2021

Volume 12, Issue 1

Lakeland Agricultural Research Association

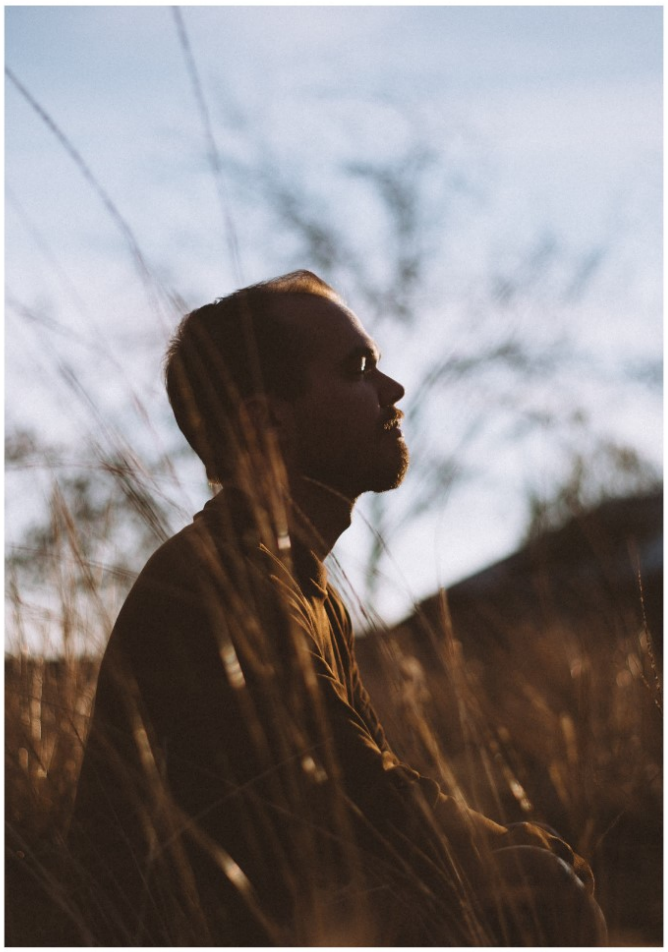
The Verdant Element

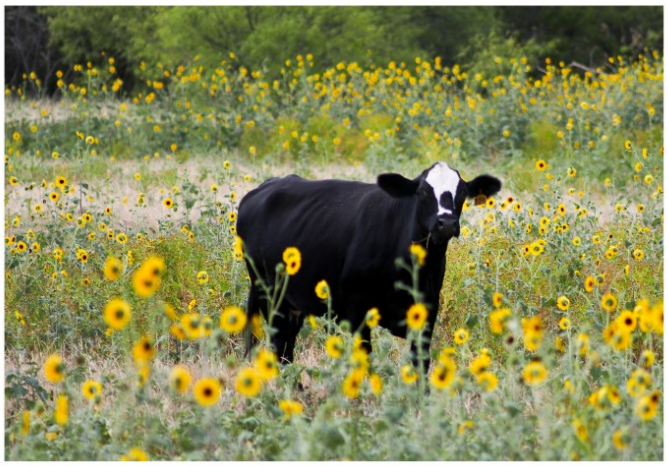
Time for Transformation

Inside this issue:

Low inputs, no inputs, all the inputs or somewhere in between. These past few years have seen more producers transitioning to lower inputs through soil health. This is due to many reasons; high input costs, bad harvests the past few years, fluctuating commodity prices, or increased knowledge on how to put your soil to work for you. Everyone's operation is different and have management strategies that work for them. However, it is usually out of struggle that transformation happens. If you look at Gabe Brown, he changed from conventional farming to low inputs and focusing on soil health due to going broke. He had to transform or lose the farm. If you look at his operation present day, he has built a multi-enterprise, low input operation that is very profitable.

So far in 2021 our extension has focused on creating cover crop blends, intercropping, and improving soil health. The interest and knowledge base is growing faster than the spring flush of weeds. It is something to behold. There may be growing pains, which I have experienced first hand as my pollinator blend cover crop turned out to be a healthy crop of Canada thistle. This is where knowledge comes in to play as Canada thistle is a symptom of low calcium, phosphorous, manganese and copper; high potassium and iron; and soils with a high degree of compaction and very bacterial anaerobic conditions (due to very wet conditions). I will try again this year with an added amendment of calcium to open up my soil and some added species such as tillage radish to tackle compaction and aeration. As well as the hope that my bees will have some glorious species to feed on other than weeds.





