# RURAL LIVING & AG EXTENSION

LETHBRIDGE COUNTY NEWSLETTER ★ SUMMER 2024

## WHAT'S *in this* ISSUE?



# FARM FAMILY SPOTLIGHT: LETHBRIDGE CORN MAZE

**Submitted by: Lethbridge Corn Maze**

For 25 years, the Slingerlands have encouraged visitors to "Get Lost" in the twists and turns of their inventive mazes. In the year 2000, Theo stumbled upon the concept of a corn maze for the first time. After conducting research and receiving guidance from someone experienced in crafting bale mazes, Theo embarked on his first maze design adventure in a 7-acre cornfield, fashioning it in the likeness of a Dutch windmill. This year marks the creation of the 25th maze, now sprawled across 10 acres of corn, accompanied by the recent addition of a sunflower maze.

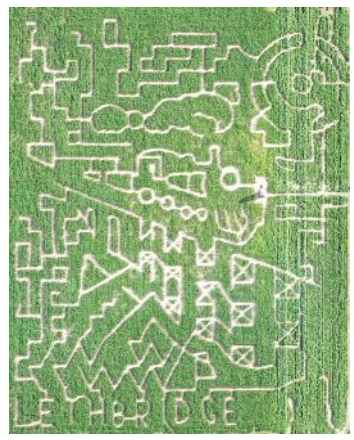
Theo and Esther are both immigrants from the Netherlands. They met in Canada when Theo came as an exchange student for a year. "She is the reason I stayed," Theo said, "but I never regretted it."

Growing up with a grandfather who had some orchards and the only commercial greenhouse in Holland with peaches, he inherited the traits of thinking outside the "box" and the love to grow fruit.

In 1995, the first Saskatoon bushes were planted, and in 2000, they planted 2 acres of strawberries.

The motivation behind the maze's inception was to draw people to their Berry Farm, the pioneer corn maze attraction in Alberta, sharing the stage with only one other corn maze in Central Alberta.

Theo has designed all the corn mazes himself. The biggest challenge is coming up with a new idea for the next corn maze. Sometimes, we celebrate anniversaries, like 100 years 4 H, Canada 150 years, or some other intricate eye-catching design, like a spider web.



While some berry varieties, except for a few saskatoons, have been replaced by pumpkins, gourds, and squash, the farm boasts the largest variety of pumpkins in Southern Alberta, all cultivated on-site.

Over the years, the Slingerlands and their devoted staff have expanded the offerings to include a plethora of activities. Among the highlights are a towering slide, zip lines, tractor-train rides, and, most recently, a bouncing pillow. Additionally, the farm features a diverse array of animals in its petting zoo.

"We endeavor to introduce a new attraction each year," stated owner/operator Theo. His son, Michael, has also joined the ranks of the Lethbridge Corn Maze business following his graduation from agricultural college.

On every Thanksgiving Day, all admissions proceeds are donated to a charitable cause, alternating between local and global nonprofit organizations.

"We feel truly blessed by what God has bestowed upon us, and with the unwavering support of our community, we aim to extend a helping hand to those in need," expressed Esther Slingerland.

Always looking for better farm practices, they installed sub-surface irrigation. The drip lines are about 12" deep, and the water goes straight to the roots and uses 30-40% less water than traditional overhead irrigation. Nutrition can also be given through the drip tape.

Even on a small farm, we must be good stewards for future generations so they can keep farming, supply food for people, and maintain the farm's interactive nature.

Many students visit the farm for field trips each year to learn more about farming and animals and have fun.

"Our greatest reward is when people express their thanksgiving about their visit on the farm." Creating memories with a smile.

The farm is open to the public from May long weekend till the end of October; for detailed hours, see the website, www.lethbridgecornmaze.com.


LETHBRIDGE COUNTY

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# UTILIZING ANNUAL CEREALS for Livestock Feed

**Prepared by:**
**Alberta Agriculture and Rural Development**

Producers may find it necessary to feed more animals than anticipated during times of drought due to a number of different reasons. In such situations, additional feed requirements may partially be met by the harvesting of annual crops to supplement current hay production and carryover stocks.

*Annuals have the potential to be high in nitrates in a dry year.*

## Consider

Points to consider when using annual cereals as forages for livestock:

• Feed test forages, grains and straw before the start of the feeding period. Develop balanced rations to prevent production and reproduction problems, and optimize the use of feeds available to minimize costs. If help is required to balance rations, talk to a qualified nutritionist. Young animals are fed to grow and develop. Mature stock is fed to maintain condition over winter and to provide a live calf next spring. The winter feeding program this year can dramatically affect reproductive efficiency for next year's calf crop.

• Feeding cereal forage is different than feeding mixed alfalfa grass hay. Calcium, magnesium and potassium levels are different. A 1:1 mineral may not work in these situations. Feeding additional limestone and magnesium in the ration is often required to prevent problems with downer cows, milk fever and winter tetany.

• Rough awned barley and foxtail barley have barbed awns. When consumed, the awns can become lodged in the gums, between the teeth and gums or in the cheeks creating abscesses and "lump jaw." If rough awned material is part of the feed supply, provide breaks in the feeding period where alternate feeds are provided to the animals. A two or three-day rotation between the rough awned feeds and other feeds will allow time for injuries to heal. This approach may help reduce the severity of the problem. If problems do occur, consult your local veterinarian for treatment.

• Under drought conditions, annual crops may contain high levels of nitrate in early to mid-summer. Drought stress reduces the plant's ability to grow and utilize nitrogen normally. Test the forage for nitrate levels to determine what level is present. Cows can adjust and adapt to higher nitrates in feed over a period of time; the concentration of rumen bacteria that degrade nitrate increase over four to seven days. This short term adaptation, along with the development of more red blood cells to transport oxygen to the tissues over 14 to 21 days, improves the ability of the animal to withstand higher nitrate feeds. Providing feeds with high starch content such as grain or pellets help detoxify nitrates. Consult with a livestock specialist or nutritionist to resolve potential problems.

• Breeding efficiency, or the ability of the cow to conceive a calf, can be compromised if cows are turned in to graze crops that were heavily fertilized with nitrogen fertilizer or manure. As animals consume forages with high protein levels, blood urea nitrogen levels (BUN) also increase. The high BUN levels interfere with the implanting of the fertilized egg onto the uterine wall. This problem occurs when the overall protein content of the ration is more than 20 to 22 per cent on a dry matter basis. Cows will appear to settle, but come back into heat three to four months later. Provide straw or other low quality forage on a free choice basis to reduce overall protein consumption. Moving cattle abruptly from a drought-stressed, low yielding grazed pasture with minimal forage available to a lush salvage crop or pasture can cause Atypical Interstitial Pneumonia. The disease occurs within 10 days of movement onto the improved forage. Affected animals emit a grunting noise when breathing and do not want to walk. If sick animals are forced to move, they may collapse and die.

• Forages mature more quickly in a drought year compared to a normal year. Quality is reduced as the forage matures. When making silage or greenfeed, cut forages one to three weeks earlier than normal to maintain quality. Plants that have turned white during the heat will not have adequate moisture to develop a proper fermentation. The crop will have a reduced sugar content compared to a normal year and will take longer to ensile. Diligence is required to maintain the proper components: moisture content during the harvesting period, chop length, adequate packing and covering with plastic. Round bales must be placed in a tube or wrap within 12 hours of baling; otherwise, the fermentation process will be impaired by unwanted microbes.

• The nutrition topics addressed above can be evaluated by using a ration balancing program. Producers can develop their own rations at home. A useful computer program is the "Cowbytes" ration balancing program available from Alberta Agriculture and Rural Development. A demo version of this software is available at http://www.agric.gov.ab.ca/ruraldev/homestdy/cowbytesdemo.html on the department's website Ropin' the Web.

## For more information

Alberta Ag-Info Centre call toll-free at 310-FARM (3276)

Website: www.agriculture.alberta.ca

## - County History Corner -

# Archie Mitchell

## *Shelterbelts and Farmyard Tree Plantings*

**Submitted by: Belinda Crowson**

Imagine the farms and yards of Lethbridge County without their shelterbelts. Consider how trees have transformed our communities and parks and how the thousands of trees planted across the area have added beauty and economic value, created habitats for wildlife, and provided shade and wind protection for our homes and families.

When looking at the trees of the County, you might want to consider the role Archie Mitchell played in the decision to plant trees in southern Alberta and across western Canada.

Who was Archie Mitchell? Mitchell was born near Edinburgh, Scotland, where his father was chief forester to a Scottish earl. As a youth, he was trained in the family business of forestry and worked for several years in Wales as a forester and estate agent. In 1898, he moved from Scotland to Macleod, where he spent eight years farming in the area.

In 1906, he joined the staff of Alberta's newly formed department of agriculture, where he served as the first provincial weed inspector for the province of Alberta. He later went to Indian Head, where he was connected with the Dominion Experimental Farm there.

In 1911, Mitchell left government work and moved to Coaldale where he established Mitchell Nurseries, raising trees for farmers and communities around the area. After seven years running the private nursery, Mitchell went back into public service working with the Canadian Forestry Association on the tree planting car.

Mitchell was the western lecturer for the association. He traveled from community to community across the prairie provinces making stops at the train station in each community. The train car served as a moving classroom where Mitchell showed slides and films telling people of the importance of planting trees, providing them information on how to set up and landscape parks and farmyards, and showing them how to prune trees and care for ailing trees

In addition to supporting many individual farmers, Mitchell also worked with communities. He was consulted on the landscape arrangements for Galt Gardens and planned the grounds of Cardston Temple when it was constructed.

In 1922, the family moved to Oliver, BC, in the Okanagan valley where they established an orchard.

In May 1926, ill health forced Archie Mitchell to enter the hospital at Penticton and he died there three months later.

When he passed, it was noted that:

"Trees living monument to Arch. Mitchell."

And that

"His enthusiasm for tree culture has left its mark on this district and it was a great pleasure to him to take a walk around the village particularly the school and the parsonage to see the growth of trees and shrubs planted by him personally or under his supervision…. The many thousands of trees grown on the property [at the nursery] have made a contribution to the beauty of the district, to the comfort of the homes, and the economic values of the farms which will be a lasting monument to him." (Lethbridge Herald)

And

"All over the three prairie provinces his monuments will be found by the generations yet unborn for thousands upon thousands of the trees that grace our prairie today were planted through his efforts and example." (Cora Hind, agricultural authority and journalist)

The shelterbelts and plantings across the County and elsewhere didn't just happen by chance. They were encouraged and planned with advice and support given by Archie Mitchell and others who came after him. Mitchell and everyone who has planted and cared for the trees transformed the environment here in southern Alberta.

# Elk Farming in Alberta; A natural agricultural asset

## A candid Crash-Course of the Alberta Elk Industry

**Submitted by:**
**Jenay Visscher (AEC board member)**

When people hear 'elk' they commonly think of deer or reindeer and associate them with provincial park wildlife. Some folks think of their hunter relatives and how the fall months are filled with tracking down the elusive animals in the coulees or foothills. Most farmers think of the pests they can be in the grain field, hay yard and the damage they can do to their ag bags. It might come as a surprise to most then to hear that elk (Wapiti) domestication can be dated back to the 1800's.

It wasn't until '93 when my Dad, looking for a fresh start for his young growing family jumped on the bandwagon. Elk had more avenues of income, are hardy, highly efficient and have a low environmental impact. In addition to the breed stock and meat avenues (like in beef), elk have velvet antler, export options and many miscellaneous markets (hides, ivory teeth, antler chews, etc.).

