2022, Issue 5

Grow With Us

Lakeland Agricultural Research Association

September /October 2022

Safe Storage of Grain Harvested in Hot Conditions

Barry Yaremcio

Grain that was harvested in 30 degrees Celsius conditions can create problems during storage even if the grain was dry. After the bin is filled, grain closer to the walls cool whereas grain in the centre of the bin remains warm. Convection air currents develop which circulates moisture from the outer areas into the centre of the bin. The moisture accumulates in the upper centre part of the bin. Grain can heat and spoil in this area.

If interior bin temperatures remain high into late fall, humidity within the space between the grain and roof of the bin can be high. Over night, when temperatures fall, moisture can condense on the inside of the roof and then rains onto the top surface of the grain. The wet grain can sprout and form a layer of spoilage.

The Canadian Grain Commission has developed charts that indicate the safe storage interval for different grains. Prevent spoilage (grainscanada.gc.ca) For example, barley harvested at 16% moisture and storage temperatures greater than 15 degrees Celsius has the potential to spoil within six months. Binning grain at higher temperatures and moisture further reduces the safe storage period.

To prevent problems associated with heated grain, check bins on a regular basis. If monitoring equipment is not available, inserting steel rods into the bin both at the bottom door and at the top of the bin is recommended. Check the rods on a weekly basis if possible.

When grain is needed to feed livestock, remove a load from each bin to get an idea of grain condition. This removes grain from the top of the bin which has greater risk of spoiling due to high moisture content.

For additional information about feeding grain to livestock, contact Barry at 403-741-6032 or bjyaremcio@gmail.com

Website:

Safe Storage of Grain Harvested in Hot Conditions (beefconsultant.com)

In This Issue:

2022 Calendar of Events

Cowbytes Workshop	October 26, 2022	TBD
Lesley Kelly	November 17, 2022	Ashmont Agriplex
Young-farmers Social	November 18, 2022	Ashmont Agriplex
Rancher Innovation Workshop	November 23, 2022	Ashmont Agriplex
Forage Series	November 8, 22 & 29, 2022	Webinar

Call the LARA Office for help with:

Age Verification, Feed Testing, Environmental Farm Plans, Canadian Agricultural Partnerships Applications and more.

780.826.7260

Feed Testing

We offer two free feed tests to all producers in the MD of Bonnyville, Lac La Biche County, Smoky Lake County and the County of St. Paul.

Call the office to borrow a bale probe or to drop off a sample: 780.826.7260

Find us on Facebook

Follow us on Twitter

LakelandARA LARAlivestock LARAcropping

ON-FARM CLIMATE ACTION FUND - OFCAF

The Agricultural Climate Solutions On-Farm Climate Action Fund (OFCAF) is an initiative to help farmers tackle climate change. The program will provide financial support to producers to accelerate their adoption and implementation of on-farm Beneficial Management Practices (BMPs) to lower Greenhouse Gas (GHG) emissions, support production efficiency, sustainability and resiliency on their farm operations. To assist producers with their adoption of new BMPs, the program will offer producers resources to support BMP implementation and provide BMP design recommendations.

The objective of OFCAF is to support Producers in adopting Beneficial Management Practices (BMPs) that store carbon and reduce greenhouse gases, specifically in the areas of:

1. Nitrogen Management
2. Cover Cropping
3. Rotational Grazing

These practices also provide other environmental benefits such as improved biodiversity and soil health.

MAXIMUM AMOUNTS FOR ELIGIBLE EXPENSES

- Applicants are eligible for multiple projects to a combined maximum grant payment of $75,000
- Applicants are eligible for a maximum 85% reimbursement of eligible cash expenditures across the three BMP target areas
- Applicants must pay for 100% of the upfront costs with no payment for in kind

NITROGEN MANAGEMENT Eligible expenses

- BMP action plan development, or specialized agronomic support provided by a PAg or CCA
- Costs of soil testing, soil mapping, and tissue testing
- Higher cost of the portion of nitrogen fertilizer switched from the fall to the spring application window
- Cost of fertilizer application equipment (rental or custom) to allow for banding, side dressing and injection
- Price difference between standard nitrogen fertilizer and nitrogen fertilizer with nitrification inhibitor
- Custom application costs of synthetic nitrogen fertilizer replacements (manure, compost, or digestate amendments) on cultivated land where it has not been applied in the past 10 years
- If transitioning to manure, rental or custom costs associated with spreading, using hoses or equipment for shallow incorporation (to avoid volatilisation)
- Seed and planting costs (custom or equipment rental) to increase perennial legume crops in rotation

