The Blade

Monthly Newsletter of the
Grey Wooded Forage Association

July, 2019

COMING UP

DATE	EVENT	LOCATION
Aug. 13-14	AgSmart: Growing Profits with Data	Olds College
Aug. 13-15	Canadian Beef Industry Conference	BMO Centre, Stampede Park, Calgary
Aug. 17-18	Alberta Open Farm Days	Various locations throughout Alberta
Aug. 20	West Country Ag Tour	Rocky Mountain House & Area
Oct. 17-19	Alberta Sheep Symposium	Holiday Inn Petrolia Park, Red Deer
Dec. 10-12	Western Canadian Conference on Soil Health and Grazing	Double Tree Inn, West Edmonton

Please visit our inside pages for event details. We'll see you there!

Contact us:
Box 1448
5039-45 Street,
Rocky Mtn. House, AB. T4T 1B1
403-844-2645

www.greywoodedforageassociation.com
Business office - GWFA3@telus.net
Field office - GWFA5@telus.net

Published by:
Brenda Kossowan
Cover Photo:
Brenda Kossowan

In This Issue:

This publication is made possible in part with funding from The Province of Alberta

The Grey Wooded Forage Association is a member of the Agricultural Research and Extension Council of Alberta

Office Report

By Brenda Kossowan

Input from the community we serve is one of the most important elements, if not the most important, in the Grey Wooded Forage Association's decision-making process. This group was formed at a small table by a group of people with some big ideas—and we continue to serve that original goal: To help livestock and forage producers get the best use of their land while maintaining or improving its ecology.

In recent months, we've heard a couple of impression about GWFA's role and activities that bear some consideration.

The first notion is that, by the name our founders chose, we are focused on a particular soil type. Soils in various shades of grey may dominate our region, but they don't define it. We reach across six different counties, whose soil types run from the deep black chernozemic zone along Hwy 2 to the post-glacial brunisols along the foothills.

Brenda Kossowan Photo

Starting this month, Ag Field Specialist Greg Paranich presents in-depth discussion of the weeds invading Alberta's hay and forage crops. White cockle is the feature weed in this issue. See Pages 5 and 6.

I'm not about to suggest, after 35 years in business, that this association consider a name change. Rather, I hope to convey that our association encompasses forage and grazing issues on a much broader basis than soil type alone. While soil type will dictate management local practices, the goal is to improve the health of our soil, regardless of type. Our stated vision is to have the farming and ranching community throughout our region "engaged in regenerative agricultural production methods." We reach to that vision through our mission of "promoting environmentally and economically sustainable forage and agricultural practices."

The other observation that needs a little comment comes from a contingent of outstanding producers who underestimate the value they bring to our table. GWFA's greatest strength lies in the knowledge and commitment of ordinary grass farmers who share the beliefs of its founders. Our current board is made up entirely of small to medium-size graziers committed to serving their community while looking for help with their own management decisions. From Bluffon to Bashaw to Olds to Sundre to Rocky Mountain House, they share common issues—each from a unique perspective—that have created a sounding board for revisiting past practices and generating new ideas.

Right now, there is room on GWFA's board of directors for three more individuals who wouldn't mind coming to Eckville every fourth Monday for a few slices of pizza and some great discussion. Please call the office or send an email and we can put you in touch with the director closest to you. Contact information is on the lower side of the inside cover.

On the front cover of this issue is a scene that was sadly missing from our region at this time last year: A couple of local producers out raking a really nice crop of grass hay. On this sunny July afternoon, Kate Klooster was getting a refresher course in raking hay from her husband, Harry. It's a good start on winter feed for their dairy herd with the Kloosters hoping to get a second cut at the end of the growing season. Drying conditions haven't been good with humidity at 60 per cent or higher and a constant threat of thunder showers, says Harry.

But the hay has come off in good shape and tested at 17 per cent protein, which he expects will serve his cows well this coming winter.

Erin Willsie

In closing, GWFA bids farewell in August to our summer technician, Erin Willsie, who is with us for the second year.

Erin has worked quietly, effectively and without complaint at keeping Greg and I on our toes. She has been invaluable in organizing and marketing events, conducting field work, managing our social media and web page, looking after various office tasks and helping with an overhaul of the office, which hadn't seen a coat of fresh paint in an awfully long time. Erin is gearing her education to a career in chiropractic, which she hopes will someday lead her back to the family ranch. Please join me in wishing her all the best in her studies and on her life's journey.

WESTERN CANADA CONFERENCE ON SOIL HEALTH & GRAZING

BROUGHT TO YOU BY SEVERAL OF YOUR ALBERTA FORAGE AND RESEARCH ASSOCIATIONS

DECEMBER 10-12, 2019
DOUBLE TREE BY HILTON WEST EDMONTON

FEATURING:

Gabe Brown, Joel Williams, Dr. Dwayne Beck, Dr. Kris Nichols, Brendon Rockey, Dr. Elaine Ingham, Dr. Yamily Zavala, Dr. Shabtai Bitman, Dr. Peter Ballerstedt, Dr. Surya Acharya, Jay Fuhrer, Allen Williams, **Producer Panels and MORE!**

FOR THE AGENDA & REGISTRATION INFORMATION VISIT:

www.AbSoilGrazing.com

EARLY BIRD PRICING UNTIL OCTOBER 31, 2019

Producer	$450.00
Farm Unit (2 people)	$850.00
Producer One Day	$200.00
Student	$350.00
Student One Day	$150.00
Banquet Ticket	$50.00

Registration does not include Banquet Tickets which MUST be purchased separately

Agricultural Field Specialist Report—White Cockle Invasion

By Greg Paranich

Over the past few weeks we've seen our forage stands surge forward with the rains received to fuel the growth we need to fill our feed deficits. Along with the forage growth came an explosion of several weed species that are just recently revealing themselves with their showy flowers.

The culprits include white cockle, tall buttercup, oxeye daisy and scentless chamomile. Each of these invaders is not only a yield robber, but also reduce feed quality. Not only that, they add to the weed seed bank in your land to further contaminate it with very long dormancy periods to haunt us for years to come. Each of these deserves its own article for discussion, so this one is dedicated to white cockle.

Prior to hay being cut, the white cockle exploded with white flowers identifying infested fields from afar quite readily. Of note were fields that were distinctly impacted while the neighboring fields were not. This would indicate that the weed did not come in from any environmental influence, but rather was brought in, most likely with the seed.

I have seen this many times and was questioned as to how could a producer know that this was part of their seed purchase.