One of our major market opportunities is their antlers. Elk and other Cervidae have the adaptation of growing a set of antlers each year while horns (like in bison and beef) are a one-time growth. Because of this ability, our bulls can be raised for antler in the velvet stage (referred to as velvet antler) or in the hard antler stage each year. In the spring as the days begin to get longer, the bulls are photostimulated and begin growing their antlers. Any previous antlers from the year before will fall off and the new ones start growing out. For velvet antler, antlers are cut off during the tail-end of the growing season before they begin to calcify. Antlers are frozen and brought away to be freeze-dried. Velvet hair is scraped off and the antler is ground down into powdered form to be used as a natural health supplement (muscle relaxant, arthritis, workout recovery). The biggest market is exporting to Asia. If the antler is not harvested in the growth stage, it will mature and turn into your typical calcified antler in preparation for the rut season (breeding season; late august – late October). Depending on size and looks, bulls can be exported to harvest preserves (USA and Saskatchewan at this time). Cows can also be exported. For bulls that do not find a hunt preserve sale, their antler can be harvested and used for antler chews or kept as antler sheds when they drop naturally. Spring comes around and the antler growth season begins again bringing thicker, wider and longer antlers as the bull ages.

Elk meat is also renowned for being incredibly lean and high in protein. Unlike beef meat which 'toughens' with age (hence the push to market), elk meat does not toughen as fast (more brown adipose tissue) allowing for more mature animals being harvested for high quality meat. Typically, the males are selected for antler growth and the females are for breeding and maintaining the herd.

On our farm, if a bull or cow fails to meet our expectations (poor antler growth, bad temperament, fails to wean a calf) we will send them to either our elk co-op or to our local government inspected abattoir for meat. Their hides and ivory teeth can also be marketed at this time.

I see ranched elk as such an asset to Alberta Agriculture as they can utilize the land in more ways than one while also having multiple marketing avenues. As previously mentioned, they can handle and forage off terrain where cattle do not thrive as they are naturally agile, hardy and resilient to Canadian climates and terrains. You can also support more elk off the same amount of land as cattle, studies showing 1 cow to 2-3 elk.

For the past year the Alberta Elk Commission (AEC) has been working on a "Business in Alberta" plan to bring business, keep business and expand business in our industry in our province. Elk farming has huge potential and a lot to offer to Alberta Agriculture and tourism by bringing in long-term economic viability to our province. This past spring I joined the AEC as a board member and have been repeatedly amazed by the dedication, endurance and grit of the other board members and our farmers to our industry. We are a diverse bunch in a diverse industry all coming together over the love of these animals and the privilege of raising them. I hope to see the day that we are equally supported and fairly represented as any other livestock industry in Alberta, and I am proud to play my role in making that happen.

# TEACHING OLD DOGS NEW TRICKS

## Addressing increased safety risks for farmers as we age

**Submitted by: Ian Chitwood**

As an industry, it's time for those of us in agriculture to acknowledge an uncomfortable truth: we are getting older.

According to the latest agriculture census data, the average age of Canadian farmers is now 56, while the average age of farm operators has risen to 58.

That same data confirms that these older farmers now make up the majority: more than 60 per cent of farm operators in Canada are now 55 and over, and that number has grown six per cent since 2016.

However, this isn't necessarily a bad thing.

Older farmers are a huge asset to our industry. They are a generation that has struggled through hardships unknown to newer generations, maintaining viable farms and ranches throughout challenging weather cycles, restrictive political and social environments, and fluctuating global market conditions.

They are invaluable to our industry, our businesses and our families, and we need them and their expertise more than ever. However, we must acknowledge another uncomfortable truth: these farmers are also our most vulnerable. The proof is in the stats, as 80 per cent of farm fatalities in Alberta from 2020-21 involved someone 50 or over.

No one can take your place, so please consider the risks that come with farming as we age and the easy steps we can take to mitigate these risks.

Let's consider why risks increase after age 50. As we age, so too do the number of health issues we experience. These can include hearing and vision loss, slower reaction times, reduced sleep quality and muscle strength, as well as new medical conditions and side effects from medications.

Another factor is that older farmers tend to have established behaviour patterns, which they can be reluctant to change. While you might have been able to get away with doing things a certain way before – by luck, chance or physical abilities – this becomes less likely over time.

One final consideration here is that older farmers and ranchers often work alone. We know that this puts them even more at risk, as 50 per cent of farm safety incidents in Canada occur when the victim is working alone.

The greatest threat when working alone is being in an emergency situation without the ability to call for help. Unfortunately, I have my own experience in this area.

We had an incident where an employee pulled a pin on a loaded round bale wagon. There were no wheel chocks on the bale wagon, so it rolled forward, trapping them between the wagon and the tractor tire.

The employee was stuck there, with no phone, for more than 30 minutes before help arrived. We are extremely lucky this resulted in only minor injuries, but that is often not the case.

Unfortunately, stories like this are shockingly common. You could get caught in, or trapped under, a piece of equipment you were in the middle of repairing. You could have a medical emergency, such as a heart attack, and be left incapacitated. You could fall from a height and be left unconscious or so injured you can't move.

In all these scenarios, if you're working alone, without the means to call for help, the outlook can be grim.


**NO ONE**
**CAN TAKE YOUR PLACE**

I'm not asking you to imagine these things to make you miserable or anxious. I'm doing it because just knowing these risks makes you safer. Once you know the risks, you can better plan for how to mitigate them – and if you need help with those safety plans, AgSafe Alberta is here to assist you.

Older farmers often worry about the safety of everyone else around them – their family, their employees – without giving their own well-being a second thought. This is not a sustainable approach to safety.

Remember, no one can take your place.

# DID YOU KNOW?

**Submitted by:**
**Gary Secrist, Manager, Agriculture Services**

The Lethbridge County Agriculture Services department is responsible for administering Provincial Legislation that includes the Agricultural Pest Act.

The Pest Act is enabling Legislation that provides the County with the legal authority to manage native and introduced pests that can affect agricultural production. The related Pest and Nuisance Control Regulation is where you will find listed species that are a concern across the province.

Of particular interest to this area is Clubroot in canola. The County does yearly inspections to identify Clubroot and producers can help with performing their own inspections to help spot the disease before it gets a foothold.

We are currently Clubroot free in Lethbridge County and to remain that way producers must be vigilant by scouting fields, cleaning equipment, ensuring proper rotations, and planting resistant varieties.

For more information on Clubroot visit the Alberta Clubroot Management Plan website: https://www.alberta.ca/alberta-clubroot-management-plan#jumplinks-1

Photo courtesy of Canola Council of Canada

# SCOUTING FOR CLUBROOT

**Submitted by:**
**Michael Harding (Alberta Agriculture) and**
**Marissa Robitaille-Balog (Canola Council Canada)**

## INTRODUCTION

Clubroot is a disease that can occur on canola, mustard and Brassica vegetables (broccoli, cabbage, cauliflower, etc). It was first reported in Alberta in home gardens in the 1970's on Brassica vegetables. Clubroot was first found on canola in Alberta in 2003 and since then has spread to thousands of fields. Clubroot has now been confirmed in all three Prairie provinces. Dr. Stephen Strelkov at the University of Alberta leads an annual provincial survey for clubroot that has monitored and mapped the outbreak (Figure 1), along with the pathotypes of the clubroot pathogen. This survey has been a valuable tool for understanding and visualizing the spread of clubroot in Alberta.

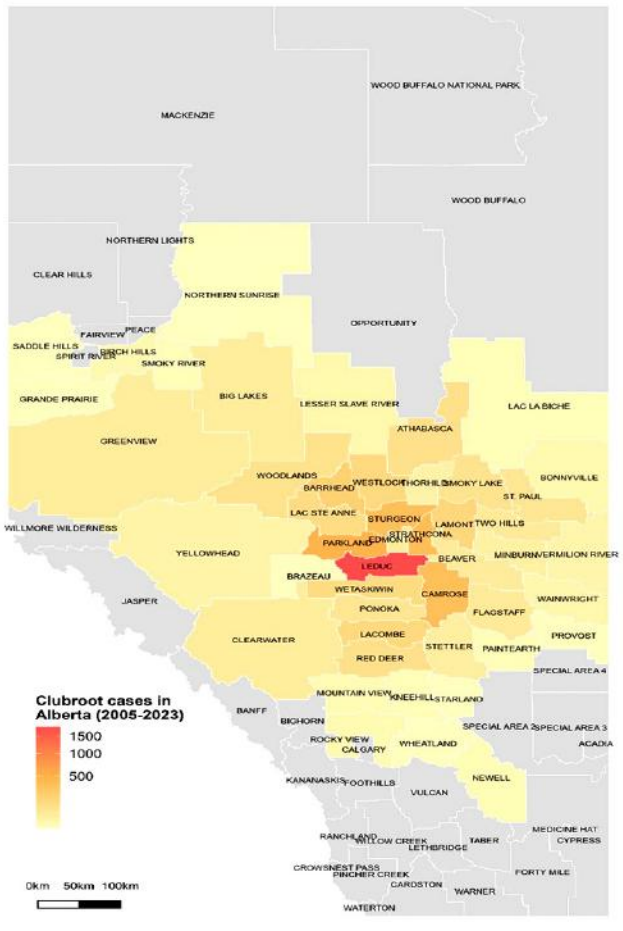


*Figure 1: Map courtesy of Dr. Stephen Strelkov, University of Alberta*

## HOW TO SCOUT FOR CLUBROOT

Clubroot infections can generally be recognized by the club-shaped galls that form on the roots (Fig 2). So, scouting for clubroot means looking at canola roots. The developing galls can be detected as early as 6 weeks after emergence, but one of the best times to look for clubroot is at swathing. At this time, the above and below ground symptoms will have reached their apex and be at their most obvious and easiest to spot. Additionally, it is much easier to move through the field after swathing. Keep in mind that root galls decay quickly soon after swathing, so make sure to scout more than a week before the crop reaches maturity, or within one week after it is cut.

**Question:** If the University of Alberta is actively monitoring clubroot, why would I need to scout my fields for the disease?
**Answer:** Provincial monitoring is not performed in every field, and it only looks for clubroot near the field entrance. When we want to know the clubroot situation on a specific farm, we cannot rely on the Provincial survey. We need to scout.

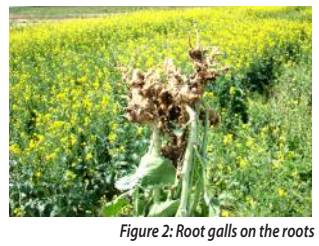

*Figure 2: Root galls on the roots*

*Figure 3: Prematurely ripening canola and weedy patches*

**Below Ground Symptoms (Figure 2)**
- Root galls.
- Root swellings
- Unusual root morphology

**Above Ground Symptoms (Figure 3-6)**
- Patches of premature ripening
- Weedy patches
- Patches with wilting and yellowing
- Patches of stunted plants or poor growth.

*Figure 4: Wilting and yellowing*

*Figure 5: Yellowing, stunting, and premature ripening*

*Figure 6: Patches of stunted, poor growth*

## Where to Look

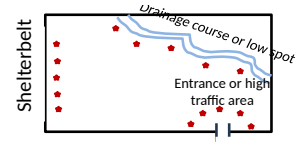


*Figure 7: Where to look*

- Scout for symptoms in host crops (fields of canola, mustard or Brassica vegetables)
- Especially in fields with a heavy presence of host crops in the rotation history.
- Focus on high-traffic areas (entrances, or other areas of the field that have had traffic). This includes agricultural traffic, custom applicators, construction, recreation or any other activity involving ground disturbance or vehicles passing through the field.
- Include areas of the field with standing water or poor drainage
- Scout along water courses and drainage flows
- Don't forget to check alone fence lines or shelterbelts where snow accumulates
- Brassica weeds such as stinkweed, shepherd's purse, volunteer canola and wild mustard are also hosts that can display symptoms of clubroot

## How to Look

The clubroot pathogen is never evenly distributed throughout a field. Rather, it is found in patches of high infestation intermixed with non-detectable patches. This makes scouting challenging. To maximize the chances of finding the infested patches it is recommended to pull some plants (5 – 25 plants) in a 1 – 2 square meter patch, and then move 5 – 10 meters away and repeat as needed to thoroughly scout the targeted area. Below is an example of a scouting plan focussing on high risk areas.