COVER CROPPING Eligible expenses

- Costs related to BMP Action Plan development, or specialized services provided by a PAg or CCA
- Seed costs for regionally- and commodity-appropriate seed as recommended by a Professional Agrologist or Certified Crop Advisor
- Planting costs (custom rates or equipment rental)
- Cover crops underseeded with the main crop or seeded following harvest with sufficient time for adequate growth prior to winter
- Full season cover crops (annual, biennial or perennial in a rotation, e.g. non-marketable crops that do not take land permanently out of production), or underseeded within a main crop
- An expansion of a BMP to a different field where it has not been used before is eligible

ROTATIONAL GRAZING Eligible expenses

- BMP Action Plan, grazing management plans, technical assessments or engineered designs
- Rotational grazing materials and installation (e.g. cross fencing, wildlife friendly fencing, temporary fencing, energizers, shallow water pipelines less than 15” (38 cm) and waterers, including remote watering systems when powered by renewable energy)
- Improved pasture composition (seeding, custom planting or equipment rental costs for alfalfa, sainfoin, etc.)
- Forage testing (fall or winter)
- An expansion of a BMP to a different field where it has not been used before is eligible

Online applications via ARGO, RDAR’s Grant Management System will be accepted from August 4, 2022 – November 7, 2022 for this fiscal year. Projects for this fiscal year must be completed with invoices submitted by January 6, 2023. Applications for project funding for 2023 will open up in February.

A completed Environmental Farm Plan is a requirement for payment of this program. Please contact LARA to have yours completed.

For more information on this program go to: https://rdar.ca/ofcaf/

Ranching Technologies

Kellie Nichiporik

The development of technology in farming has developed at tremendous speeds, yet the adoption of new tech seems to be at the rate of molasses flowing in January. Many reasons can be attributed to the slow uptake rate such as pressing issues such as the drought and extreme heat of the last few years, lack of feed, finances or other resources, or lack of awareness, lack of knowledge of technology impact or a combination of any of these factors. There is a lot of research being conducted and data available on the impact of different technology on the productivity and profitability, along with a host of tools to measure and monitor changes on an operational level.

Since 2020, LARA has worked with a few producers to facilitate the adoption of various technologies and looking at the economic and herd impacts on their operations by using Agroprofits and GOLD standards. This project stemmed from a pilot that began in 2017, involving 8 ranches. The project demonstrated that an enhanced understanding of the ranch operations (using GOLD indicators, long term goals, resources, soil/forage quality, etc.) can impact how positive an innovation can be. The ranch participants also acknowledged the importance of collecting and utilizing production and financial data were when making decisions on management changes. Check out the video of the project available on LARA's YouTube page or go to: https://youtu.be/NWCQs1voih4

Technologies such as feed scales in feed wagons, electric fence, offsite watering systems, nutritional testing and programs have been recognized and adopted by many producers. But there are a plethora of new innovations that are entering the market. Drone usage is getting picked up to monitor herds and pasture conditions. Remote assessment of bull breeding activity using GPS, as well as heifer replacement selection using remote sensing technology are both areas that are being researched currently for application for commercial herds. Pain management through lidocaine infused castration bands have shown to be a cost-effective solution for effective pain control during castration. Further research is underway to determine the effectiveness of neonatal mineral and vitamin supplementation to improve health of calves.

In November LARA will be hosting a ranching innovations and technology workshop that will feature many of the above-mentioned tech and innovations. Stay tuned for details!

Knowing The Signs And Symptoms Of Extreme Stress
Do More Ag

Knowing the signs and symptoms of extreme stress can let us know when we or someone we love may need a break or extra support. Here are 6 signs to watch out for on the farm:

1. Routine Changes - Is the individual no longer showing up to meetings, events or to the farm?

2. Changes In Farmstead Appearance - Has the care and attention for the way their yard, buildings and farm changed? Has their been a decrease in appearance?