As white cockle seed is similar in size and shape to clover and alfalfa seed, it is often a contaminant. As a seed purchaser, you have the right to request a Certificate of Analysis prior to buying. It should reveal all seeds contained in that seed lot including the forage seed you are buying, and any other "contaminants". These may be nuisance and even some noxious weed seeds that are allowed within a tolerance. Having said that, ensure that what is in the bag is not what your want in your field, especially if it is not yet there. You can request that seed you are buying is declared free of the weed of your concern, in this case White Cockle. Below is the tech sheet from the Alberta Agriculture and Forestry web site with all the technical details for your information.

If you have a noxious weed problem in your forage field, we may be able to give you some management guidance. Also remember your local County Agricultural Service Board will give you a lot of information regarding their local regulatory policies and any available resources to you in controlling the weeds (rental equipment, herbicides, etc.).

Here's hoping everyone is having a safe and productive haying season!

Common Name:	Cockle, White
Family Name:	Caryophyllaceae
Latin Name:	*Silene latifolia Poir. s*sp. *alba (Miller) Greuter & Burdet*
Other Names:	White campion
Provincial Designation:	Noxious
Life Cycle:	Annual, Perennial, Biennial
Mode of Spread:	Seed
Provincial Situation:	White cockle can be found throughout Alberta.
Life Cycle:	Grows as a biennial or short-lived perennial. Often there is a large plant with a well-established root system before it is noticed.
Habitat and Ecology	Commonly found in pastures, along rights-of-way and in hay fields. White cockle prefers well-drained soils and is seldom seen in dry climates. Seedlings do not tolerate high temperatures.
How it Spreads::	Each female plant is capable of producing over 24,000 seeds, which may remain viable for up to three years.Spreads mostly by seed, but root and stem fragments can establish. As white cockle seed is similar in size and shape to clover and alfalfa seed, it is often a contaminant.
Toxicity and Other Concerns:	White cockle creates yield losses in alfalfa, clover and small grains. It is also an alternate host or vector for Lychnis Ring Spot virus, which infests sugar beets.
Origin:	Native to Europe and was first reported in Ontario, Canada in 1875.

White Cockle (Continued from previous page)

In its discussion of white cockle, Alberta Agriculture and Forestry provides the following information for the control of white cockle.

Integrated weed management (IWM) considers the overall management of a weed species with the objective of preventing the establishment of the weed from ever occurring, to prevent the spread or to minimize the impact. IWM relies on the combination of a variety of methods such as chemical, biological, mechanical, and cultural controls as well as overall preventative measures. Using IWM creates an opportunity to use herbicides more selectively, which reduces the impact on the environment as well as slow the development of weed resistance to herbicides.

Preventative – Use grass and legume seed that as a Certificate of Analysis declaring it free of white cockle seed. Buy hay that is free of white cockle.

Competition – White cockle is a "sun-lover" and therefore, most crops seeded at high rates and vigorous forage stands compete well with white cockle seedlings.

Established white cockle is more competitive and not significantly reduced as a result of competition.

Fertility – The addition of fertilizer will enhance white cockle growth. Fertility in combination with chemical control appears to have no effect (Erickson 2001).

Cultivation - Tillage deep enough to cut off roots below the crown and deposit the plant on the soil surface, allowing the plant to dry out, is required to control white cockle. Surface tillage will control seedlings in summer fallow situations.

Mowing or Hand Picking – Mowing can be effective in preventing seed production, but white cockle can withstand annual mowing as the root will send up new shoots. Hand picking will work for small infestations, but the entire root must be removed.

Resolving Large-Animal Emergencies – Don't Panic!

By Brenda Kossowan, reprinted with permission from Prairie Hog Country, April 2019 edition

OLDS, Alta. – Alberta's leadership in handling livestock emergencies is being held up as a model for the rest of the continent while some of the actual incidents are shown as examples of how badly things can really go.

Rebecca Gimenez-Husted, founder of Georgia-based TLAER (Technical Large Animal Emergency Rescue), provided an overview of her experience in livestock rescue to members and supporters of Alberta Farm Animal Care at its annual conference in Olds earlier this year.

She included a disclaimer at the beginning, warning of graphic photos, difficult ideas, offensive comments and terminal solutions.

"I actually talk about AFAC a lot, for a lot of reasons, as I go around the world, because of AFAC and the things that they do for animal welfare and care. It turns out that what's really important is how we all work together and make this thing happen," said Gimenez-Husted, showing a slide of a large critter deeply mired in mud and a group of people trying figure out how to save it. Depending on your expertise and the resources available, a decision may have to be made about whether an animal can be saved or if rescue attempts could kill it or cause further and potentially fatal injury.

"In large animal rescue, we talk a lot about human factors. It's not the cow, the pig, the horse that's in the mud. It's how we come together as human beings to make this work," she said.

"We talk a lot about animal welfare, but we also have to talk about people welfare. I don't want you in that trailer trying to get animals out and you get hurt."

"We talk a lot about animal welfare, but we also have to talk about people welfare. I don't want you in that trailer trying to get animals out and you get hurt."

Much of that comes down to evaluation of risk and understanding of best practices. She showed another slide of a rollover involving a semi hauling hives of live bees near Camrose.

"Who do you call when you've got 30 million bees in the middle of the road? It happens."

She also questioned complicated efforts at solving simple problems, like using a helicopter lift to rescue a bull that could have been lured to safety with a bucket of oats.

Gimenez-Husted showed slides of people digging paths through mud and snow so animals could walk out on their own rather than attempting stressful and expensive aerial lifts.

"It looks sexy and, I promise you, it will make the news. It looks cool, and I'm standing here saying no, no, no, don't do it."

In one of the events she cited, a specially equipped helicopter was hired at $8,000 to rescue a horse that had been trapped and injured during a trail ride. Once safe on dry ground, the horse had to be euthanized because of a tendon injury it had suffered during the initial mishap.

"I would have preferred, for his welfare, that we didn't do that in the first place."

People attempting to save animals put themselves in grave danger when they don't understand the risks to their personal safety. Gimenez-Husted said it is essential, therefore, that emergency crews involved in rescuing animals have training, equipment and contingency plans so that each attempt is grounded in an understanding of animal behaviour and the variety of risks to people involved in assisting a large, frightened and potentially exhausted animal.

It's crucial, when animals are loose on the highway after a collision, to have law enforcement properly engaged in the rescue, said Gimenez-Husted. For example, a veterinarian will likely be needed at the scene to assess injuries and euthanize animals that cannot be saved. Law enforcement needs to ensure that the vet can get past the inevitable traffic jam to tend to those animals, she said.