## What if I find something?

- If you find roots with suspicious swellings or galls, pull up as many as you can into heavy garbage bags and remove from the field. This will prevent the galls from adding more resting spore inoculum to the soil when the roots decompose. Contact the Agricultural Fieldman in your County or Municipal District for direction on how to dispose of the galls.
- Occasionally clubroot look-alikes are found. These can include hybridization nodules or herbicide injury, so before jumping to conclusions it's always a good idea to have samples confirmed via laboratory testing. For more information on lab testing go to: (Clubroot Disease | Canola Encyclopedia (canolacouncil.org)
- For more information on clubroot disease in canola, including equipment sanitization guides please go to: www.clubroot.ca
- For assistance managing clubroot you can reach out to:
  - Lethbridge County Manager, Agriculture Services (Gary Secrist gsecrist@lethcounty.ca)
  - Canola Council of Canada Agronomist (Marissa Robitaille-Balog robitaillem@canolacouncil.org)
  - Alberta Agriculture Plant Pathologist (Michael Harding michael.harding@gov.ab.ca)
- Or find tips for what to do next here: You discover clubroot in a field: Tips | Canola Council of Canada

# DRIED BEANS

## - The Unsung Hero of the Garden

**Submitted by:**
**Tami Woods, Wildrose Heritage Seed Company**

When you think of garden vegetables, what are the first that come to mind? Peas, carrots, potatoes, onions, radishes, beets, and those are great, but did you think of the beans? And I am not talking about fresh picking beans, although those are great too. I am talking dried beans, the unsung heroes of the garden.

Wikipedia, the free online encyclopaedia describes beans as:

*"The seed of several plants in the family Fabaceae, which are used as vegetables for human or animal food.[1] They can be cooked in many different ways,[2] including boiling, frying, and baking, and are used in many traditional dishes throughout the world."*

The common bean (*Phaseolus vulgaris*) is thought to have originated in Central and South America. We can thank Indigenous gardeners who have grown beans for thousands of years and are responsible for the many varieties of beans out there. Many of them grew beans as direct companions with corn and squash, calling them the "three sisters". Using the corn stalks as a support, the beans will choke out most weeds and help produce higher yields on all three plants. Beans also reintroduce nitrogen into the soil, making it accessible to other garden plants around them.

There are many types of beans, soybeans, bush beans, dry beans, pole beans, broad beans, runner beans, kidney beans and others. Most beans will grow in any of the gardening zones. Beans are one of the easiest things to grow and we think they require the least amount of work of almost any of the garden vegetables. You put them in the ground and in a few days they start poking their heads up. Give them a little water and sunshine and wait. When elementary students learn about germination they start with beans because within a couple of days they sprout and are very hardy. Once you have had your fill of fresh eating, leave the plants a few more weeks in the garden until the pods are completely dry (do not pick them wet as they rust). Strip the pods from the plants, place in a large container, "stomp" the beans until the pods are broken and release the beans, and at this point you can winnow them to remove the chafe or clean them by hand. They will store for years in a dry, dark, cool area as seed for next year or a protein rich food source.

Speaking of protein, beans have the highest amount of protein of any of the garden vegetables and are a great, occasional substitute for meat. On average a cup of beans has approximately 15 grams of protein or 30% of the recommended daily amount. That being said, they are not a complete protein as they do not contain all 9 of the amino acids our body needs. If you add brown rice to your beans you have it all. Beans are also high in fibre, iron, vitamins B1, B6, E, and K as well as many minerals such as magnesium, zinc, copper, manganese, selenium and others. The health benefits may include helping you to reduce cholesterol, decrease blood sugar levels, and increase healthy gut bacteria. And for the pocketbook, they are a much more economical source of protein than most meats.

What else can I say about beans? They are delicious, nutritious, and economical, easy, and definitely don't get enough accolades in our world today, one of the unsung heroes of the garden.

Contact: admin@wildroseheritageseed.com

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*Julieta Cardenas, https://www.vox.com/future-perfect/2023/5/12/23717519/beans-protein-nutrition-sustainability-climate-food-security-solution-vegan-alternative-meat, accessed May 10, 2024*
*Wikipedia Bean*
*https://en.wikipedia.org › wiki › Bean, accessed May 10,2024*

**Baked Beans**
2 cups dried beans (any variety)
4 cups water
2/3 tblsp salt
2/3 tblsp molasses
2/3 tblsp mustard
1/3 cup brown sugar
1 1/3 cups ketchup
2/3 tblsp Worcestershire sauce
1 ½ pound bacon or leftover ham
2 cups chicken broth
Cover beans with water (Boiling water is quicker) and let soak for at least 4 hours. Drain the beans and add 4 cups water. Cook on medium high heat for 60 minutes. Drain. Add salt, molasses, mustard, brown sugar, ketchup, Worcestershire sauce, bacon or ham, and chicken broth and stir well. Place in a large cast iron pot or baking dish and bake until tender and most of the fluid is absorbed or thickened (about 1-2 hours).

# RESTORING A LEGACY OF CONSERVATION:

## How Ranchers and OGC are Shaping a Sustainable Future

**Submitted by:**
**Christina Reesor and Everett Hanna**

You won't find lush rain forests with exotic primates or vibrant reefs teeming with marine life, but if you venture not too far from your own back door, you will find an ecosystem more threatened than either tropical rainforests or coral reefs. While our Canadian prairies may not receive the same attention as some of the "showier" ecosystems, they are equally in need of conservation to ensure a sustainable future for generations to come.

That's where the not-for-profit program "Operation Grassland Community" (OGC) comes into play. As a project of the Alberta Wildlife Federation (AWF, formerly Alberta Fish & Game Association), this initiative began in the 1990s when Alberta's burrowing owl population decline became undeniable. OGC recognized early on that conserving Alberta's prairies effectively meant partnering with ranchers—finding a shared vision and synergy with the stewards of private lands.

With less than 25% of Canada's native grasslands remaining, our prairies have become one of the world's most endangered ecosystems, with only 6% or less currently protected. It might surprise many who do not live on the prairies to learn that we rely on ranchers to provide free "ecological services" to ensure sustainability for the remaining unprotected grasslands. Ranchers often go unrecognized for their critical role in habitat conservation, traditionally earning only from the livestock they raise and sell, with no credits towards additional expenditures for improving habitat quality and sustainability.

Recognizing the mutualistic relationship between ranching and wildlife conservation, OGC has been pioneering initiatives for over a decade to financially support ranchers who integrate sustainable practices into their pasture management. These initiatives can be as simple as connecting land managers with range management practices that benefit both ranch economics and wildlife habitat, thereby supporting many of our native wild species. In other instances, qualifying members can partner in "Habitat Enhancement Projects" such as installing off-site waterers or portable fencing for rotational grazing systems—both aimed at improving overall range health. Year after year, OGC has offered up to 50% cost sharing based on individual needs to qualifying members, resulting in enhanced management on 44,800 acres of Alberta grasslands in 2023/24 alone. Do you have a project idea to enhance range health? OGC is excited to seek project partners for the 2024 season, so get in touch today!

These cost shares have been made possible through financial grants from organizations such as the Alberta Minister's Special Licence, Alberta Conservation Association's (ACA) Community, Conservation, and Education Grant, and Environment and Climate Change Canada's (ECCC) Priority Places programs.

Without these funders, OGC would not be able to work shoulder-to-shoulder with ranchers to help safeguard Alberta's native grasslands for both cattle and the wildlife species that rely on them—especially on private lands where many existing programs do not have jurisdiction.

Other ways OGC is working towards prairie conservation include in-person engagement and education at events like the Medicine Hat Stampede and Calgary Stampede, as well as accepting invitations for classroom presentations and other educational opportunities. In 2023/24, OGC had a combined in-person reach of 2,420 unique individuals. These face-to-face connections have not only helped recruit members but have also enabled education regarding the vital link between consumers and the origins of their food. Often, consumers are unaware of the importance of ranching using ethical and sustainable practices to ensure our prairie ecosystem remains intact for years to come, and OGC is eager to spread the word! We take pride in our classroom education opportunities because we see the value of cultivating the next generation of conservation-minded ranchers.

OGC also continues to monitor both burrowing owl and loggerhead shrike populations with ongoing population surveys, heading into their 34th and 14th years, respectively. With many original participants moving into new phases of life (some having participated since the onset!), OGC urgently requests any ranchers passionate about the land and its creatures to join these confidential citizen science surveys, particularly those who have observed either (or both) of these species on their land. Without landowner participation, these surveys cease to exist, and OGC aims to ensure these population estimates continue for years to come.

While threats to other ecosystems such as the Amazon Rainforest or Great Barrier Reef are real and important, sometimes issues much closer to home don't receive the same publicity or urgency, simply because they may not have the same immediate beauty. However, a significant threat exists right in our own backyards that, with knowledge and effort, we can surely address for the better. To find out more about what OGC is doing to continue its legacy in conservation, please visit www.grasslandcommunity.org. For more information on OGC's opportunities, such as project funding applications or participation in owl and shrike surveys, please contact OGC at operationgrasslandcommunity@gmail.com.

*(Left to right) OGC member native prairie. Solar-powered off-site waterer that OGC co-funded as a Habitat Enhancement Project to protect the wetland and increase animal health via cleaner water.*

*Clearing dead vegetation like branches and leaves away from buildings can help reduce fires from spreading.*

# Is your property FireSmart™?

We've seen wildfires across the province already this spring, and thousands of people evacuated form their homes. Now is a good time to look at your property and make sure you're best protected from a potential wildfire.

By doing a few, simple things, you can safeguard your home, property and livelihood this summer.

## Understanding FireSmart™ Principles

FireSmartTM is a national program designed to help communities reduce the risk of wildfire damage. Here's how you can implement FireSmartTM principles on your farm and rural property (check these off as you complete them):

- ❑ Assess Your Property: Identify potential fire hazards in your yard. Look for areas where dry vegetation or flammable materials could ignite easily.
- ❑ Create a Defensible Space: Remove dead plants, leaves and branches within a 10-meter radius of all buildings.
- ❑ Manage Vegetation: Regularly mow grass, trim trees and remove dead vegetation. Keep trees pruned to a height of at least 2 meters and maintain a 3-meter distance between tree crowns.
- ❑ Clear Away Clutter: Regularly clean out gutters. Keep decks clear of leaves, debris and other materials that could easily catch fire.
- ❑ Safe Storage: Store flammable materials like firewood, propane tanks and gasoline away from your home and other structures. Ensure these materials are stored in a well-ventilated, secure area.
- ❑ Access and Egress: Ensure your property has clear access routes for emergency vehicles. Gates should be wide enough to accommodate fire trucks, and driveways should be free of obstructions.

## Are you covered?

While prevention is key, having the right insurance coverage is equally important. Insurance provides a safety net in case of property loss or damage due to fire. Here's what you should check your policy for:

- ❑ Comprehensive Coverage: all potential risks, including fire, smoke and water damage from firefighting efforts.
- ❑ Property and Equipment: all buildings, equipment and livestock. This ensures you can recover and rebuild quickly after a fire.
- ❑ Fire Department Response: the cost of fire department response services.
- ❑ Business Interruption: Consider adding business interruption coverage. This type of insurance helps cover the loss of income if your farming operations are disrupted due to fire damage.

We understand the unique challenges our farmers and rural residents face. By adopting FireSmartTM principles and ensuring you have proper insurance coverage, you can protect your property and livelihood from the devastating effects of fire.

Stay safe, stay prepared.