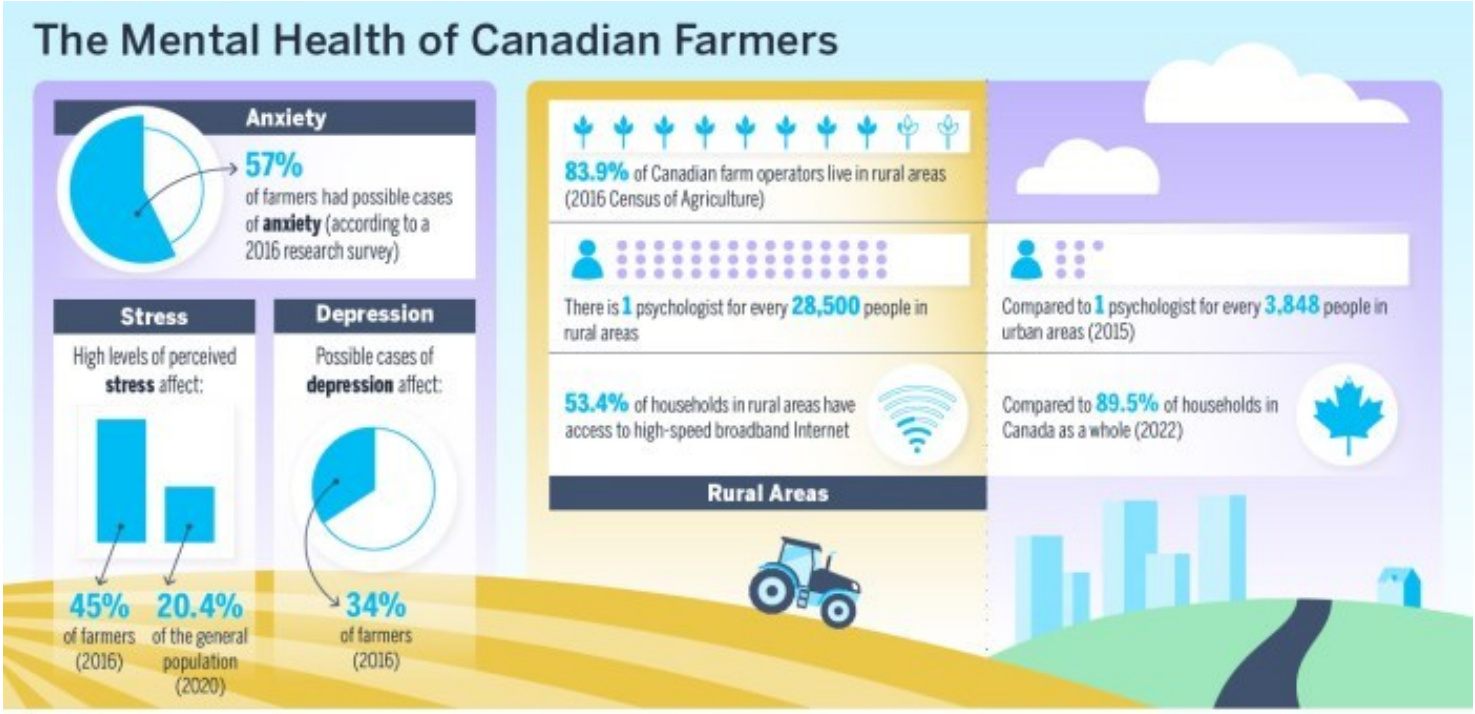
3. Getting Sick More Often - When people face high stress, they can often get cold-like illnesses or chronic pain more frequently.

4. Rise In Farm Accidents - Accident rates increase when a farmer is fatigued or loses their ability to concentrate.

5. Loss of Interest - Is the farmer no longer joining group activities? Do they seem less inclined to commit to a plan to meet up?

6. A decline in the care of animals - Is there a change in the way livestock and/or pets are taken care of?

If you or a loved are facing these symptoms, we recommend reaching out to a professional to get the support you need. For local crisis contacts and resources visit https://www.domore.ag/crisis-contacts.



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https://hillnotes.ca/2022/07/13/the-mental-health-of-canadian-farmers/

Evaluation of Interaction Between Seed Size and Seeding Depth on Canola Establishment and Yield

Amanda Mathiot

The canola seed size vs depth project through the Canadian Agricultural Partnership (CAP) is a trial that LARA and two other associations have been researching over past two year. This is the third and final year of this CAP trial and we are excited to finalize and publish the data in our annual report and website for producers to utilize. This trial was created due to the lack of information on the relationship between thousand seed weight (TSW) and seeding depth. Cultivar development in recent years has produced varieties with different seed sizes that may alter the seeding rate as well as depth recommendations. This project aims to provide producers with information to help improve their best management practices when seeding canola through the understanding of the interaction between seed size and planting depth on canola establishment and yield. Looking at previous weather patterns this data could prove highly beneficial to producers in years of extreme weather conditions where increasing planting depth could allow available soil moisture to be reached in dry year.