LAKELAND AGRICULTURAL RESEARCH ASSOCIATION

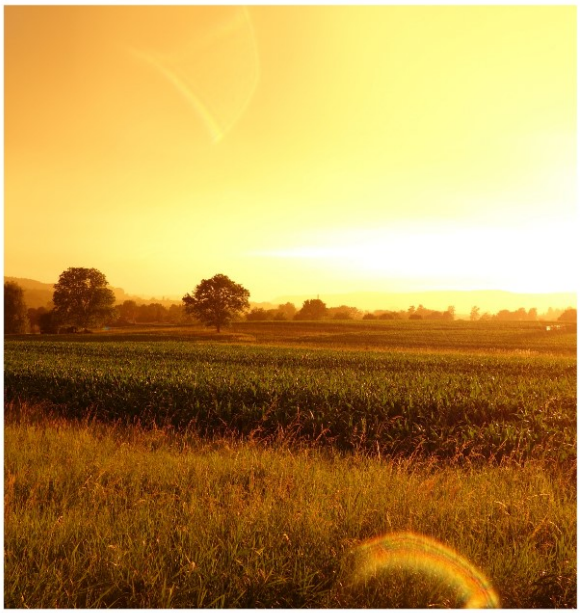
SOIL HEALTH ACADEMY

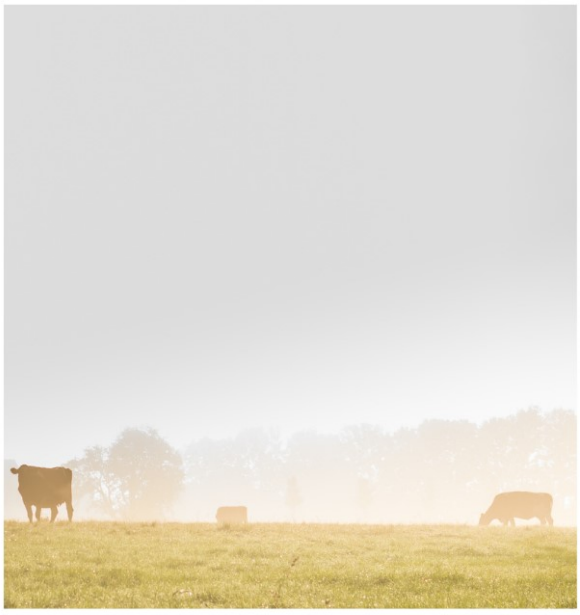
With Gabe Brown, Ray Archuleta,
Shane New and Dr. Allen Williams

JULY 19-21, 2021

In Mallaig Alberta

Through hands-on training from the world's leading experts, Soil Health Academy participants learn how to increase profitability, build resiliency into the land, decrease input costs and improve nutrient density of food and agricultural products. No matter where you farm or what you grow, the Soil Health Academy will teach you how to improve soil health through practical regenerative agricultural principles.





SOIL HEALTH IS WEALTH

WHAT YOU WILL LEARN:

- **Principles of Soil Health & Adaptive Stewardship**
- **Properly Test Soils to Reduce Inputs**
- **Restoring Vibrant Ecosystems Through Adaptive Grazing**
- **Making Grazing Highly Profitable & Desirable**
- **Successful Marketing: Strategies for Enhanced Net Margins**
- **Nutrient Management**
- **Designing Cover Crop Mixes**
- **Farm Economics and Whole Farm Planning; and**
- **So much more...**

Cost to attend is:
$1,600 for two people or $900 for single registrant

Visit www.laraonline.ca
for more information about the event.
For inquiries or to register call (780) 826-7260
or email sustainag.lara@mcsnet.ca

Bio Control Agent - Leafy Spurge Beetle

https://abinvasives.ca/biocontrol-release-program

Leafy Spurge (*Euphorbia esula*) is an herbaceous perennial weed that produces a milky-coloured latex sap toxic to most livestock and an irritant to human skin. The plant reproduces through creeping roots and through seed pods that shatter dispersing seed several meters away. Leafy spurge grows well in many different habitats and can become a dominant species in pastures and rangeland if not managed. In Alberta leafy spurge is classified as a noxious weed and is a common sight along riverbanks where the weed has spread downstream through periodic flooding.

Leafy spurge beetles (*Aphthona spp*.)

Adult leafy spurge beetles (*Aphthona* spp.) feed on spurge leaves and flowers limiting the plant's ability to photosynthesize. Females lay eggs in the soil and their larvae feed on spurge roots stunting stem growth and reducing root function. Five different species of *Aphthona* beetles have been released to control leafy spurge in Canada since the 1980s. Of these five species, the biocontrol release program primarily distributes the black dot leafy spurge beetle (*A. nigriscutis*) and the brown-legged leafy spurge beetle (*A. lacertosa*) as they have been the most effective at establishing at new sites and controlling leafy spurge in Alberta. *Aphthona* beetles used to control leafy spurge are flea beetles and, although similar in appearance to flea beetles that are crop and garden pests, they are different species that only feed on leafy spurge.