# COUNTY WORDSEARCH: RAPTOR EDITION

**Can you find all the hidden words? Send a picture of the completed wordsearch to mwells@lethcounty.ca or text to 403-634-0147 to be entered for a chance to win an amazing pair of books, written by the one and only Belinda Crowson! Completed wordsearches can be submitted until July 9th. *Good luck!***

M H G T Z Y A K L Y C N F E R R U G I N O U S
O E B U T L R T X H O O Y E O P O W H Y J F O
A W B R A D E N N I H S P R A H S Y I X O P Z
P S Q K I T I P E R B N L M E R C T I N F K R
T Z E E S R R U H G N I U I O I D E R E P N T
E F D Y U E R C E O N A G W A C E Y D Q R O H
B P F V C T A U Z A I W G D E O S P R E Y A R
G T M U G A H Y L E H S B J E O O H E W I F E
I Y O L O L N E O H A W K F D P F K Q N R G E
E N T T A F R K L E B F E D G E E I R F I E F
J B H U E P E E C I D S T I U R K U E E E B L
H Y L R I L H H N G O H I A J S O T V L G L Z
D O U E E P T E O S E Y S D T L O G L G T A W
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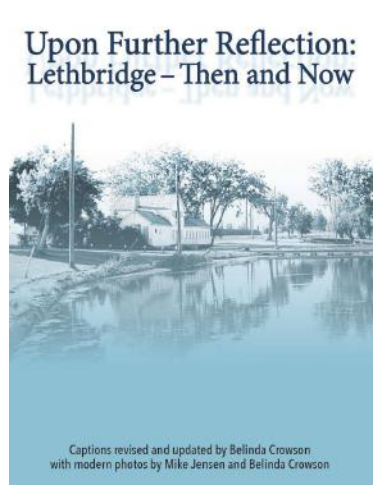
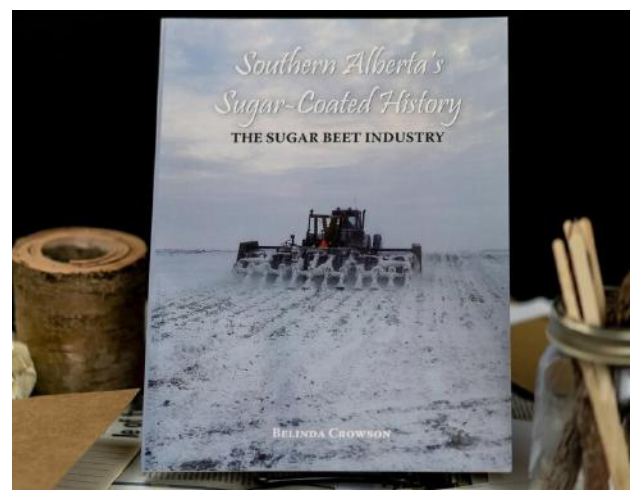
Ferruginous
Swainson
Merlin
American Kestrel
Sharp Shinned
Turkey Vulture
Golden Eagle
Northern Harrier
Cooper's
Red-Tailed
Rough-Legged
Peregrine Falcon
Osprey
Bald Eagle
Hawk



# - Local Spotlight -

## KINDERFARM TOYS

***Kinderfarm Toys*** is a family owned and operated business, which started out when we were looking for some good quality farm toys for our children. We brought some toys out of Europe. Letting our children use their imagination and giving them some of these beautiful SIKU line of toys. The miniature farms soon flourished all over our basement. Nieces and nephews came over to play and asked where we purchased these toys.

Soon we imported some more, and one thing led to another and thus the idea for Kinderfarm Toys was born. Importing toys and selling them to satisfied lil' customers all over North America! This is still our main goal today.

We started selling out of a room in the basement of our house. Then outgrew that and moved to a corner in the shop at Delco Contractors Ltd. Soon we had our own separate store,

and most recently this spring we expanded our little store front. Now we have a fully self-serve store, or for the online buyer we have a fully functional online store. Thus, enabling us to expand our sales to further regions. We started with SIKU brand and since then we have expanded our brands to the following.

ERTYI-TOMY, KIDS GLOBE, BRUDER, SIKU REMOTE, ROLLY TOYS, DCP.

Now we have a wide range of Toys available, from toddler toys to peddle tractors; from standard farm toys to high precision models such as the DCP line of model semi-trucks and trailers. With the scales ranging from 1:87 to 1:16 we have something for everyone.

Stay in touch, to be the first to know about our new toys coming out! Feel free to stop by our store in Nobleford during store hours or check out our website www.kinderfarmtoys.com.

## BROUWER BEES

### Natural Raw Honey

***Brouwer Bees Natural Raw Honey*** is a locally owned small business on the outskirts of Lethbridge, Alberta.

Having begun his adventure of beekeeping right out of highschool, Joshua Brouwer started his own apiary in 2017 at the age of 17, with 4 thriving honey bee colonies.

Through the years Josh's apiary has grown to over 130 colonies. Josh is now an established small business owner who supplies Lethbridge and the surrounding area with a variety of honey products: Natural Raw Honey, Cinnamon Honey, Seasonal Flavored Honey (Pumpkin Spice, Raspberry), and beautiful Natural Uncut Honeycomb.

**Where to find *Brouwer Bees Natural Raw Honey?***

Sold from home as well as delivered within Lethbridge, **Brouwer Bees** also supplies honey to the Lethbridge Corn Maze, as well as to Seena Bees Soap Shop, located in the Kootenays, in Riondel, BC.

**Three Fun Facts About Honeybees:**

1. A honeybee sting smells like bananas (...you know those little marshmallow banana candies? Exactly like that!)
2. One bee hive can produce up to 200 lbs of honey per year, depending on weather and flower conditions.
3. There is only one queen bee per hive, and she has an entourage that follows her around and takes care of her.

Thank you for taking the time to read!

-Brouwer Bees

**Contact Info:**

Facebook: Brouwer Bees Honey ■ Instagram: @brouwerbees

Phone # (403) 849 - 2517 ■ BrouwerBees@gmail.com

## Winner's Circle

Are you looking to be the next winner?
Be sure to complete this edition's wordsearch puzzle on page 6 for a chance to win a pair of books, written by the one and only Belinda Crowson!

*(Left clockwise) Male Clearwinged grasshopper, Speckle-winged Rangeland grasshopper, Immature Two-striped grasshoppers, Newly hatched Clear-winged grasshopper and Brown-spotted range grasshopper. Photos courtesy of Dan Johnson.*

# Background and update on grasshoppers

**Submitted by: Dan Johnson**
**(for identifications of photos of grasshoppers and allies: dan.johnson@uleth.ca)**

Grasshoppers are well-known as important pests of field crops, pastures, and (less often) rangeland in Alberta, and may continue to cause concerns during the next few years. In recent years they have again expanded in numbers, range, and activities, because of warm spring and summer weather. It is known that rain can slow or harm the juvenile stages, but that occurs only if the rain comes after hatching, which is around the end of May and through mid-June. The above-average rainfall we have had during the first three weeks of May caused no harm to grasshoppers that can attack crops, because they are still growing as embryos in water-proof eggs. When soil temperatures exceed about 14 C, the embryos resume rapid growth and hatch, allowing a tiny, pale larva to crawl to the surface and begin the immature stages, only a few mm in length.

At one time, it was thought that cold winter conditions could drive down grasshopper numbers, and warm winters could help them. After several experiments with temperatures from 0 down to -20, and field studies of eggs, I found that they are rarely affected by cold. They can withstand -15 C, and when the air temperature is -25 C, the temperature in soil at egg pod depth may be only something like -9 to -14 C. I have looked at 50 years of survey data now, and see that it is rare for winter to matter much to grasshoppers. It makes sense that the grasshopper species living here are adapted to winter, when you consider that they have been here for around 10,000 years, since the grassland slowly returned after the end of the last ice age.

Rain can also reduce grasshoppers if it falls later in the summer. In 2021, Lethbridge County had a few hot spots that increased, and an urban invasion of west Lethbridge by thousands of Two-striped grasshoppers received attention. This localized outbreak was ended by rain in July, followed by grasshopper mortality caused by a fungus that attacks only grasshoppers. Thousands of dead grasshoppers were hanging on roadside weeds and grass at the edge of the city. Fortunately, this rain occurred before most of the eggs were laid, so the local outbreak in 2021 died out.

Natural controls, either weather or natural enemies that can increase after several years of grasshoppers being abundant, may sometimes bring down an outbreak over larger areas. Late-summer survey counts (mainly from the Association of Alberta Agriculture Fieldmen) has been slowly growing, and much of Lethbridge County has expanded to "moderate" levels, mainly because of only two main grasshopper species. The Two-striped grasshopper, a species that feeds on a wide range of crops including cereals, oilseeds, and alfalfa, often increases one generation per year in roadside grass, and can invade fields. It tends to build populations in place, not traveling long distances, since it does not fly well except in exceptionally hot, windy weather. The Clear-winged grasshopper, which eats mainly grass family plants like wheat, barley, and grass pastures, is a smaller yellow-tan grasshopper that glistens as it flies and can easily move to new fields. Further east, into Saskatchewan and Manitoba, Packard's grasshopper and the Lesser Migratory grasshopper are also becoming common again (as they were in the 1980s and 1990s), but are still behind the Two-striped and Clear-winged grasshoppers in numbers. One of the main reasons that these four species are significant pests is the larger numbers of eggs they lay. A Two-striped grasshopper female may lay about 50 to 60 eggs per pod, inserted safely into the soil, and given enough time can produce 4 pods and up.

A separate group of grasshoppers become active as early as March, mainly on range and pasture, but cause no significant harm, but serve as food for wild birds. They feed lightly on certain wild plants and leave crops alone. Examples are the Velvet-striped grasshopper, a small but common gray or green species, the Speckle-winged Rangeland grasshopper, which hops in March and April but clicks and flies with red wings in May and June, and the Northern Green-striped grasshopper, a species with a yellow wing and keel on the back, common along the Oldman River.

An emerging new problem in the Peace River region is related to Bruner's spur-throat grasshopper (also referred to simply as Bruner's). This species was noted in the 1990s as returning to significant numbers and is now the most common grasshopper in the Peace regions (tending to vary in numbers between even and odd years, foiling the general forecast based on survey), but rare in southern Alberta. Small numbers are found in the south when elevation allows foothills conditions, for example on the Milk River Ridge or in Cypress Hills.

Drought in June and July aids the rapid development of grasshoppers through their five immature stages to maturation, because like all insects, grasshoppers are cold-blooded and depend on air, ground, and sun for body heat. Warm conditions allow rapid growth, whereas cool weather slows the process and reduces survival. A rough index of heat accumulation is sometimes used by summing accumulated degree-days (much like corn heat units), using the portion of each day that has temperature in the usable range. The day of the year (Julian date) by which a certain sum of degree-days (say about 10 C) has accumulated has been slowly getting earlier over the last 50 years, on average about a week since the 1970s. But the variation from year to year is more extreme than long-term averages, and in some years the heat these insects need to develop and grow has arrived a full month earlier than in other years. This year, grasshoppers were set to hatch early but were delayed by the multiple days of cool rain in May, an example of the potential being a starting forecast, requiring an update in May. I think that a spring grasshopper survey would greatly improve forecasting, but for a century the survey is conducted only in late summer, at the time of grasshopper breeding, and before overwintering.

Grasshoppers, like most plant-eating insects, are sometimes suppressed by natural enemies. Predators include field crickets, ground-dwelling spiders, ground beetles, birds, and small mammals, which are all already awake and active before pest grasshoppers hatch. Later there are parasitoids, including flies whose maggots live inside grasshoppers and kill them, and predators such as bee fly larvae that eat grasshopper eggs. The natural enemies serve to regulate low numbers of grasshoppers, not bring down an infestation of high numbers, so unfortunately they rarely solve a runaway pest outbreak. This is why natural enemies can catch up and help to stabilize between outbreaks, but can normally not help much to end it suddenly at the scale of a field or a county.


Some interesting history – GIS (geographic information system) mapping and forecasting of insect numbers began here in Lethbridge in 1987 with grasshopper survey mapping, when PCs and GIS software were very new. Around the world, it is acknowledged to be the first insect GIS and one of the first agriculture GIS.