For the trial there were four different TSW that were sorted out of a bag of DKL 7542 and the same seed lot was used throughout all three research associations. This trial was seeded on May 30th, 2022 and had plant counts done on day 7, 14 and 21 days to look at the canola emergence Table 1. shows the average plant emergence on each treatment looking at seed size vs depth. Looking at the data, there seems to be a decrease in plant numbers on day 21. This could be contributed to multiple things such as insect pressure, environmental stress, vigor etc. We are looking forward to combining this trial in the upcoming weeks to determine yield results. Be sure to watch for our annual report and research results that will be available in early next year.

Treatment	7 Days	14 Days	21 Days
4.5 TSW at 1 cm	10	18	13
4.5 TSW at 2.5 cm	8	15	17
4.5 TSW at 4 cm	11	13	9
6 TSW at 1 cm	7	15	12
6 TSW at 2.5 cm	11	16	16
6 TSW at 4 cm	11	14	11
7.2 TSW at 1 cm	9	13	14
7.2 TSW at 2.5cm	10	17	14
7.2 TSW at 4 cm	11	17	14
8.1 TSW at 1 cm	11	17	13
8.1 TSW at 2.5 cm	9	15	12
8.1 TSW at 4 cm	10	15	12

WESTERN CANADA CONFERENCE ON SOIL HEALTH & GRAZING

WESTERN CANADA
Conference on Soil Health

Western Canadian Grazing Conference

Presented by 10 Alberta Forage & Research Associations

FEATURING

Greg Judy, Dr. Bobbi Helgason, Dr. Dave Sauchyn, Dr. Ed Bork, Dr.Kris Nichols, Jay Fuhrer, Dr. Tim McAllister, Dr. Yamily Zavala, Dr. Monika Gorzelak, Daryl Chubb, Kim Cornish, Stuart Chutter, Dr. Yvonne Lawley, Kristine Tapley, Producer Panelists and More

BANQUET & KEYNOTE SPEAKER:

James Rebanks, an English sheep farmer and award-winning author from the UK.

Early Bird Pricing until October 31, 2022

Producer	$475.00
Farm Unit (2 people)	$900.00
Producer One Day	$250.00
Student	$375.00
Student One Day	$175.00
Banquet Ticket	$60.00

Tickets do not include Banquet Ticket which MUST be purchased separately

SOIL & GRAZING: BIOLOGY NOT GEOLOGY

DECEMBER 13, 14 & 15, 2022

DOUBLE TREE BY HILTON WEST EDMONTON
16615 109 Ave NW
Edmonton, AB
T5P 4K8

REGISTRATION & DETAILS VISIT:

https://www.absoilgrazing.com/registration

Management Considerations for Winter Grazing

Megan Wanchuk

With fall upon us, it is time to ensure plans are in place for winter feeding. Winter grazing strategies such as stockpiled perennial forages, swath grazing, bale grazing, and corn grazing extend the grazing season, reducing costs compared to traditional winter-feeding systems like drylot feeding. When managed properly, these winter grazing systems reduce or eliminate costs associated with labour, machinery, harvesting and transport of feed, and manure handling. Additionally, benefits to soil fertility, soil physical characteristics (infiltration rates, soil moisture), less concentration of manure in one area and lower greenhouse gas emissions occur with winter grazing systems.

Stockpiled grazing utilizes perennial pastures or hay fields saved for grazing in late fall, winter or early spring when the plant is dormant. Planning for stockpiled grazing must begin well in advance to ensure adequate forage regrowth before the growing season ends and plants go dormant. The amount of time allowed for regrowth is also important for determining the quality and quantity of stockpiled forage. If a class of cattle with high nutrient demands is grazing, forage quality is more important than yield, and plant material should be less mature when dormancy occurs. However, if a lower nutrient demand animal, such as a dry cow is grazing, then a longer regrowth period could be used to gain more forage yield.