Photos below of leafy spurge and the leafy spurge beetle from the Alberta Invasive Plant Council. https://abinvasives.ca/

Rancher Researcher Project

The uptake of new technologies has typically been slow within ranching operations. There are many reasons why this happens including but not limited to, a lack of awareness of specific innovations, lack of knowledge of how and what impacts the practice change may have or perhaps a lack of financial and/or manpower resources to put the tools to use.

The previous pilot project demonstrated that an enhanced understanding of the ranch operation (eg. GOLD indicators, long term goals, available resources, etc.) can improve and how an innovation will have a positive impact. Ranch participants also acknowledged the importance of collecting and utilizing production and financial data when making decisions on management change. While the information gleaned from the pilot was valuable, there was an identification of gaps which can impede consideration of the number of innovations available to the ranching community. This project builds on the experience from the pilot and will improve the successful adoption of various technologies. Two ranches were selected to take part in this program; K-Cow Ranch and Tower Farms Ltd. Each ranch was interviewed and their technology was selected.

K-Cow Ranch is located near Stony Lake, in the County of St. Paul, will be implementing a solar powered watering system that can be utilized year round off of a dugout watering source. In addition to existing expertise they have found within industry, LARA staff have and will continue to provide links to expertise as needed. The conditions of 2020 have made installing it in an earlier time frame very challenging, but it will be in place for the upcoming grazing season.

Tower Farms Ltd. is located near Smoky Lake and have installed a weigh scale on their feed wagon to improve rations. Previously they were using a feed truck to finish off/background their steers for direct marketing. Originally they fed without a scale, and relied on timing an auger, filling the truck and counting how many pails were filled during that timeframe. This gives them a “rough” estimate as to how much grain the cattle are being fed. The amount of the grain augured out during that timeframe can vary based on moisture of the grain, the type of grain, and the weather conditions. All these variables can cause variations in the amount or total lbs. of grain augers out. By putting a scale on their feed truck they can accurately feed out the amount of grain needed for the animals. It also gives them the ability to adjust the cattle feed intake accurately depending on where they are in the finishing cycle, what the weather conditions are and what type of grain is being fed. They are hoping that this advancement in technology will allow them to be more efficient when feeding these animals, as they will have the ability to adjust the feed, and measure accurately. The system was installed December 2020.

Soil samples, feed tests and other data points will be collected during 2021 and will be analyzed and utilized by the producer to measure improvements due to the adopted technology.

Environmental Farm Plans

The environment is becoming a more prominent issue. It is a large factor in marketing agriculture and food products in today's global markets. Consumers are demanding more transparency and are demanding high quality and safe products. Reputation of food safety is critical to retain and gain access to domestic and international markets.

Environmental Farm Plans (EFP) provide a tool for producers to self analyze their operation and identify environmental risks, current standards, areas for improvement and also highlight what they are doing well.

Having a completed EFP allows producers to access different funding opportunities, such as the Growing Forward Stewardship Program. It is also useful in product branding that demonstrates specific environmental standards.

The EFP Process

An EFP can be completed through workshops, online or one-on-one session(s). The EFP first identifies the soil and farm site characteristics. Following this, the producer completes only the relevant chapters that apply to their operation; such as wintering sites, fertilizer, pesticides, crop management etc.

Upon completion the EFP is submitted to a Technical Assistant for review. Once reviewed the EFP will be returned along with a letter of completion.

The EFP is a living document and should be reviewed and updated periodically.

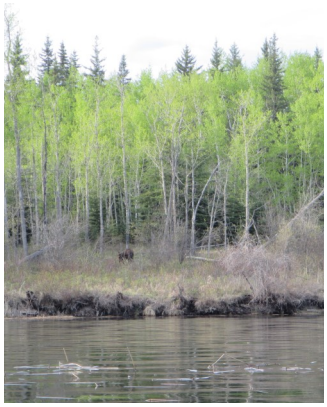
If you wish to complete an EFP or have any questions regarding EFP please contact Kellie at the LARA office at 780-826-7260

Riparian Health Assessment

The riparian zone is the interface between the upland and a water course. A healthy riparian area: traps and stores sediment; builds and maintains banks and shorelines; stores water; recharges aquifers; filters and buffers water; creates primary production and much more!

A riparian health assessment is a tool designed to evaluate the site and can provide a foundation to build an action plan and identify priorities.