University of Lethbridge

# WHAT'S THE BUZZ? POLLINATORS ARE HARD AT WORK

With the coming of summer, pollinators of all sizes are on the hunt for food. Bees, the most common group of pollinators in Alberta, are, without a doubt, the workhorses of the pollinator world and are essential for commercial crop production and preserving conservation areas and wild spaces.

The province has more than 300 species of native bees and several introduced bee species like the honey bee and alfalfa leafcutter bee. Considered livestock, honey bees and leafcutter bees are essential to pollinate canola- and alfalfa-seed crops and require the support of a beekeeper to survive.

"Lethbridge is bee central for honey bees in Canada," says Dr. Shelley Hoover, a biology professor and bee researcher at the University of Lethbridge. "About 40 per cent of the honey bees in Canada are in Alberta. The biggest pollination market in Canada is hybrid canola seed production. When they're trucking bees to canola pollination, there can be 10,000 hives on the road a night."

Honey bees also pollinate crops such as haskap berries, pumpkins and blueberries. Some Alberta beekeepers will move their bees to other provinces to pollinate berries and tree fruits. Bees are extremely hairy and have a slight static charge, which enables them to carry pollen all over their bodies.

"The way bees carry pollen varies," says Hoover. "With honey bees, they have those packs of pollen on their legs. The leafcutter bees have a scopa on their abdomen and carry their pollen there. From a plant's perspective, it's good to attract a diversity of pollinators because they will visit the flower at different times of day and physically in different ways. That delivers pollen to different parts of the female reproductive system. There have been studies that show increased seed set with increased diversity of pollinators."

But bees can't do the job alone. Birds, bats, moths, beetles, butterflies, flies, such as syrphids (flower flies and hover flies), and wasps also play a role in pollination.

"The more diversity you have participating in an ecological process like pollination, the more resilient it is," says Dr. Dan Johnson, a University of Lethbridge environmental science professor with expertise in entomology. "Some people say all we need are honey bees or leafcutter bees. There are many reasons why that's not true, partly because of specializations for some insects but also because there are substitutions in ecology and certain close linkages. In other words, diversity is good for conservation," he says.

When Johnson studied pollination of the Western Spiderwort, a species at risk in Canada, in field studies in southeastern Alberta, he found flies are important pollinators of the rare plant, adding to the previously known role of sweat bees.

Johnson, as a member of the Yucca and Yucca Moth recovery team, noted the sudden expansion of the moth north to Lethbridge and beyond, a good sign for the threatened plant that is both host to the larvae and benefactor of the pollination.

Homeowners and landowners can help pollinators thrive by planting diverse flowering plant species so flowers are available throughout the growing season. Native bees don't travel as far as honey bees so providing them with nesting habitat, like some undisturbed soil, an old hole or even the stem of a flower from the previous year, is beneficial.

For native or wild bee species, plant native flowers. Many bee species like the raspberry family and sandfoin, a plant that's also good for the soil because it fixes nitrogen.

"I always tell people to plant trees and shrubs because, per square metre, you get a lot more flowers out of a flowering tree or shrub than in plants on flat ground," says Hoover.

She also suggests visiting the Pollinator Partnership Canada website to find planting guides for all areas of the country. For the Lethbridge area, check out the Moist Mixed Grassland Ecoregion planting guide. Other resources include the Lethbridge and District Horticultural Society and the Alberta Native Bee Council.

# Funding Opportunities for Alberta Farmers

Sustainable Canadian Agricultural Partnership

*Eligible Applicants*

- Individual or corporation registered in Alberta that is responsible for day-to-day management and input costs of a crop operation and produce at least $25,000 worth of farm commodities annually.
- Approved Indigenous applicants (First Nation, Métis Nation, Inuit)
- Has current Environmental Farm Plan (EFP) certificate or letter or will receive one before the end of the project term. The name on the EFP does not need to match the name on the grant application but must be for the same farm. (Pertains to Efficient Grain Handling, Farm Technology, and Resilient Agricultural Landscape Program)

**Efficient Grain Handling Program** – Currently closed *will resume June 2024*
This is an energy efficiency program intended to assist producers with reducing the overall energy use on their operations

- ❖ Environmental Farm Plan (EFP) Required

- Eligible expenses will be cost shared at 50% grant and 50% applicant for approved projects and will be funded to:
  - ❖ minimum grant of $500/applicant
  - ❖ maximum grant of $100,000/applicant

*Email questions to S-CAP.EGHP@gov.ab.ca or call 310-FARM (3276)*

**Farm Technology Program** – Currently closed *will resume June 2024*
This program (2023 to 2024) focuses on sensors and security devices to support innovative technology that minimizes agricultural waste, optimizes farm efficiency, and provides tools that secure business assets.

- ❖ EFP Required

- Supported activities fall under two streams:
  - ❖ **Farm technology** – Digital sensors that contribute to greater precision, more accurate matching of inputs with requirements.
    - ▪ Eligibility varies by farm type. To be eligible, technology should be innovative and not commonly adopted for the applicant's farm type or sector.
  - ❖ **Farm security** – Farm security devices to protect business assets and deal with trespassing, theft, vandalism, and biosecurity threats.
  - ❖ Eligible expenses will be cost shared at 50% grant and 50% applicant for approved projects and will be funded, as follows:
    - ▪ minimum grant of $500/applicant
    - ▪ maximum grant of $48,000/applicant for Farm Technology Stream
    - ▪ maximum grant of $2,000/applicant for Farm Security Stream

*Email questions to S-CAP.FTP@gov.ab.ca or call 310-FARM (3276)*

**Resilient Agricultural Landscape Program** – Currently closed *will resume February 2025* • **Review *Note***
A new program that supports producers to conserve and enhance the environmental resiliency of their agricultural landscapes.

- ❖ EFP Required

- Funding is offered on a per-acre payment basis for a term of three years. Per-acre fee calculated as:
  - ❖ **Implementation Costs** + **Opportunity Cost** (if applicable) + **Impact Adjustment**
- Approved projects will be funded to:
  - ❖ minimum grant of $2,000
  - ❖ maximum grant of $150,000 for Primary Producers
  - ❖ maximum grant of $300,000 for Indigenous (First Nations, Inuit, Metis) and groups such as Grazing Reserve Associations and/or Community Pastures
- Intake Cycle:
  - Beneficial Management Practices
    - ❖ Year 1: April 3, 2023 – November 30, 2023
    - ❖ Year 2: February 1, 2024 – November 20, 2024
    - ❖ Year 3: February 1, 2025 – November 20, 2025
  - Wetland
    - ❖ Year 1: April 3, 2023 – January 31, 2024
    - ❖ Year 2: February 1, 2024 – January 31, 2025
    - ❖ Year 3: February 1, 2025 – January 31, 2026

***Note*: the Wetland funding category has a different schedule than that of the other beneficial management practices (BMPs).**

*Email questions to RALP@gov.ab.ca or call 310-FARM (3276)*

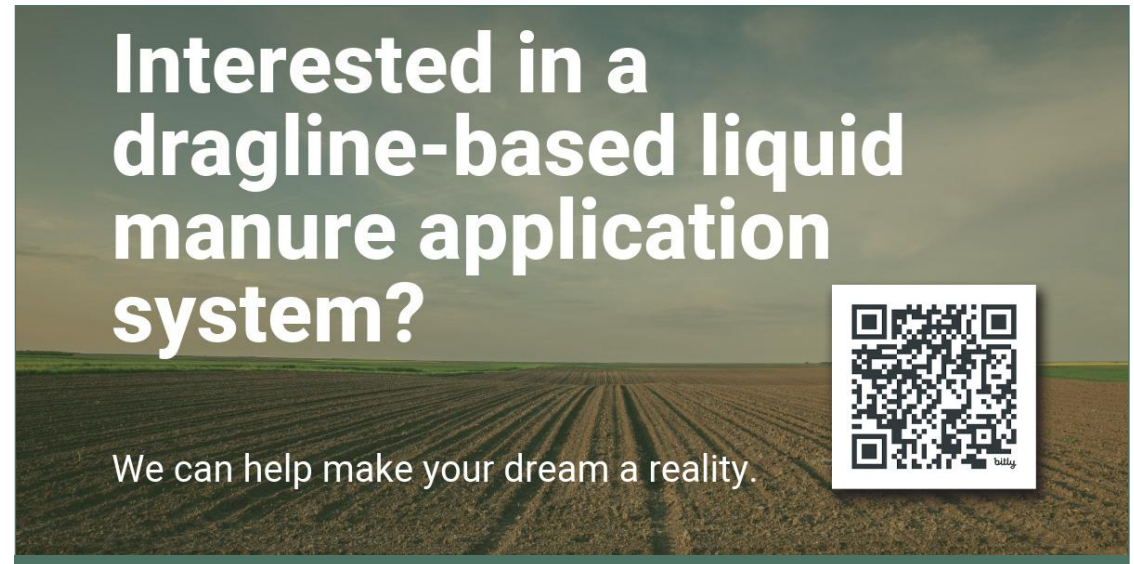
**Water Program** – currently accepting applications
This program helps producers adopt agricultural water management practices for continued growth and long-term success of the agriculture industry.

- There is limited funding in the program. Applications, considered on a case-by-case basis, will be assessed against program eligibility criteria and are subject to program funding constraints.
  - ❖ EFP is NOT required
- Supported activities fall under 2 streams:
  - **On-Farm water supply stream – Maximum of $35,000/applicant over program term**
    - ❖ **Standard incentives for New or Expanded Water Source Developments – eligible expenses cost shared at 25% grant and 75% applicant for a maximum of $15,000/applicant over program term.**
    - ❖ **Special Incentive Projects – eligible expenses cost shares vary and are project specific. Maximum grant of $20,000/applicant over program term**

*Email questions to farmwatersupply@gov.ab.ca or call 310-FARM (3276)*

- **On-Farm irrigation stream – Maximum of $30,000/applicant per fiscal year of program**
  - ❖ On-Farm irrigation system purchases – eligible expenses cost shared at 25% grant and 75% applicant for a maximum of $15,000/parcel.
  - ❖ On-Farm irrigation system upgrades – eligible expenses cost shared at 25% grant and 75% applicant for a maximum of $5,000/parcel.

*Email questions to irrigationefficiency@gov.ab.ca or call 403-381-5532*




## LIQUID MANURE DRAGLINE PROGRAM APPLICATION

This program is intended to support implementation of dragline based liquid manure application systems. Livestock producers wishing to access land application properties using dragline based liquid manure application systems are eligible for the program. Producers working with custom liquid manure applicators that use dragline systems are also eligible, where there is a demonstrated benefit to the producer or producers.

The program offers a 50% cost share to complete approved pipeline crossing to a maximum of $5000. The cost share can be either cash rebates or County sponsored in-kind project construction support. Each application must be pre-approved and installed to County specifications to be eligible for program support. Installations must meet the approved conditions to receive funding support.

*Lethbridge County encourages early application due to limited funding. Eligibility is based on program application timing and the projects assessed benefit.*

To apply:

- Fill out the online form by scanning the QR code, or
- Visit our Lethbridge office to fill out an application.

If you have questions or concerns, reach out to Matthew Wells at mwells@lethcounty.ca or 403.634.0147.

# BIOSOLIDS: What They Are and Why They Matter

**Submitted by: Bill MacMillan, Manager, Environmental Services, Lethbridge County**

Ever wonder what happens to the organic materials produced during wastewater treatment? Well, they become something called biosolids. When managed properly, biosolids can be incredibly beneficial, providing valuable nutrients for various uses. But they also contain other constituents like pathogens, metals, and organic chemicals. These can impact our health and the environment if not handled with care, which is why biosolids are considered a waste byproduct.

In Canada, federal law requires wastewater treatment facilities to report releases, transfers, and disposals of biosolids. Facilities can dispose of biosolids in approved landfills, apply them to land, or transfer them for further processing.