For swath grazing, annual cereals, legumes or cover crop mixes are swathed in the fall for cattle to graze. Compared to drylot feeding, well-managed swath grazing can reduce yardage costs by 78% and feed costs by 25%. Seeding should be timed so swathing can be done in the fall, ideally just before the first killing frost, while achieving the recommended hard-dough maturity stage. Swathing with this timing prevents mould growth and maximizes yield without sacrificing quality. Swaths should lay on top of the stubble and be as narrow and deep as possible to maximize animal accessibility to the swath.

Grazing standing corn is another common option to extend the grazing season. However, the economics of corn will vary from operation to operation. The success of corn grazing can vary yearly and often depends on the selection of cold-tolerant corn varieties, adequate heat units, fertility and weed control during the growing season. When heavy snowfall occurs

during the winter, cattle may have better access to feed under corn grazing, than in swath or stock-piled grazing. Cattle should be limited to 3-4 days of feed and provided with a fibre source such as low-quality hay or straw to mitigate the risk of acidosis.

Bale grazing is the practice of allowing livestock to graze bales on tame pastures or hayfields. Bales can be strategically placed in areas of low fertility, resulting in increased forage production in subsequent years. There should be a 30–35-foot gap between each bale to allow animals to move easy and have relatively uniform manure coverage. Avoid bale grazing in environmentally sensitive areas, such as riparian zones or native rangelands, to prevent a build-up of excess nutrients and the introduction of invasive weed species.

Proper management is necessary to keep cattle healthy and in good condition in any winter grazing system. Carefully consider the quantity of feed available at a given time, water availability, snow conditions, shelter and backup feed availability before implementing extended grazing systems. Below are a few key points to keep in mind when planning winter grazing.

Limiting cattle grazing access maintains uniform nutrient intake and optimizes forage utilization through the grazing period. This is usually achieved by strip grazing or moving cattle regularly from field to field every few days rather than grazing a whole field for long periods. Limiting grazing access reduces wastage and prevents cattle from consuming the best feed first, which can result in weight loss. In corn grazing, limiting cattle access to feed and constant moves prevents cattle from overconsuming the high-energy cobs, which can lead to acidosis.

Livestock will expend 18-20% more energy in extended grazing systems compared to drylot systems because extra energy is required to harvest feed and stay warm under grazing conditions. The class of cattle utilizing extended grazing systems and their nutrient requirement needs special consideration. Calves, young cows, thin cows and cows with calves will require higher energy and protein requirements than dry cows. Feed testing is essential to ensure the nutrients supplied by the grazing system adequately match the nutrient requirements of grazing animals. Supplemental feed or additional shelter may be required when grazing higher protein and energy classes of cattle.

Continued on page 11

Forage Growth and Quality Changes as Plants Mature

Barry Yaremcio AG Consulting ltd.

Plants grow and develop a viable seed head to improve the longevity of the forage stand. With cool and dry conditions this spring, plant growth was slow. Plant stems did not elongate as normal, resulting in shorter plants. Heading occurred early in the growing season. This completed a majority of the plant life cycle for the year. Filling of the seed heads to make it viable is the final step. Nutrients developed by the plant are used to keep the plant alive, extend the root system to enhance future nutrient uptake.

Surplus nutrients are translocated into the root system and used to develop vegetative buds which are needed to generate next year's plant growth. Winter survival is compromised if the root system does not have adequate food reserves. This is a common problem when alfalfa is cut within forty five days of a killing frost.

Forage quality decreases as plants mature. In the vegetative stage, quality is high. After heading out the, protein and energy content decreases. Acid Detergent Fibre (ADF) and Neutral Detergent Fibre (NDF) increase over time. As fibre levels increase, energy decreases. Research done at the Northern Alberta Crop Research Centre; thirteen different grass species were cut on a weekly basis from the five-leaf stage to full maturity (Suleiman, Journal of Range Management 52: 75-82 January 1999). They found that protein content decreased by 2 to 2.5% per week after heading. Acid Detergent Fibre (ADF) increased by 3% per week resulting in a reduction of energy or Total Digestible Nutrients (TDN) content by approximately 1% to 1.5% per week.

This year, plants are shorter but have developed a seed head. The plants will not elongate and thus waiting for more yield per acre is not likely. Waiting two or three weeks will only reduce the quality of the harvested forage. If the plants are cut now without having developed a fertilized seed head, the plant will re-grow to accomplish this task in the second growth. In many areas, the substantial rains last week could stimulate regrowth. It is possible that the yield from the second cut will be higher than from the first cut.

When the weather patterns look promising, take the first cut as soon as possible to save quality and increase the potential for a good second cut.