A well-considered disaster plan can help protect animals and people from further harm, said Gimenez-Husted.

In Alberta, the most likely scenarios involve fires and flooding, she said, showing a picture of a woman riding one horse and ponying another away from the fire at Fort McMurray in 2016.

"Does your community have a plan? In California last year, people let their horses go. Is that a plan?"

Relating more closely to people with intensive livestock farms, she asked what containment is available on site in case animals must be evacuated from a burning barn. Gimenez-Husted demonstrated the futility of trying to lead animals out of one stall or room at a time. Fire moves so quickly, the only chance for the animals is if the entire building can be evacuated quickly.

Addressing that issue afterward, Brent Bushell, general manager of Western Hog Exchange, said most hog facilities do not have outside containment, so there is nothing to stop pigs from running off in the event of an evacuation.

He raised the issue of obstacles outside the barn that may injure animals and impede an emergency response.

(continued on next page)

(continued from previous page)

Gimenez-Husted also addressed the issue of roof collapse and the efforts producers need to make to ensure that their barns are safe and stable, showing yet another slide of an incident at a riding arena in Alberta.

"Just about the time they got the animals and people out, the entire thing collapsed," she said.

"There's got to be something going on, because this was a well-constructed building. I've got hundreds of pictures of dairy barns, horse barns, livestock barns that have collapsed like this. Are we just not paying attention? Is it something that we think doesn't happen very often?

"It's not just that it kills livestock – it costs a lot of money and it's difficult to get those animals out when they're underneath."

She said the biggest obstacle to animal rescue is the well-meaning effort of untrained bystanders who put themselves and others in harm's way because they don't know what to do. Resolving that issue comes down to having an Incident Action Plan, which includes a clear line of command with proper instruction for bystanders who want to get involved.

Enlisting their help can be as simple as getting the animals some hay and a bucket of water while emergency responders work on a rescue plan for them.

"They're not in a hurry, it's you that's in a hurry. Has anybody ever dealt with someone who is emotional about their animals? Let's come up with a plan."

She said there is no perfect way to deal with all the different things that can happen while urging that people take precautions to prevent problems in the first place, like properly hitching the trailer and making sure that people hauling livestock are properly trained before they hit the road.

Gimenez-Husted encouraged conference participants to visit the Red Deer County livestock emergency trailer parked outside the conference, the equipment and supplies it carries and the competent crew available to manage livestock involved in highway emergencies. Equipment includes a variety of gear capable of managing and containing loose animals from piglets to large bulls – although crews will not attempt to manage loose bison because they are simply too aggressive and unpredictable.

Red Deer County trailer has one of 18 livestock emergency trailers now spotted in rural areas throughout the province and dispatched in a collaboration between AFAC and local emergency centres.

Bushell, who just completed a term on AFAC's board of directors, was involved in an informal investigation two years ago. Emergency personnel called to a rollover involving a semi load of weaner pigs were unaware that a trailer stocked with the gear they needed was parked just an hour from the site of the scene. Pigs that survived the crash died of heat stroke and suffocation because crews couldn't let them out of the trailer. Bushell said measures have since been taken to raise awareness of the trailers and ensure that truckers and rural emergency departments know how to find them.

"The big thing is planning and communications. When disasters hit, there's probably a lot of things that we don't think about ahead of time. A lot of times we're reactionary in situations rather than having a go-to plan," he said.

Additionally, communication lines must be open to other responders, including veterinarians.

"I think that's something we have to take very, very seriously when it comes to accidents involving livestock," said Bushell.

When WHE still operated its assembly yard in Red Deer, it had a full complement of safety security on site, biosecurity measures were taken and all staff were familiar with the response plans that had been created, considering large numbers of trucks and animals were on site during operating hours, said Bushell.

"You can't just create a plan and then put it on the shelf. It's something that we had to look at constantly and re-evaluate every couple of years and say: 'Does this serve our purposes or does it not serve our purposes,'" he said.

"Typically, when you have accidents like that, they happen very, very quickly. You have to be very proactive in evaluating your

(continued on next page)

This is a sampling of the equipment kept in Red Deer County's livestock emergency trailer. Available gear also includes portable panels, lead ropes, halters, lights and generators. (*Brenda Kossowan photo*)

(continued from previous page)

whole operation, whether it's an assembly barn or it's a farm or a barn, and saying: 'What if this happens,' and then going through the whole process."

Bushell said one of the biggest challenges for the hog industry probably lies in the number of barns that are 25 or more years old and need to be evaluated for structural and electrical integrity.

"People really have to take a proactive perspective and do fair and honest evaluation of what their program looks like, and if they don't have a program, then certainly that's a good place to start," he said.

Gimenez-Husted wrapped up with a brief discussion of the emotional trauma people suffer after an incident involve their animals.

"We're all here because we love animals, right? We have to think about our mental health. When we have to deal with a cow in mud, the livestock trailer on the side of the road, a barn that burns to the ground, it affects us. It affects your veterinarians when they have to euthanize (animals). They have to see absolutely awful things. If you're having problems, you need to go find someone."

She issued her final challenge of the day, asking people in the room to go and find qualified counsellors who are involved with the industry and who they can call to talk about what happened and how it has affected them.

Please visit tlaer.org to gain further insight into managing animal emergencies and to learn more about the training programs Gimenez-Husted and her team are offering.

How to make hay when facing variable conditions

By Barry Yaremcio, Alberta AgInfo Centre

With different areas of the province receiving anywhere from 12 to more than 250 mm of rain in the last few weeks, and the unsettled weather patterns experienced over the last few weeks, it will be a challenge to make good quality hay.

In the drier areas of the province, plants are in survival mode and are trying to complete their lifecycle as quickly as possible. The sole purpose of plant growth is to produce seed to ensure longevity of the stand. Plants are shorter in height to conserve nutrients and water and mature two to four weeks sooner than when adequate moisture is available. Quality declines more rapidly with more fibre and less protein in the forage.

Waiting to get a higher yield in this situation is not a good management practice. Once grasses have headed out and legumes are in the 10 to 20 per cent flowering stage, there will be no additional growth. Plants will not grow taller. For every week that cutting is delayed, protein content will drop by one to two per cent per week. If cutting is delayed for two weeks; instead of harvesting a crop with 14 per cent protein, it is possible that the hay will be in the 10 to 11per cent range. Energy is also negatively impacted when crops are cut late. TDN values can drop by 1.5 to two points per week as well. Take what there is and allow time for the plants to recover as much as possible before they go dormant.