Provincial laws also govern biosolids management. In Alberta, Alberta Environment and Protected Areas (AEPA) regulates both the wastewater treatment process and the land application of biosolids. The regulations aim to maintain or improve the quality of soil-plant systems while minimizing risks to human health and the environment. They also consider potential impacts on soils, water bodies, and other receptors from repeated biosolid applications.

To meet these objectives, land application of biosolids must follow a detailed program that includes:

**1. Waste Characterization Assessment:** Identifies land application rate limits or determines if the material is suitable for land application.

**2. Site Landscape and Soil Assessment:** Evaluates site conditions (like slope, proximity to water bodies, and soil characteristics) to determine the treatability of the material and its potential for causing environmental impacts.

**3. Land Application Program:** Integrates all the information to control application rates, timing, management, and siting requirements.

In Alberta, biosolids can be applied to agricultural and forested lands, mine reclamation sites, and other lands needing reclamation or remediation. This method is both common and preferred as it recycles nutrients for safe food production. However, because biosolids can contain more than just nutrients, land application is strictly regulated and requires AEPA approval. Often, the presence of metals dictates the application rate to protect plant and food health by preventing metal accumulation in soils, thereby minimizing risks to human health and the environment.

So, the next time you see land application of biosolids, remember they are managed under Alberta's stringent regulations and guidelines. These rules, based on scientific and engineering principles developed through extensive experience, ensure protection for you and our environment. Plus, recycling nutrients through land application reduces the need for chemical fertilizers, supporting sustainable food production.much that can be economically done to make it agriculturally productive.

This is only a very brief introduction to this complex issue. White dust on the surface is salinity. This affects the plant's ability to take up water. The underlying issue – literally in this case – is what needs to be investigated to learn why the salinity is there and what, if anything, can be economically done about it. A soil test that determines SAR or ESP, EC, pH, and free lime at multiple depths is critical to understanding the issue. Start there first, and then look for the proper solution.

# Alkali patches are often not what you think

**Submitted by: Scott Gillespie, Plants Dig Soil**

White patches in a field are often referred to as alkali patches. The underlying problem may or may not be high pH – alkalinity – because salt not alkaline. When you see salt on the surface it is more properly called salinity. Alkalinity may be present with or without salt. It also may be near the surface, or it may be deeper down. However, alkalinity is rarely the issue. Excess sodium cations – not excess sodium salts – could be the real issue.

Finally, just because you don't see salt on the surface doesn't mean salinity is not the problem. Regular soil testing helps to see these problems developing before they visibly manifest themselves. In this article I'll give an overview of how I approach these types of soils and how you can test to accurately diagnose the problem and evaluate the solutions.

Let's start with salinity. Saline patches will always be in the lowest part of the landscape or where water gets pushed back up to the surface through underground flows. In periods of high rainfall, the water table moves higher, and you may see water stay in these areas for extended periods. Since it has nowhere to go it slowly evaporates off. Any salts that were dissolved in it end up sticking around.

Under regular rainfall the salts will keep getting washed down. However, if they can't get very deep in the soil, they will get stuck there and affect plant growth. Since the plants don't use this water it's more likely water will accumulate there in the off season, which raises the water table, dissolving salts, then depositing them when it evaporates.

There are no magic cures for salinity. The only way to get rid of excess salts is to lower the water table and flush the salts down. If you can get the salts deeper than the root zone and you can keep the water table low you will be able to grow crops there.

Perennial forages or native grasses with deep roots are the best tool for lowering the water table. These species don't have to be salt tolerant. They can work from the area nearby – the recharge area – and help to prevent water from moving underground to the discharge area – the saline area. This is a fix that takes many years or decades to work. Salt tolerant species, like AC Saltlander, can help the change happen faster by starting closer to, or right inside, the more saline areas.

Tile drainage can be used instead of, or in conjunction with, the use of plants. This can work if you have a place for the water to go and you are permitted to put this water there. Please check the regulations first. The place where tile drainage may not work is if you are dealing with sodic soils. These are soils that are so tight that water does not flow through them well. Tile could be installed, but the water will still be impeded from flowing. Plants could be used but they even struggle to penetrate it. This is because sodic soil has no structure. It is a soil with too many sodium cations. This is not sodium salt. This is sodium that causes clay and organic matter to collapse, sealing the soil from water flow.

When you have soil like this the key is soil testing. You need to get samples at different layers, and you need to compare the problem area to a good area. They must be sent to a lab that has a test for the Sodium Adsorption Ratio (SAR) or the Exchangeable Sodium Percentage (ESP). An Electrical Conductivity (EC) test tells us salt levels and a test of free lime and pH tells us the level of alkalinity. With these numbers a proper diagnosis can be completed.

While some labs calculate base saturation ratios (BSR), this is unnecessary. There is a direct correlation between the BSR and pH, which we already have. BSR's are also a poor predictor of the underlying sodium problem. The SAR ratio correctly puts a number to the severity of the problem and helps guide the type and quantity of amendment needed.

When the layers are shallow and the salinity or sodacity (or both) is not severe there are options such as manure, compost, deep ripping, deep plowing, or a combination of the practices. If this allows plants to establish it can be worth it. However, it may not have lasting power as the organic matter breaks down and soil settles after tillage.

If free lime is present (high pH) then an acidic amendment such as elemental sulfur (low pH) will often be the solution. It frees up calcium to displace the sodium. If free lime is not present, then gypsum is usually needed to add calcium to displace the sodium. The sodium still needs to be flushed out. If there is no place for it to go it may not be worth it. Even if it does work this can take years or even decades. It is not a quick fix.

A tougher beast is a solonetzic soil. This is one that has a saline layer over a sodic layer. In many cases what people refer to as an alkali patch is a solonetzic soil. Often there is not much that can be economically done to make it agriculturally productive.

This is only a very brief introduction to this complex issue. White dust on the surface is salinity. This affects the plant's ability to take up water. The underlying issue – literally in this case – is what needs to be investigated to learn why the salinity is there and what, if anything, can be economically done about it. A soil test that determines SAR or ESP, EC, pH, and free lime at multiple depths is critical to understanding the issue. Start there first, and then look for the proper solution.

# Winged Wonders of Lethbridge County: Raptor Edition

*(From bottom counter closkwise) Golden Eagle, Bald Eagle, Merlin Dragonfly Dinner, Sharp-Shinned Hawk, Swainson Hawk and Ferruginous Hawk.*
*Photos provided courtesy of Linda Danyluk*






# Digital Imaging Technology in Precision Agriculture and Plant Phenotyping: Canadian Crops Perspective

**Submitted by: Dr. Keshav D Singh, Ph.D.**
**Research Scientist**
**(Remote Sensing, Digital Ag & Phenomics)**
**Lethbridge Research and Development Centre (LeRDC)**
**Agriculture and Agri-Food Canada (AAFC)**

Digital technology is revolutionizing modern agriculture in Canada, particularly in crop production. To stay competitive in the global AgTech sector, precise and cost-effective data collection from research trials is essential. This includes high-throughput in-field evaluation of new crop varieties for plant breeding and crop management practices. Breeding programs generate thousands of new crop lines that require evaluation under multiple environments. Phenomics has been primarily used to evaluate these changes and their interactions in the field to study genotype × phenotype relationships. Extracting key phenotypes is an essential component of enhancing genetic gain in crop breeding. Conventional methods require considerable resources and often limit the number of new cultivars evaluated annually. Consequently, breeders and geneticists are advocating for robust technologies that can identify desirable crop characteristics (traits) at all growth stages in response to biotic and abiotic factors. The global agriculture sector is rapidly adopting cutting-edge sensor technologies. Developing high-throughput phenotyping (HTP) using digital imaging is a promising tool to evaluate crop varieties with optimal agronomic traits. Digital phenomics tools reduce human subjectivity, assessment time, and labor in fieldwork, as researchers can collect and analyze large datasets based on images generated by smart sensors.

Over the several years, Dr. Keshav Singh's Remote Sensing and Phenomics Lab (RSPLab) at the Lethbridge Research and Development Centre (LeRDC) has been leading projects that support digital farming for sustainable agriculture. The program focuses on developing digital tools and data management protocols for state-of-the-art decision support systems. Researchers and technicians are involved in developing the Internet-of-Things (IoTs) using low-cost Raspberry Pi sensors to collect and monitor growth parameters without human intervention for indoor imaging of plants (in greenhouses or growth chambers). Their work integrates proximal sensing and overhead imaging of field crops using unmanned aerial vehicles (UAVs) or drones, unmanned ground vehicle (UGV) or robots, and low-orbit satellite applications to promote crop phenomics and large-scale field mapping. These platforms have versatile data collection capabilities under various weather conditions. Additionally, smart sensors collect high-resolution images for complex trait prediction in plant phenotyping.

*Fig.1 - Automated mobile robot (UFPS Cart) with GPS-GNSS RTK Base Station*

To support Agriculture and Agri-Food Canada's (AAFC) national phenomics strategy, Dr. Singh's team collaborates with six other AAFC research and development centers across Canada, including five farms in the Prairie region. This high-value project, funded by the Western Grains Research Foundation (WGRF), SK, Canada, focuses on adopting the University of Saskatchewan Field Phenotyping System (UFPS Cart). The UFPS Cart is an automated mobile robot with four motor wheels for easy movement across a field (Fig#1). The UFPS Cart collects various plant images using an array of proximal sensors (payloads). The equipment mainly supports activities that align with changing the way we phenotype crop cultivars by developing advanced tools and Artificial Intelligence (AI) models, transforming decision-making for plant breeding and precision agriculture. The UFPS Cart project involves six AAFC research and development centers (Lethbridge, Saskatoon, Swift Current, Brandon, Morden and Ottawa) and a College of Engineering group from the University of Saskatchewan, SK [1]. For diverse climatic data collection, experimental trials are set up at six participating locations comprising 90 breeding plots from 30 Canadian western spring wheat varieties. The UFPS Cart utilizes three sensors (Visible, Infrared, and Light Detection and Ranging (LiDAR)) along with centimeter-level accurate

*Fig.2 - UAV and UFPS Cart over Spring Wheat Breeding Trial, Lethbridge RDC, AB*

Global Positioning System (GPS)/Global Navigation Satellite System (GNSS) to collect valuable data for plant height, digital biomass, and yield estimation with precise plot locations (Fig#2). Alongside the UFPS Cart project, the phenomics group, supported by the AAFC data management team, Information Systems Branch (ISB), and Shared Services Canada (SSC), has secured a cloud-based high-performance computing platform called the General Purpose Science Cluster (GPSC). GPSC aids in dynamic data storage, processing, analysis, and secure sharing of large datasets with external collaborators (universities and other institutions). It is the first-of-its-kind platform in AAFC utilized for this project's data management. These adaptations align with AAFC's Accelerating Digital Transformation mission of the Strategic Plan for Science, where collected data is shared more efficiently.

As climate change and population growth continue to present challenges, collecting precise and detailed plant phenotypic information is crucial. The RSPLab program in Lethbridge uses both platforms (Fig#3), UAV-based imaging and the UFPS Cart to collect multi-scale data for functional trait estimation, such as foliage density, canopy height, and above-ground biomass. They specifically look at quantitative parameters in cereal crops, including fractional vegetation cover, days to heading or flowering, days to physiological maturity, canopy lodging, grain yield, and protein content. With the growing need for data-driven field technologies, there is also a high demand for regular data processing and analysis to determine the significance and implications of information collected from novel sensors on UFPS Carts and UAV systems. These systems allow for efficient data collection, processing, and analysis on GPSC, helping determine crop cultivars that are more

*Fig.3 - UAV Imaging, UGV UFPS Cart, and D-RTK 2 GNSS Mobile Station*

resilient to climate change and identifying optimal growing parameters, thus promising sustainable food production and stability. These platforms have the potential to become standard phenomics tools, providing next-generation AgTech solutions for future research applications. Simultaneously, cloud-computing resources will assist in data storage, standardization, assessment, and big data analytics to train diverse datasets using machine learning and deep learning based AI models.