For more information on when to cut hay, contact Barry at 403-741-6032 or bjyaremcio@gmail.com.

Resources:

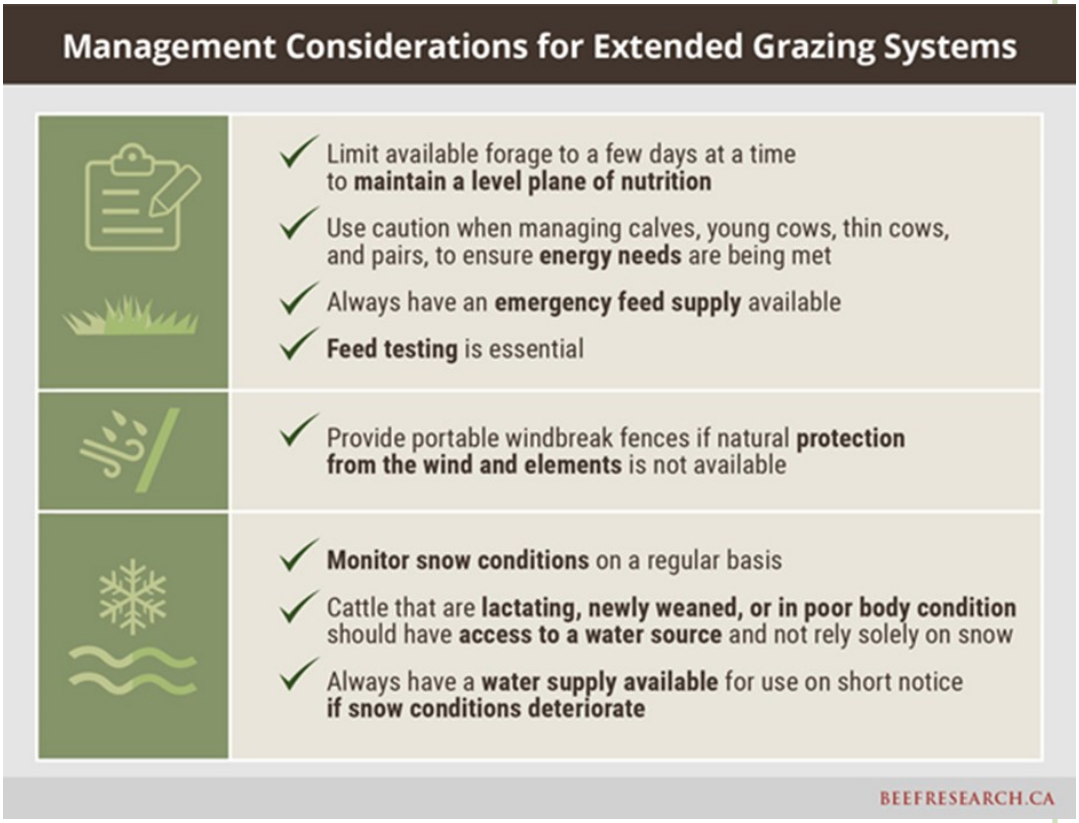
Forage Growth and Quality Changes as Plants Mature (beefconsultant.com)

Management Considerations for Winter Grazing
Continued from page 9...

A careful eye must be kept on snow conditions. Non-lactating beef cows will consume enough snow to meet water intake requirements after a short adaptation period if the snow is in adequate quantity and quality. Snow must be clean, deep enough to cover the ground and not crusted over to adequately meet cow requirements. Snow must not be used as the sole water source if grazing lactating cows, newly weaned calves, or thin cows. Cattle might not be physically able to continue grazing extensively if thick crusts of snow form or snow become too deep.

Finally, always have a plan B or backup options that can be implemented on short notice. This might include having stored feed on hand, an alternate water source or shelter for cattle. We never know what weather winter might bring and severe inclement weather might make grazing impossible or harmful to animal welfare.

For more information on how winter grazing strategies impact soil health look in the upcoming LARA Annual Report.



Save The Date! December 16th
Finding Profitability Through Soil Health.
Growing Your Dollar from Ground Up.

Featuring:

- **Jay Fuhrer**
- **Jimmy Emmons**
- **Dr. Kris Nichols**

Watch for more details to come

Mission Statement:
Lakeland Agricultural Research Association (LARA) conducts innovative unbiased applied research and extension supporting sustainable agriculture.

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This publication is made possible in part by:

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