Over the last two to three weeks, some areas of the province have received up to 300 mm (12 inches) of rain. Some fields are too soft for any type of equipment to be on the fields without cutting ruts, damaging the stand and making future field work unpleasant at best. In these situations, there is nothing to do but wait. Unfortunately, the plants will continue to mature and quality losses will occur.

In areas with less rainfall and the fields can support equipment, the question is what to do and when to cut the hay with the unsettled weather conditions. Rainfall on cut hay can reduce yield and quality. Various studies have reported up to a 40 per cent reduction in yield, especially when there is a high percentage of legume in the stand. Leaching of soluble sugars and protein cause quality loss. More damage occurs when the plants are within one or two days of baling compared to crops that are freshly cut.

With the occurrence of frequent showers and wet soil, it will take longer for the cut hay to dry and cure. It will be very challenging to make dry hay if the weather does not improve. A couple options to consider: 1) make chopped silage out of the hay crops and place the material into a pit, pile or bag; 2) make round bale silage and place the bales in either long tubes or wrap as individual bales. The time required between cutting and baling can be reduced from a week (or longer) to one to two days. This prevents weather damage to the forage. When comparing dry hay to higher moisture product, generally the yield and quality of the high moisture product is higher.

Making silage bales is time sensitive. Moisture should be in the 45 to 55 per cent moisture range if the bales may be stored more than 12 months. If the bales are to be used this winter, moisture can be down in the 30 to 35 per cent range. Once the bales are made, if possible, the bales should be in a tube or individually wrapped within 10 to 12 hours of making the bales to have proper fermentation and a high-quality product.

If moisture content in the bales is higher than 55 per cent, the bales freeze solid and the cows have difficulty eating the hay from a bale feeder.

Moisture levels above per cent impair the fermentation process and quality is reduced. Also, there is a slight chance that listeria could be present in the silage.

West Country Ag. Tour

August 20, 2019

Join Otis the Owl, West Country Harness Club and the whole crew from Clearwater County Agriculture Service Board for their annual day trip, starting with an early breakfast at the County Yard north of Rocky Mountain House.

$35 per person
Register by August 16
Call 403-845-4444

Features of this year's tour:

Cover Crop Trial Plots—County Trial Plots with Greg Paranich and Devin Knopp
Role of Raptors—Medicine River Wildlife Rehabilitation Centre
Pollinator Preservation—Charity Briere, native bee expert.
Shelterbelt Showcase—Agroforestry & Woodlot Extension Society
Hemp Mats—Beau Taylor, Biocomposite Group
Farm Equipment Demonstrations—Alex Fuengling with direct seeder, high-speed disc and pasture harrows.

Breakfast, lunch, afternoon refreshments and wagon ride are included

Talkin' 'bout a Revolution . . .

By Debbie Miller, Project and Communications Manager, Pachaterrae Inc.

A soil revolution that is. According to Dr. Kris Nichols, lead scientist at Pachaterrae and former chief scientist at Rodale Institute, "abnormal is the new normal". Weather patterns are changing, our chemical and mechanical farming practices aren't working as well as they used to, and our soil is becoming depleted. This leaves us more vulnerable to the effects of extreme weather events, not to mention growing food that is often lacking in taste and nutrition. We talk about things like "conservation" and "sustainability", but is conserving or sustaining something that is already degraded good enough? Dr. Nichols believes we can do better. But it will mean shifting our focus from what happens above ground to the heart of food production, the soil.

At a recent series of workshops across Alberta hosted by Food Water Wellness Foundation in partnership with several organizations including Pachaterrae and Grey Wooded Forage Association, Dr. Nichols described the growing "Brown Revolution" and the creation of a new movement called Regenerative Agriculture.

Regenerative agriculture is a whole-systems approach that recognizes the link between plants and soil and seeks to guide agricultural practices with the goal of optimizing soil health. This not only improves the nutritive quality of food, but it helps with managing water, controlling pests and diseases, and it builds resilience against climatic uncertainty.

So, what about that revolution? Dr. Nichols used a soil regeneration pyramid to describe it. A pyramid design was chosen because of its structural stability, where each layer has allowed them to stand for thousands of years. We need that from our agro-ecosystems. Pyramids themselves may not be natural structures, but they utilize concepts and math governing the natural world for their structural stability. Agro-ecosystems are also not natural systems as we humans have modified our environment to grow in population beyond its natural carrying capacity, but we can take lessons from the natural world to build stability.

Living Roots (Green and Growing)

Our soil has been hemorrhaging, but focusing solely on yield, no-till, or grazing just stops the bleeding. We are losing carbon and the patient, i.e. soil, needs a transfusion and will die anyway without a systems approach that starts with photosynthesis. The Brown Revolution recognizes proper soil management as the most ecologically and economically regenerative form of agriculture to provide nutrient dense food. It mitigates climate change while helping crops thrive under climatic uncertainty.

Improving soil carbon through photosynthesis also increases or improves:

- biological activity – growth and diversity of microflora
- water infiltration, holding capacity, quality, and efficiency of use
- soil tilth and structure
- natural fertility – nutrient cycling and storage and capacity to handle manure, compost and other organic fertilizers
- cation and anion exchange capacity
- adsorption of pesticides

It reduces:

- soil erosion
- soil compaction
- air and water pollution

When it comes to the small water cycle which is fundamental to water use on the farm, improving soil will:

- increase infiltration rates through larger and more continuous porosity
- increase water-holding capacity
- continuous but branched pore structure and diameters
- water absorption and hygroscopic impacts on molecular level
- increase water use efficiency on the part of biology
- external mass flow efficiencies
- physiological efficiencies
- light and dark reactions – stomatal opening
- root architecture – fine roots and root hairs
- benefit microbes – fungi – accessing water in macro- and micro-spaces in zones where roots cannot access
- benefit cellular water – storing water in the system on a cellular level in the bodies of organisms
- cycle water at the surface or near-surface by increasing condensation through living plants (i.e. leaves of different architectures and heights) and/or residue
- benefit microbes – bacteria – by producing extracellular biomolecules that act as nucleating agents for water crystal aggregation and raindrop formation.

Diversity

We add energy to the soil through diversity. This takes a variety of forms including diversifying and lengthening crop rotations, using carefully chosen cover crops and compost, all adding and diversifying soil carbon. Diversity also comes in the form of animals – large and small grazers, birds, bats, insects, etc. – as well as microorganisms.

