fresh, clean water increases animals' water intake, which in turn, increases their dry matter intake. This improves animal performance.

Water consumption will vary based upon water quality, air and water temperature, humidity, moisture content of feed/forage, class of livestock, animal weight, and the physiological state of the animal. Heavier cattle have greater total daily water intake requirements as do lactating cattle compared to non-lactating cattle.

Minimum water requirements are needed for growth, fetal development or lactation, water loss through urine, feces, sweat, or evaporation from lungs or skin.

Factors that influence these needs will impact water requirements. For example, if cattle consume a diet high in protein, salt, minerals or diuretic substances, water needs will increase. If environmental temperature or physical activity increases, water losses through evaporation and sweating will also increase, resulting in increased water needs.

Key Points:

- While cattle can be maintained on lower quality water sources, their health and performance can be negatively affected. Conducting baseline water tests to determine important parameters of water quality will assist producers in identifying whether a water source is suitable
- Water quality can change from year to year, and in certain instances, can even change over the course of a season. Do not rely on past analysis. Conduct water tests regularly; annual testing is preferred during normal circumstances. Weather conditions, such as drought can quickly impact water quality. If changes in water such as smell, clarity and taste, or changes in animal performance, or eating and drinking habits are noticed, re-test immediately
- Cattle can negatively impact natural water sources when

free access is permitted. Reduce and manage access to wetlands to preserve riparian areas

- Fencing off water sources and pumping to a trough improves water quality and reduces water losses
- Conducting an inventory of existing resources and determining how the needs and objectives for the new water system align with those resources, will help design the system best suited for each operation
- Shallow pipeline systems can be an effective and cost-effective way to water cattle in large pastures, accommodating continuous and rotational grazing management
- There are many ways to effectively supply power to water systems, which will vary with the water source, the herd size and type of cattle, compatibility with the watering system selected, and the cost
- When considering various water sources and designing an appropriate system, economic analysis and projections are helpful

Approximate Total Daily Water Intake of Beef Cattle

Animal Description	Intakes in litres for temperatures in Celsius (C)					
	4.4°C	10°C	14.4°C	21.1°C	26.6°C	32.2°C
Feeders & Replacements 2 - 6 Months	20.1	22.0	25.0	29.5	33.7	48.1
Feeders & Replacements 7 - 11 Months	23.0	25.7	29.9	34.8	40.1	56.8
Feeders & Replacements 12 Months & Older	32.9	35.6	40.9	47.7	54.9	78.0
Bred Heifers & Dry Cows	22.7	24.6	28.0	32.9	-	-
Lactating Cows	43.1	47.7	54.9	64.0	67.8	61.3
Herd Bulls	32.9	35.6	40.9	47.7	54.9	78.0

Adapted from: Nutrient Requirement of Beef Cattle Update 2000, 7th revised edition.
National Academy of Sciences - National Research Council.

BEEFRESEARCH.CA

When designing a water system, the following guidelines on consumption will assist with calculations for capacity: Calves less than six months of age can consume between 20 to 50 litres of water per day depending upon temperature, while growing cattle can consume between 30 and 78 litres daily. Lactating cattle require 40 to 60 litres per day. All cattle consume more water during hot weather.



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***How do you describe your operation (tick all that apply)**

- ☐ Beef producer
- ☐ Sheep/goat\ producer
- ☐ Dairy producer
- ☐ Annual crops producer
- ☐ Forage producer
- ☐ Other _____

***How many head of livestock do you manage:**

Beef cows/heifers _____
Dairy cows _____
Feeders _____
Ewes _____
Does _____
Other _____

***How many acres of land do you manage:**

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Hay _____
Crop _____
Other _____

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