If you would like a FREE Riparian Health Assessment conducted on your property or more information please call Kellie at 780-826-7260 or email sustainag.lara@mcsnet.ca



Septic System 101 - Prevention And Maintenance Can Save You The Thousands For A New System

Septic failure is probably more common than you think. Having sewage on the ground where you and your family live can cause a multitude of problems: not only will the odor be offensive, sewage can create severe health problems and could potentially contaminate your soil, groundwater well and surface water. If sewage contaminates your well, your water supply could be infected with pathogenic and non-pathogenic bacteria such as salmonella and *Escherichia coli* (E. coli); viruses such as norovirus or hepatitis; protozoa such as *Giardia* (Beaver Fever); as well as nitrogen and phosphorus. These bacteria and parasites can cause gastrointestinal illness, fever, vomiting and diarrhea, and kidney failure. It can be fatal to the elderly, infants or people with compromised immune systems. Blue Baby Syndrome could occur in infants under six months of age or pregnant women who are exposed to high level of nitrates in the water. The nitrates, when digested, form nitrites and bind to hemoglobin (replace the oxygen molecule) decreasing the supply of oxygen to the body.

When sewage enters water bodies such as lakes, it adds to the amount of phosphorous in the water which drives algal growth and can lead to blue-green algal blooms. Cyanobacteria (blue-green algae) are dangerous in the environment as they produce toxins that can cause skin rashes, gastrointestinal issues, and even death. When the excess algae decompose it can lead to fish kills by removing all dissolved oxygen in the water.

There are many factors that can cause septic system failure; the first is not having sufficient capacity. Having proper capacity increases retention time allowing microbes to work more effectively at breaking down waste. Many houses have their septic systems sized and installed before adding a water treatment system. Conditioning systems can add 145 gallons per day as clear waste water. You should prevent additional flow volumes from water conditioning systems, iron filter backwash, drainage/weeping tiles, storm water, hot tubs and swimming pools from entering your septic system.

Your septic systems' ability to handle sewage can be affected by adding things to your system that don't break down or that add too much organic material. An in-sink disposal can add 50% more organic and inorganic loads to your system. Reduce or limit:

- Vegetable or fruit scraps and coffee grounds
- Avoid flushing facial tissues, sanitizing wipes, flushable wipes, tampons, condoms
- Limit strong disinfectants and soaps (too much bleach and chemicals can cause you to have to pump your sludge more frequently)
- Avoid high efficiency detergents with surfactants
- Cooking oils and grease can plug filters or soil (in field)
- Paints, pesticides, poisonous material and other chemicals
- Pharmaceuticals
- Biodegradable toilet paper (the kind for RVs)

Protecting Your System

Septic tank additives often advertise that they reduce the need for regular pumping of your system but where does your waste then go? Additives may increase biological activity to break down your sewage but may cause more gas to be created and will prevent the settling out of the tank which increases the amount of suspended materials getting to your soil (field system) and plugging it off. Some additives can contain emulsifiers that will cause grease/oil to float out of the tank and get to the soil component, rendering it less useful. Additives can also be detrimental in that they contain fillers which can

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Lakeland Agricultural Research Association

Kellie Nichiporik
Box 7068
Bonnyville Alberta
T9N 2H4

Phone: 780-826-7260
Cell: 780-812-1036
Kellie Nichiporik
E-mail: sustainag.lara@mcsnet.ca

Sustainable farming encompasses a wide range of practices and principles; combining environmental stewardship with profitability and ensuring that the family farm will be there for generations to come.

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WWW.LARAONLINE.CA

Have you checked out the LARA Youtube channel??

If you missed a webinar that we have hosted you can find it there. Current videos include: Cover Crop Design, the Soil Health Webinar Series featuring Gabe Brown, Ray Archuleta and Dr. Allen Williams.

actually add sludge to the tank.

In a field system prevent traffic over the system. Soil compaction will lead to system failure as it prevents infiltration. In the winter snowmobile traffic can push the frost down and cause your system to freeze.

Proper maintenance is essential for your septic system. Having your tank pumped for scum and sludge regularly (such as an annual basis) will prevent system failure. It would be beneficial to install a sludge detector which will provide an alarm as to when to pump your tank. A good sign that you need to pump your tank is when your toilet starts to flush very slowly or your hear a gurgling sound in your sink. When your tank is pumped you should inspect your tank for leaks and cracks as well as damage to your inlet and outlet baffles and make sure your pump and float are free of debris. Effluent filters also need monitoring and maintenance to avoid plugging off. If you have an alarm installed, check it annually to make sure that it is working. Remember that septic systems are ultimately the owners responsibility. If you suspect a septic failure or find sewage on the ground please report it to Alberta Health Services.