Reduced or No Synthetic Nutrients

It is not possible to regenerate soil to its full potential when using synthetic fertilizers. We need to optimize soil organisms (especially

The Brown Revolution *(continued from previous page)*

mycorrhizal fungi) to maximize effects on plants. Applying soluble phosphorus fertilizer removes the need for a symbiotic relationship between plants and mycorrhizae. Timing is also very important, when we add amendments we are often not adding them in the amount or form needed to meet the plants needs. Dr. Nichols compared it to putting a baby in a room with 19 years worth of food and then leaving it alone. Technically the baby has everything it needs to survive for 19 years, but the timing and form are wrong.

Manage Livestock

Animals of all types and sizes, including insects, play a crucial role in regenerative agriculture. Our grasslands evolved out of a symbiotic relationship with large, grazing herbivores. Plant matter doesn't degrade easily on its own, it needs large animals to break it down in their rumens and stamp it into the ground and generally work the land. Carefully managed livestock and grazing patterns benefit the soil through increased organic matter, rejuvenation of microorganisms, and restoration of water cycles. It also leads to an exponential increase in the land's ability to sequester carbon.

Soil Armor

Crop residue, living plants, mulches, and/or compost on the soil surface are valuable sources of armor or protection. Solar radiation is constantly breaking down organic matter at the soil surface and converting it to carbon dioxide. In addition to radiation, surface soils are destroyed by the erosive energy from wind and water. It is estimated that the energy from the impact of raindrops on a per acre basis is equivalent to 20 tons of TNT. These erosive forces are responsible for polluting our air and water as well as the loss of up to 2 tons of topsoil from each acre each year. This armor also provides a food source for residue decomposing soil microorganisms which Don Reicosky, a retired USDA-ARS scientist, refers to as 'piranha' microorganisms. These 'piranhas' keep us from being buried in residue and are important in cycling carbon, but they don't know the difference between crop residues and soil organic matter. Therefore, when we do tillage and bury residue while bringing carbon to the surface, we feed the 'piranhas' our valuable soil carbon.

Reduced or No Tillage

Tillage causes the fungal network to be broken up and moves the organic matter that adds richness to the soil to the surface, where the soil carbon is released into the atmosphere. Using as minimal tillage as possible and keeping soils covered holds carbon in the soil rather than releasing it into the atmosphere. Crop residues left on top of the soil become mulch that feeds soil microorganisms and accelerates the process of storing more carbon in the soil. Minimal tillage and mulch also increase rainfall infiltration to help prevent storm flooding and limits soil erosion, enhances soil moisture retention, and reduces air and water pollution from dust and runoff.

FARMERS ON THE FRONTLINE

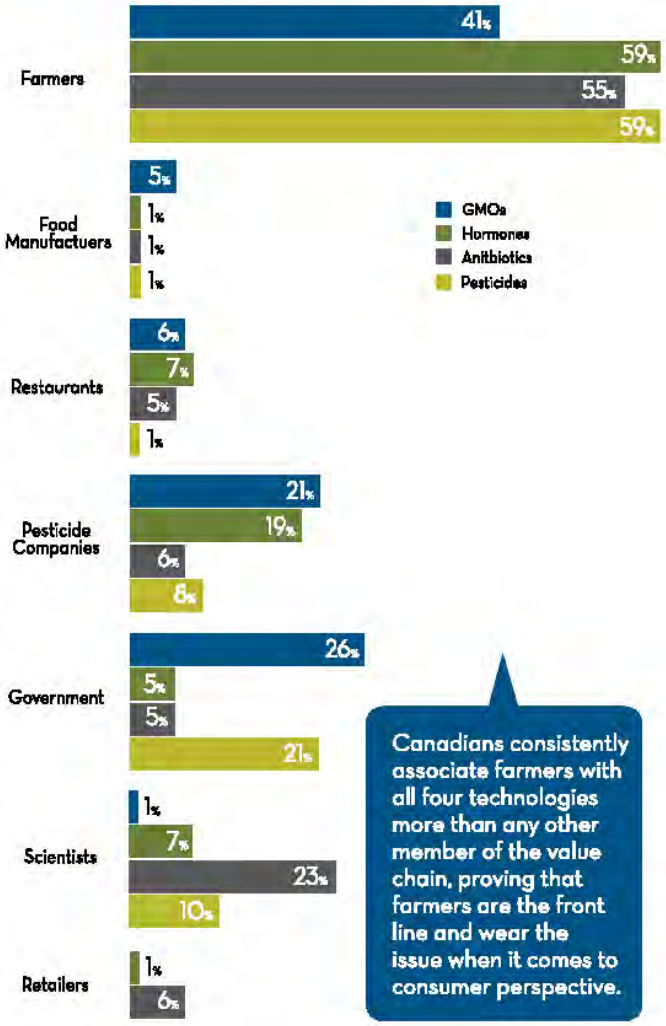
While Canadians have varying opinions on the four individual technologies examined within the research (GMOs, Pesticides, Hormones and Antibiotics), there is one common theme all Canadians firmly associate with each of these technologies: farmers. Farmers are associated with these technologies more than any other member of the value chain proving that farmers are the front line and wear the issue when it comes to public opinion.

- 60% of the analyzed discussions associated pesticides with farmers, while only 21% associated pesticides with government, and only 10% with scientists.
- The results are similar for hormones, antibiotics, and GMOs.
- While GMOs were the least associated with farmers at 41%, this is still substantially more than the number of discussions that associate GMOs with the next closest stakeholder (government at 26%).

The implications on future messaging is significant; Canadians are not predisposed towards listening to assurances about government regulatory safety measures because government is not the primary stakeholder that is associated with the technology.

In contrast, farmers have compelling stories and can act as key figures for educating the general public on agriculture issues. And when it comes to retailers, Canadians do not see a role for them in telling the story about why farmers need access to technologies.

STAKEHOLDERS ASSOCIATED WITH EACH ISSUE



THE CANADIAN CENTRE FOR FOOD INTEGRITY

PUBLIC OPINION: A STUDY OF CANADIAN CONVERSATIONS ONLINE ON FOOD AND FARMING 7

The Canadian Centre For Food Integrity has released new research examining the relationship between food producers and the rest of the population. This page is excerpted from the organization's Canadian Conversations Research Report. The entire report can be viewed on the CCFI's home page at www.foodintegrity.ca

ALUS Canada Awards

The Board of Directors and Staff at Grey Wooded Forage Association send hearty congratulations to the Towers ,Clyde and Smith families for their achievements in enhancing and preserving the ecology that supports their farms. Their work benefits us all, as detailed in the following news release announcing the awards.
ALUS is an acronym for Alternative Land Use Services, an initiative of the Westin family.
ALUS Canada is active in three of the six counties that lie within GWFA's region: Lacombe, Mountain View and Red Deer. GWFA holds a seat on the ALUS Producer Advisory Committee (PAC) in Red Deer County.