As a result, the RSPLab consistently works on image processing and data analysis pipeline development across various projects. These include digital imaging technology to characterize herbicide symptomology and discriminate herbicide-resistant weed biotypes, spectral imaging to estimate nitrogen (N) fertilizer use efficiency in wheat and canola, and improving selection efficiency in the dry bean breeding program through high-throughput phenotyping. The success of these projects will provide integrated support to other programs in crop breeding, field agronomy, and soil science. There is no doubt that these new tools and techniques will significantly enhance and advance the digitization of agricultural systems to support Canada's crop production. Moving forward, producers in the Prairie region and beyond will benefit from these technologies through the advancement of resilient crop varieties and best management practices.

[1] https://doi.org/10.22541/essoar.170008912.21420303/v1

**Projects funding support:**
- Western Grains Research Foundation (WGRF), SK
- Saskatchewan Wheat Development Commission (Sask Wheat), SK
- Results Driven Agriculture Research (RDAR), AB

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

WGRF Advancing Agriculture through Research | RDAR Results Driven Agriculture Research

Sask Wheat Development Commission

# Join Farming Smarter and tour Brazil agriculture

**Submitted by: Brett Browne**

Fly with Farming Smarter to Brazil for a 14-day international learning experience!

This tour of Brazil offers Alberta travellers a chance to connect with farmers and researchers while exploring a wildly different landscape. Spend October 15 to 30 in Brazil experiencing agriculture, National Parks and internationally renown sights.

The tour will visit the following regions Carambeí, Ponta Grossa, Castro, Guarapuava, Cascavel, Foz do Iguaçú, Cuiabá, Campo Verde, Rondonópolis, and Rio de Janeiro.

"In Brazil, they obviously have a different climate and they do things differently, but there are many similarities and we grow a lot of the same crops," explains Farming Smarter assistant manager Jamie Puchinger. Brazilian crops include barley, wheat, corn, soybeans, and beans.

"We'll get to talk to Brazilian farmers about the systems in use, find out how they operate and see if there are practices worth implementing here in Southern Alberta."

Farming Smarter teamed up with Missão Agritours, a Brazilian company that organizes agricultural tours throughout the world. The two companies first connected in 2019 when Brazilian farmers visited Farming Smarter's research operation. Last year, Missão Agritours brought farmers from Argentina to visit Farming Smarter.

She says these experiences not only expose southern Alberta producers to agricultural innovations in other countries, but they also help build valuable human connections.

"We've found in a lot of cases that people stay connected with each other long after the trip is over and it's always important to create new connections in your network," she explains.

Missão Agritours owner Francisco Klein Silva, also known as Chico, says the tour of Brazil will provide plenty of valuable experiences for the Canadian visitors.

"I think they have lots to learn in Brazil," he states.

Klein Silva says Brazil has a large and well-developed agricultural industry throughout the country and this tour will only scratch the surface of what happens there. Still, the tour will make stops at a wide variety of farming operations, an agriculture machinery manufacturer, research facilities and processing plants.

He believes one of the most the most valuable things to share with Canadian visitors is the work that Brazilian producers have done with soil conservation and fertility.

"These producers are very well known for their soils regimes and our visitors will have the opportunity to see a lot of soil improvement and management practices," he relates.

Tour participants will also encounter a very different agricultural system structure. Klein Silva says much of the farming in Brazil operates in cooperatives. He says some of these cooperatives buy products from producers and sell them inputs, while others are a closed system where everything is shared.

"I think it is a very good system," he states. "They are very strong; they have a good strategy, and they make lots of money." While in Parana, the tour will visit a large cooperative and have dinner with the Board of Directors giving time for tour participants to ask questions and share experience with them.

According to Klein Silva, some crops in Brazil like soybeans are produced largely as raw product for international export. However, much of the barley and wheat production is processed right in the country. He says the tour will visit some of these facilities including amilling operations, crushing facilities and the largest malt plant in South America.

"They make oil, they make flour, they have malt houses, they have feed mills for animals and many other different types of things," he says.

*(Top left) Tour participants also get a chance to enjoy some of Brazil's world-famous tourist attractions including Copacabana beach. (Top right) Beautiful Iguazu Falls is a stop on the Brazil tour. (Above) Southern Alberta producers will connect with counterparts in Brazil during a two-week agriculture tour this fall.*

Of course, the trip will also offer participants the opportunity experience local culture and enjoy some of Brazil's world-famous tourist attractions including Iguazu Falls and Rio de Janeiro.

The cost of the trip includes flights, travel insurance, accommodations, many meals, non-alcoholic beverages and a luxury bus with a tour leader and interpreter on board the whole trip. The cost will depend on how many people register for the trip. Expect it to be around $6,500.00

Puchinger says Farming Smarter organized other international agriculture tours in the past including a trip to Germany to attend Agritechnica, the world's largest farm machinery trade show. They have also led tours to North Dakota, South Dakota and Montana.

Anyone interested in this trip needs to register asap as there are limited seats available. For more information or to register for the trip, contact Jamie at Farming Smarter, 403-317-0022 and request the full itinerary.



# 10 WAYS
## to drought-proof canola

**Submitted by: Marissa Robitaille Balog**

Farmers can't control the weather but they can control their weather preparedness. Can farmers actually "drought-proof" the crop? No. A long drought will result in significant yield drop no matter what. The follow steps can however give canola a better chance at moderate success when dry conditions occur.

1. Leave tall stubble. Research from the Prairies shows that, in dry conditions, moisture from snow trapped in stubble increases until stubble is about 12" tall.

2. Seed between the stubble rows. This works in tandem with tall stubble. Precision seeding tools that work between the rows of tall stubble will result in fewer complications from the tall stubble. Farms get the moisture gain from the snow trap without the issues of poor seed placement. A combine that achieves uniform residue spread also helps.

3. Choose weather-tolerant cultivars. Cultivars that yield consistently well in a broad range of conditions may provide an advantage when drought conditions occur. Ask around to see which cultivars performed best in recent dry seasons.

4. Select fields with low herbicide carryover risk. Canola is extremely sensitive to Group 2 herbicide carryover. Areas with moisture accumulation through the previous June, July and August of 4" or less will be at highest risk of herbicide carryover. That risk will be even higher in areas with multiple dry years in a row. Residual herbicides need moist soils and warm temperatures for breakdown to occur within the expected time frame.

5. Provide balanced nutrition. Crops with access to an adequate supply of all necessary nutrients will have lower stress and increased health. Recent research from Agriculture and Agri-Food Canada shows that adequate sulphur can improve results in drought conditions.

6. Use very low rates of seed-placed fertilizer. Even a small amount of fertilizer can damage seed and seedlings in dry conditions. Higher seed-bed utilization can increase the spread between seed and fertilizer, and lower the risk from seed-placed fertilizer, but these high disturbance openers also dry out the soil.

7. Consider a split fertilizer application. The simplest approach is to apply fertilizer at the time of seeding using rates based on the usual yield expectation. An alternative is to fertilize for low-moisture yield targets, then add an in-crop application if moisture and yield outlook improve.

8. Achieve the recommended plant stand. The recommended range is five to eight plants per square foot. Emergence rate may be lower than anticipated in dry conditions and farmers will need enough seed to achieve the five-plant minimum.

9. Seed at around 1" depth. When seeding early into dry soils, seed around 1" – even if seed is not placed in moisture. Rain, when it does come, can provide the moisture needed for germination and emergence. Seeding deep to chase moisture can result in lower vigour, delayed emergence, uneven stands and more flea beetle susceptibility. If seeding to reach moisture, place seed at the top of the 10. Keep other stress to a minimum. Remove weed competition. Weeds take up moisture and nutrients while the crop struggles to establish. For flea beetles, the action threshold of 25 per cent leaf area loss could be lowered with a thinner, dryer stand.

For more, including valuable links, read the full article in the Plant Establishment section at canolawatch.org/fundamentals.

–Marissa Robitaille Balog is an agronomy specialist with the Canola Council of Canada in Southern Alberta. Email robitaillem@canolacouncil.org.

# PLANNING YOUR FUEL STORAGE SITE
## – What you need to know

**Excerpt from *'Farm fuel storage and handling'*, Alberta Agriculture and Rural Development**

***ULC – approved tank construction:***

The Underwriters' Laboratories of Canada (ULC) is an independent, not-for-profit product safety organization. A ULC-approved tank has been tested and approved for safety. To meet the Alberta Fire Code requirements, all petroleum storage tanks need ULC certification, indicated by a placard or sticker on the tank.

***Secondary containment:***

Secondary containment is recommended to accommodate accidental spillage or leakage. The total capacity of the containment must be 110 percent of the maximum volume of the storage tank. If there is more than one tank, then the containment must hold 110 percent of the largest tank, or the capacity of the largest tank plus 10 percent of the total volume of the remaining tanks, whichever is greater.

Secondary containment can be achieved either by:

1. Installing a double walled tank
2. Using a diking system with an impermeable barrier or other premanufactured containment systems

## Double walled tanks:

Double walled tanks provide excellent protection against leaks, spills, and evaporation losses. These tanks have a built-in secondary containment which is the space between two walls that contain the fuel in the event of a leak or rupture of the interior wall. Some double walled tanks have a vacuum seal between the two walls with a pressure/inspection gauge that allows the owner to monitor the seal. If the interior wall produces a leak, the vacuum seal will be broken and will be indicated on the gauge. Other styles of double walled tanks allow the operator to visually inspect a chamber connected to an interstitial space.

Double walled tanks can be equipped with an integral pump system providing excellent protection against leaks. The double walls provide some thermal insulation value reducing swings in fuel temperature. Installation is reduced to finding a suitable location, preparing a firm foundation and providing electrical power using wiring suitable for Class I hazardous locations. (Refer to the Electrical Code). The fuel can be secured by shutting off the power to the pumps. The biggest drawback is the purchase price. This must be weighed against the advantages to determine if these tanks meet your needs. They are available in horizontal and vertical models.

## Diking with impermeable barrier or other premanufactured containment systems:

An alternative to double walled tanks would be using a dike with an impermeable barrier or tub as secondary containment. Materials used should be non-combustible and impermeable such as compacted clay, concrete or steel with a liner made of a compatible synthetic material such as plastic. Earth dikes must have a flat top, not less than 600 mm (2 feet) wide and be at least 600 mm (2 feet) high. The side slope should be natural for the material used. The floor of the containment must also be impermeable and sloped to a sump.

Since the containment is designed to hold 110 percent of the tank's capacity, rainwater and other materials must be kept out or evacuated. If water has accumulated and is contaminated from minor leaks and spills, you can use a hydrocarbon absorbent (see Spill Kit section on page 28 in the Appendix) to absorb only the fuel and not the water. Then you can safely dispose of the fuel/absorbent and the clean water.

***Location:***

The proper location of a fuel storage system is very important in order to reduce the risk of fire, collisions, theft, and environmental impacts. Recommended minimum separation distances:

- **1m: other fuel tanks**
- **3m: any building**
- **6m: ignition source, propane, and grass and weeds**
- **6m: propane**
- **6m: grass and weeds**
- **30m: forested area and water body**
- **50m: water well**

***Foundation and supports:***

When preparing a site for fuel tank storage systems, a solid foundation is important to prevent any uneven settling. Concrete, compacted clay or gravel are all good choices as material for the foundation. The foundation area should also be kept clear of weeds or other debris that may pose a fire hazard.

The metal stands typically used on many Alberta farms do not comply with the AFC. According the AFC, all supports (except those less than 0.3 m high at their highest point) must provide a fire resistance rating of no less than 2 hours. The best practice is to mount at ground level or on solid concrete or steel supports no higher that 0.3 m (1ft) off the ground.

***Collision protection:***

The most common major leaks and spills are usually the result of vehicles or equipment colliding with petroleum tanks. For this reason, it is recommended that barriers are placed around the fuel storage site to prevent these accidental spills. The barriers can be in the form of bollards, or posts, either made of steel, concrete or heavy timber. Other effective ways to prevent collision with the tanks could include jersey barriers or large concrete curbs.