From left to right: ALUS Mountain View Program Coordinator Lorelee Grattidge, Runner-Up Jerremie Clyde, Honourable Mention recipients Maria and Darren Smith, ALUS Parkland Coordinator Jennifer Caudron, Dave Reid Award honorees Margaret and Tom Towers, and ALUS Red Deer County Coordinator Ken Lewis.

Red Deer County, Alberta, June 4, 2019—During a special event held today at Rolyn Ranch in Alberta, ALUS Canada presented the 2019 Dave Reid Award, worth $10,000, and two runner-up awards, worth $1,500 and $500 respectively, to Canadian farmers and ranchers who are excellent stewards of the land and who have done innovative work in producing ecological services through the ALUS program.

The 2019 Dave Reid Award was presented Tom and Margaret Towers. Tom has been a PAC member and Farmer Liaison since 2016. As ALUS Red Deer County participants, the Towers maintain 45 acres of ALUS projects, including wetlands and riparian zones, native trees and shrubs, wildlife-friendly fencing and alternative watering systems for livestock.

"For their outstanding land-stewardship ethic, their commitment to innovation as producers, for their longstanding dedication to rebuilding Canada's natural heritage, and for the impressive legacy they have created for future generations, Tom and Margaret Towers are very deserving recipients of the 2019 Dave Reid Award," said ALUS Canada CEO Bryan Gilvesy.

"We are honoured to receive this Canada-wide recognition," said Tom Towers.

"We will continue to produce ecological services, and be the change we envision in the world, one acre at a time."

A special Runner-Up prize went to ALUS Mountain View participants Jerremie and Rita Clyde, of Little Loaves Farm, "for their role as proud, vocal, and effective advocates for ALUS," said ALUS Canada's Western Lead, Rhonda King, who presented them with the prize.

Darren and Maria Smith, of Good Land Farms in Parkland County, Alberta, received an Honourable Mention prize, presented by ALUS Canada Agrologist Howie Bjorge.

Formerly known as the ALUS Canada Producer Innovation Award, the Dave Reid Award has previously been presented to Joe Csoff (ALUS Norfolk) in 2018 and Gerry Taillieu (ALUS Parkland) in 2016. The award is supported by The W. Garfield Weston Foundation, ALUS Canada's primary philanthropic partner.

ALUS Canada congratulates all 2019 award-recipients. Thanks to ALUS Red Deer County participants Rob and Lynda Purdie for their kind hospitality, as well as to ALUS' supporters and partners, such as the Alberta Real Estate Foundation and Innotech Alberta, for their presence at the event.

All ALUS supporters, program coordinators, PAC members and participants are to be congratulated for helping to rebuild Canada's natural heritage for the benefit of Canadian communities.

What are Ecosystem Services, and Why Should ALUS pay for them?

By Ken Lewis, Red Deer County Conservation Coordinator

Ecosystem Services are the benefits provided by the environment to society, and which have financial ($) value to society.

In my opinion, a key element of this concept is that those services must have economic value to society / to the broader public. You'll see why I think that, below.

There are many Ecosystem Services. To name just a few: water storage, water filtration, producing oxygen, carbon sequestration, habitat for pollinators, food and fibre production. These are all benefits provided by the environment to society, which have economic value to society.

In Red Deer County, much (probably over 90%) of "the environment" is owned and managed by farmers and ranchers. We call the parts of the environment that are owned and managed by farmers and ranchers "farms" and "ranches".

How the farmers and ranchers manage their farms/ranches, has a direct impact on how their farms/ranches produce ecosystem services.

Each individual farmer/rancher makes management choices that cause their farm/ranch to produce increased, or decreased specific ecosystem services.

Let's have a look at a completely made up example. Note that the units, and the amounts don't matter, and we're keeping it extremely simple to help make the point.

Let's say the farm has 300 acres of tame grass pasture, 600 acres of annual crop land, and 100 acres of native forest range. Let's say that farm is producing the following ecosystem services:

- 1,000 units of food production
- 1,000 units of water filtration
- 1,000 units of pollinator habitat
- 1,000 units of oxygen production.

Have another look at the ecosystem services being produced by the farm.

All have economic value to society. But: How many of them are being paid for by society? *Just the food production*.

In a society driven by economics, since society is only paying the farmer for one of the ecosystem services that his farm his producing (food production), let's say our example farmer decides to convert the 100 acres of native forest range, into annual crop land.

As a result, the farm is now producing the following ecosystem services:

- 1,200 units of food production
- 600 units of water filtration
- 900 units of pollinator habitat
- 800 units of oxygen production.

Red Deer County, and communities across Canada, are trying to address this situation through our ALUS (Alternative Land Use Services) Program.

ALUS is building a mechanism for society to pay farmers / ranchers for more of the ecosystem services that their farms/ranches are producing that have economic value to society, not just the traditionally paid for ones like food and fibre production.

With society paying for a broader suite of ecosystem services that they are benefiting economically from, our example farmer can make different management decisions.

Instead of converting the 100 acres of native forest range into cropland, our example farmer instead decides to change how he grazes livestock in the forest and in his tame grass pastures. Among other impacts of this change, the population of flowering plants increases.

In addition, he changes how he does his annual crop production and now the water-holding capacity of the soil has gone up dramatically.

Now, his farm is producing the following ecosystem services:

- 1,000 units of food production
- 1,500 units of water filtration
- 1,300 units of pollinator habitat
- 1,000 units of oxygen production.

And society is now paying for all of these ecosystem services. They pay for food production via the normal channels (like the grocery store), and they pay for the other ones via ALUS.

To find out more about ALUS or ecosystem services, please visit alus.ca or call me at 403-505-9038 or klewis@rdcounty.ca.

ALUS Canada
A Weston Family Initiative

Alberta Sheep Breeders' Association 2019 Symposium

ASBA 1-866-967-4337

Back to our Roots

Join us for our 50th Anniversary!

Guest Speakers

- Dr. Greg Penner
- Dr. Lesley Stubbings
- Tony Stolz

GenOvis Workshop

50th Anniversary Celebration Banquet

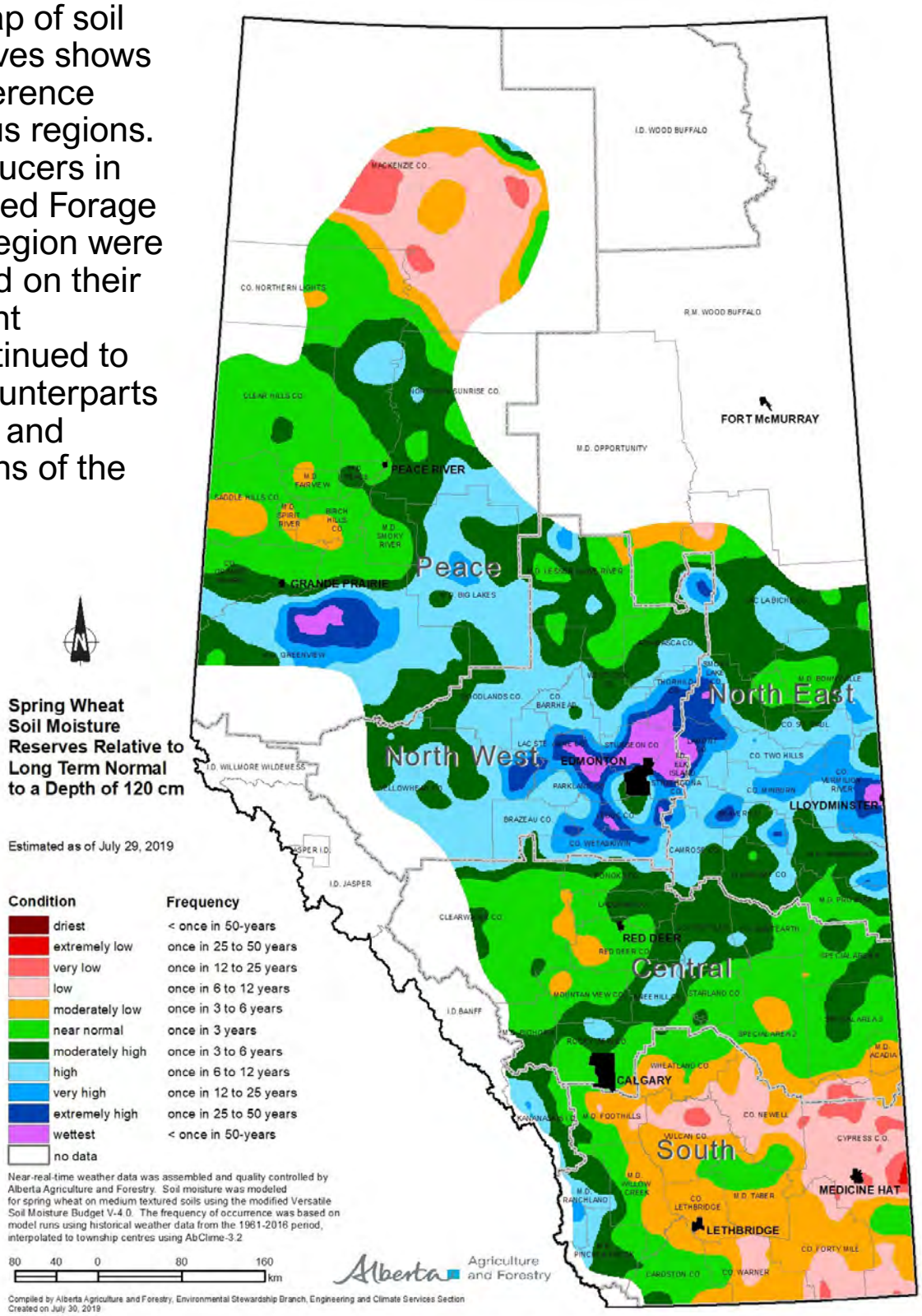
Trade Fair

Silent Auction

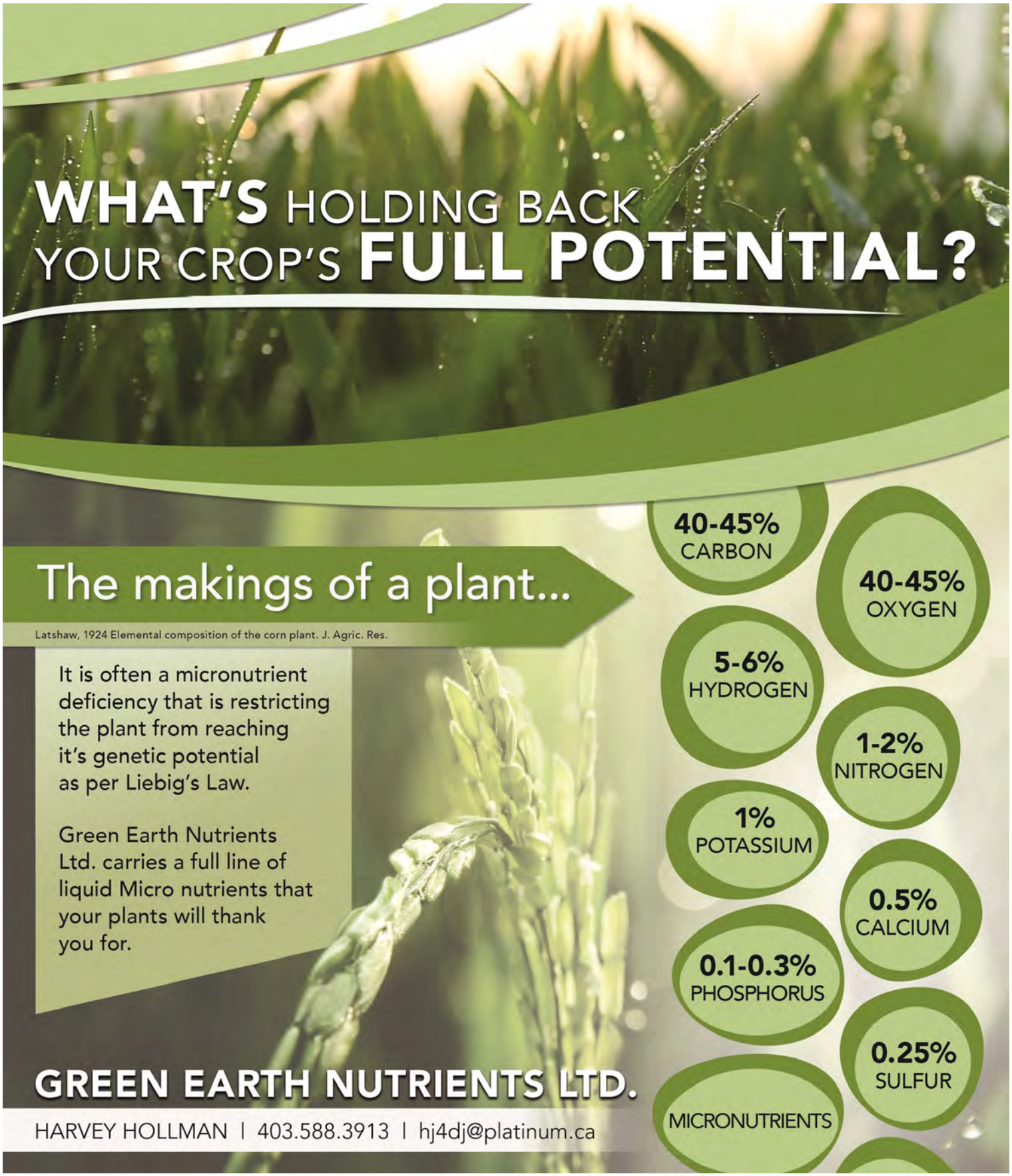
Holiday Inn (Petrolia Drive)
Red Deer, AB
October 17-19, 2019