***Grounding for prevention of static electricity:***

Static electricity can be a form of ignition. Two common causes of static electricity are the movement of grains though an auger and the movement of vehicles or machinery. Any time there is an imbalance in electrical charges between two objects, a spark can occur when they come in contact or close proximity. If the gasoline nozzle is the contact point between the fuel storage tank and a static-charged vehicle or farm machine, a spark may ignite any fuel vapours present. It is recommended that a bonding line be connected between the storage tank and the vehicle before the dispensing process has begun. A flexible, copper conductor, 12 gauge or larger, is recommended.

***Pumps, venting, valves, etc.:***

Ensure pumps and meters are ULC approved and suitable wiring is used (for Class I hazardous locations, as outlined in the Electrical Code). Venting is an important aspect of proper fuel storage as well to prevent the build of pressure in the tank. The risk of accidental spills and leaks can be greatly reduced by the installation of ULC and CSA approved dispensing units and automatic shut off valves.

The use of anti-siphon valves is also recommended. Installed between the pump and tank, these valves prevent the tank from draining if the line is broken. Lines are commonly broken in the event of a collision with the pump. Another recommendation is to use a valve equipped with a fusible link. In the case of fire, the link melts, closing the valve and shutting off the flow of fuel.

***Emergency plan and equipment:***

An emergency plan consists of the identification and location of hazardous materials, emergency equipment, telephone numbers and necessary clean-up methods. This plan gives the residents of the farmstead guidelines for minimizing potential environmental damage to the site, as well as protecting themselves and the surrounding community. Emergency response teams should also have access to the plan to help them distinguish between response procedures for different situations.

## CORRECTION NOTICE

**In the Winter 2024 edition of our Rural Living and Ag Extension newsletter, the article on the Readymade Community Hall stated that the Readymade School closed in 1961. The school in fact closed in 1983. Thank you to an eagle-eyed resident for noting this error and providing us with some details on the correct date! *We apologize for the error.***

## Heartland Training & Support Hub: Embracing Our New Direction

The Heartland Training & Support Hub, formerly known as the Farm Safety Centre, is excited to announce our rebranding as we broaden our mission to better serve Alberta's rural communities. Since 1991, our organization has been dedicated to promoting farm safety through programs like Safety Smarts. However, recognizing the evolving needs of rural areas, we have expanded our scope to encompass rural health, well-being, and support for newcomers.

### Our Legacy: Farm Safety

For over three decades, the Farm Safety Centre has been a trusted name in Alberta's agricultural community. Our flagship initiative, the Safety Smarts program, launched in 1998, has been instrumental in educating children on farm safety practices. This program has reached over 800,000 rural elementary students, fostering a culture of safety in rural schools across the province.

### Why the Change?

The decision to rebrand to Heartland Training & Support Hub reflects our commitment to a broader mission. Rural communities face multifaceted challenges that go beyond farm safety. Issues such as mental health, physical well-being, and the integration of newcomers are critical areas that require attention. Our new name encapsulates our expanded focus, symbolizing our dedication to providing comprehensive support and education.

### Our Commitment

Our mission is to empower and support rural Canadians and newcomers, providing them with the tools, resources, education, and safety insights they need to thrive. We envision a Canada where every rural individual, whether a long-time resident or a newcomer, has access to comprehensive support and opportunities for well-being and success.

We invite you to join us on this journey. Together, we can build a stronger, safer, and more inclusive rural community.

For more information, visit our new website at www.heartlandsupport.ca

HEARTLAND — TRAINING & SUPPORT HUB
265 East 400 South | Box 291 | Raymond | Alberta | T0K 2S0 | 403 752-4585 | www.heartlandsupport.ca
FORMERLY KNOW AS: FARM SAFETY CENTRE

# General Drip

Drip irrigation is a method of watering plants by delivering water directly to the base of each plant through a network of pipes, valves, and emitters. It's a highly efficient irrigation system that minimizes water waste by delivering water slowly and precisely to the roots of plants, where it's needed most. Drip emitters are placed along a water pipe at intervals to release water directly onto the soil. This method allows for precise control over the amount of water delivered to each plant, reducing water usage and preventing water runoff and evaporation.

For these reasons drip irrigation is widely used in agriculture, landscaping, and home gardening, promoting healthier growth and higher yields.

For more information you can contact Arno Froese at Southern Irrigation or visit our website: Drip Irrigation - Southern Irrigation https://southernirrigation.com/irrigation-systems/drip-irrigation/.

# UPCOMING EVENTS

## Farming Smarter Field School

- Event Date: June 26th & 27th
- Location: 211034 Hwy 512 Lethbridge County, AB, T1J 5N9
- Starting Price
  - $199 – single day
  - $299 – both days
- Time: 8 am – 6 pm
- Event Type: In-person
- Details on QR Code

## Alberta Open Farm Days

- Event Date: August 17th
- Event Type: In-person

## Global Crop Production Conference

- Event Date: December 11th
- Event Type: In-person

## Nutrient Management Webinar Series

- Event Dates: January-February 2025, dates TBD
- Event Type: Online
- Cost: FREE
- Registration coming soon to lethcounty.ca

## Lethbridge County Tree Workshop

- Event Date: April 2025 TBD
- Event Type: In-person

**Have an upcoming ag-related event you'd like to showcase?**

**Please submit to mwells@lethcounty.ca to include in future newsletters.**

# Strategies for Watering Trees During a Drought

**Submitted by**
**Matthew Wells, Rural Extension Specialist**

Did you know that the only native tree species in Lethbridge County is the Plains Cottonwood (*Populus deltoides*) found along the Oldman River[1]? Considering the variety of planted tree spec ies in this area is fascinating. The diverse tree shapes and array of leaf colors that adorn this dry, arid landscape provide breathtaking beauty, resulting from years of effort by landowners. Trees don't grow overnight. What you see is careful planning and considerations for wind protection, choosing suitable locations based on the trees' needs, and a commitment to regular maintenance for a lifetime. It's a significant investment of time and effort. Still, the payoff is a picturesque landscape that provides a windbreak, creates an ecosystem for wildlife and insects, and adds value to your home. For these reasons, it's essential to prioritize the health of your trees, even during a drought.

It's a funny word, considering the amount of moisture we've received in the past couple of weeks, but we should be aware of drought as the year progresses. Last year, many trees either suffered or succumbed to drought conditions leading into the winter months. To avoid this, I've put together information that will help you maintain the health and longevity of your trees for years to come.

## Symptoms of Drought

Drought conditions can cause a variety of symptoms. All are good indicators that your trees are stressed and need water. As I've mentioned before, the start of spring has been good so far, but that can quickly change with heat, wind, and competition for moisture with your grass.

Below is a list of symptoms that can occur with figures for some provided[2]:

- Scorching
- Wilting

*Figure 1: Brandon elm tree wilting*

- Leaves or needle discoloring from light green to yellow or brown

*Figure 2: Patmore ash leaves discoloration*

- Shedding of leaves or needles
- Thinning of the canopy
- Seed/cone production is increasing due to stress

If your trees are experiencing any of these symptoms, you can utilize some of the strategies provided to help with watering and efficiency.

## Methods Utilized by the County

### Hemp Fiber

Deep watering of your trees is crucial for their health and longevity. In recognition of this, we are investigating various watering methods to improve our efficiency and effectiveness, which may be of interest to your property.

If you've traveled to any of the parks managed by the County, you will notice an interesting material surrounding the base of our newly planted trees. It is a wonderous hemp fiber material from HempScape. Based on my observations, it seems to retain more moisture than traditional bark mulch and slowly releases the moisture into the soil. In auguring holes underneath the mulch, I observed the soil is moist several feet down compared to the soil with no hemp mulch or bark mulch. Note that hemp fiber takes longer to degrade than bark mulch. The degradation of mulch leads to microbial activity in the soil, which creates nutrients for the tree. As hemp has the potential to degrade slowly over time, you still need to incorporate microbes to generate microbial activity that helps feed your tree. To incorporate microbes, I purchased a small drill bit auger to drill holes around the tree's drip line and backfill it with compost. I drill the holes along the drip line so I don't damage the tree root system. If unaware, the drip line is the edge of the tree branched out.

*Figure 3: Hemp fiber around the tree*

### Tree Diaper

Another product we've investigated is the TreeDiaper. The black round mat contains water-absorbing pellets that slowly release water back into the soil and plant roots. We've covered it with cedar bark mulch to cover the material and to add material that will add nutrients to the soil, benefitting the trees. I've noticed is the soil beneath the tree diaper is adequately saturated. In moving some of the saturated dirt around, I found worms, which is great as they add nutrients to the soil. It is a more expensive route; however, you can purchase different sizes, and TreeDiapers can be relocated from one tree to the next.

*Figure 4: TreeDiaper*

### Water Stake

The last method we are utilizing is a 1 ¼ "x 24" PVC pipe drilled into the soil on the edge of the drip line. This method incorporates water deeper into the soil to promote tree roots to go deeper. Small holes along the pipe allow water to seep into the soil column at different depths. A larger hole has been drilled at the top to pull the pipe out and relocate as the tree grows. An aluminum screen has been placed on the top of the pipe to prevent material from entering the hole. If you are not interested in constructing your own water stake, you can buy water stakes from various stores.

*Figure 5: Hand-crafted watering stake*

## Additional Information

If you're looking for more information, please feel free to scan the QR codes at the following links. We've put together several videos that you may find helpful, and more are coming out this year, so be sure to subscribe to our YouTube channel. Upcoming videos include the distance and row spacing of a shelterbelt from an arborist and fire chief's point of view, winter tree pruning techniques, and proper tree planting.

- Can include links to our YouTube Videos
  - Plant Health Care: Trees and Shelterbelts (Episode 1: Ornamentals and Shrubs) - https://www.youtube.com/watch?v=pqMFvyOereE
  - Plant Health Care: Trees and Shelterbelts (Episode 2: Coniferous Trees) - https://www.youtube.com/watch?v=3sxgBBcP5I4
  - Plant Health Care: Trees and Shelterbelts (Episode 3: Deciduous Trees) - https://www.youtube.com/watch?v=PuNCiizZN00
  - Trees and Shelterbelts - https://www.youtube.com/watch?v=8p-LzYUA2Vw&t=5s
  - Shelterbelt Workshop 2022 - https://www.youtube.com/watch?v=kr18sv8I168

Trees are Good is an excellent website that provides facts on choosing the right tree, managing tree hazards and risks, plant health care, planting a tree, pruning your trees, a tree owner's manual, and more! Be sure to visit the website.

- Trees Are Good Website
  - https://www.treesaregood.org/

## Conclusion

It's important to remember the significance of watering your trees during a drought. The primary focus should be your trees instead of your grass. Folks tend to focus on a well-manicured lawn instead of their trees. While your grass can recover quickly, the investment in your trees is irreplaceable. By ensuring they receive adequate water, we protect their health and ensure their continued contribution to our farmsteads and homes.

**HempScape is a Southern Alberta hemp fibre landscaping product company. It is an alternative to wood chips that can be installed without landscaping fabric. Some uses include ground cover for shelter belts, gardens, flower beds, and other general landscaping projects, as well as livestock bedding and decorative applications. The benefits of HempScape are:**

- **impeded weed growth, reduced soil erosion, decreased water evaporation, and increased water retention.**

**HempScape is sustainable due to its regenerative production process. Located at 75079 Range Road 20-4 Lethbridge County, across from Ritchie Bros. You can reach them at hempscapecanada@gmail.com and 403-715-0844.**

[1] *"Cottonwood Forests," Multisar, accessed May 18, 2024, https://multisar.ca/wp-content/uploads/2015/10/cottonwoods2.pdf*

[2] *Toso Bozic, "Drought & Trees – Impact, Care and Maintenance," Yard Whispers, https://yardwhispers.ca/drought-trees-impact-care-and-maintenance/, August 4, 2021*