www.albertasheepbreeders.ca

The July 29 map of soil moisture reserves shows a dramatic difference between various regions. While hay producers in the Grey Wooded Forage Association's region were going full speed on their first cut, drought conditions continued to plague their counterparts in the northern and southern regions of the province.



Visit weatherdata.ca for additional maps and meteorological data


WHAT'S HOLDING BACK
YOUR CROP'S FULL POTENTIAL?
The makings of a plant...
Latshaw, 1924 Elemental composition of the corn plant. J. Agric. Res.
It is often a micronutrient deficiency that is restricting the plant from reaching it's genetic potential as per Liebig's Law.
Green Earth Nutrients Ltd. carries a full line of liquid Micro nutrients that your plants will thank you for.
40-45% CARBON
40-45% OXYGEN
5-6% HYDROGEN
1-2% NITROGEN
1% POTASSIUM
0.5% CALCIUM
0.1-0.3% PHOSPHORUS
0.25% SULFUR
MICRONUTRIENTS
GREEN EARTH NUTRIENTS LTD.
HARVEY HOLLMAN | 403.588.3913 | hj4dj@platinum.ca

Emergency forages, Cover Crops and Livestock

By Trudy Kelly Forsyth, Canadian Grassland and Forage Association. Reprinted with permission from Country Guide.

Cover crops are generally grown to prevent soil erosion and provide soil health benefits that improve crop production over the long term. However, for livestock producers, cover crops can also provide forage.

This is particularly common for producing emergency forage in years with below-average production from perennial hay and pasture. One recipe for emergency forage, based on research conducted at the University of Guelph, is to seed 80 kg/ha of oats, with or without peas, following winter wheat and fertilized at 50 kg N/ha.

That said, producers are increasingly growing cover crops as part of their planned feeding systems. That's because while the Canadian climate makes feeding stored forage an important piece of livestock production, harvesting and storing that crop, feeding it out and handling manure are additional expenses associated with feeding stored forage that are not part of grazing systems.

"Grazing cover crops is a great way to extend the grazing season," says Ontario Ministry of Agriculture, Food, and Rural Affairs forage and grazing specialist, Christine O'Reilly. "In general, livestock producers can save money by finding ways to graze more and feed less. While cover crop grazing often costs more than grazing a perennial pasture, in many situations it is still cheaper than feeding hay."

There are benefits of grazing cover crops to crop production as well.

"Many growers are getting very good at cover cropping, to a point where the large amounts of residue from their cover crops negatively affects spring planting," says O'Reilly. "Grazing the cover crop reduces the amount of biomass on the field, without impacting the amount of roots the cover develops in the soil."

She adds that while the livestock-free approach is to purchase deflector attachments for planting equipment, grazing can turn that plant material into a revenue stream, such as from beef or lamb.

Cover crop grazing tips

Good management for cover crop grazing involves strip or block grazing systems, which distribute manure very evenly across the field. Nutrients from manure are available at a different rate than nutrients from decomposing plant tissue, and if the release lines up with key crop development stages, this can have a significant yield benefit.

There are also soil-plant-animal interactions to consider. "Anyone who's ever increased forage production on a piece of land just by changing their grazing management can tell you that animal impact is a real factor in these agro-ecosystems," says O'Reilly. "Forage breeders will attest to the fact that pasture varieties selected under intense mechanical harvest are not always grazing tolerant.

"We know that plants feed and communicate with the soil microbial community, and we know plants react to being grazed or trampled differently than being cut," she adds. "Soil microbiology research is a hot topic right now, so hopefully we'll have a better understanding of some of these processes in a few years, and how animal impact can influence crop production."

Gallery

Top: Greg Paranich discusses Clearwater County's cover crop demonstration plot at. Bottom: Lorelee Grattidge from Mountain View County inspects stem mining weevils at a site near Didsbury. Erin Willsie Photos.

Grey Wooded Forage Association

Creating an Awareness of Forages

2019/20 Membership Application Form

Membership in the GWFA is open to anyone interested in forage production, grazing management and environment sustainability

The fee is $40 per year, running from April 1 to March 31

For information, call 403-844-2645 or email gwfa3@telus.net

Benefits of joining GWFA:

- Discounts on courses, seminars, workshops and tours.
- An automatic subscription to *The Blade*, published monthly online. Hard copy is available on request.
- Assistance with your Environmental Farm Plan.
- Equipment rental (deposit required).
- Access to our reference library.
- Access to our members-only Facebook group.
- Networking with like-minded producers and advisors.
- Farm consultation services (farm calls are 55 cents per kilometre, each way).
- A copy of the GWFA Annual Report.

Please mail your completed form and cheque to:
Grey Wooded Forage Association
PO Box 1448, Rocky Mountain House, AB T4T 1B1,
Or scan and email the completed form and send an e-transfer to *gwfa3@telus.net*

Renewal ☐ New member ☐ How should we send your copy of *The Blade*: Email ☐ Canada Post ☐

Name: Email:

Mailing address:

Landline: Cell:

***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:**

- Pasture _____
- Hay _____
- Crop _____
- Other _____

**These questions are voluntary. We do not share your information*

How can we improve our service to you?

Please suggest topics you would like to learn more about: