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THE VERDANT ELEMENT

Lakeland Agricultural Research Association

Embracing the Season of Reciprocity

As the days grow shorter and the air turns crisp, fall ushers in a season of reflection, gratitude, and preparation. For those of us connected to the land, this time of year holds a special significance—it's when we reap the rewards of our hard work and dedication. Whether we're harvesting fields of grain, or gathering produce from backyard gardens, fall reminds us of the bountiful gifts the land provides. But it's also a season that calls for reciprocity.

At the heart of our relationship with the land is a simple truth: what we receive, we must also give back. This cycle of reciprocity is not only a natural law but a guiding principle for those who steward the land. Just as the soil has fed us, the time has come to enrich and protect it for the seasons to come. This is more than an act of stewardship—it's an acknowledgment of our deep connection to the natural world, a partnership we must honor.

In our agricultural community, this philosophy is reflected in the work we do every day. Through our ongoing efforts to promote sustainable farming practices, support natural habitats, and encourage biodiversity, we recognize the need to care for the land in ways that will benefit both present and future generations. Whether it's restoring native plants, adopting regenerative farming techniques, or creating spaces for pollinators to thrive, we're committed to giving back to the earth that sustains us.

This fall, we invite you to reflect on your own relationship with the land. As you bring in your harvests, big or small, consider the ways you can contribute to a healthy and thriving ecosystem. Can you improve your soil health with compost or cover crops? Plant native species that support local wildlife? Or perhaps join a community initiative to preserve natural habitats?

As we prepare for the winter months ahead, let's not only be grateful for what we've received from the land but also commit to renewing our efforts in giving back. Fall is a time of transition, but it's also a time of renewal—a chance to plant the seeds of tomorrow's harvest, both literally and metaphorically. By working together in harmony with the land, we can ensure that it continues to thrive for generations to come.

Here's to a season of gratitude and reciprocity.

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THE VERDANT ELEMENT



Harvesting Ease

During the harvest season, when things are at their most hectic, the idea of taking time for lengthy relaxation or exercise can seem impractical. However, it's essential to recognize that the more stressful and busy your life is, the more crucial it becomes to prioritize your well-being. This is because maintaining a balanced nervous system helps you manage stress better and stay grounded.

When your nervous system is balanced, you generally feel calmer and more focused, with fewer physical symptoms of stress, such as muscle tension or a racing heart. Conversely, when you're stressed, your body may feel tight and overwhelmed, making it harder to handle daily challenges.

Instead of trying to fit in long sessions of relaxation or physical activity, which may not be realistic during busy times, you can try using one (or all) of these 'Harvesting Ease' practice. These practices are quick and can even be done while sitting in a tractor or working in the garden!

5 Deep Breaths

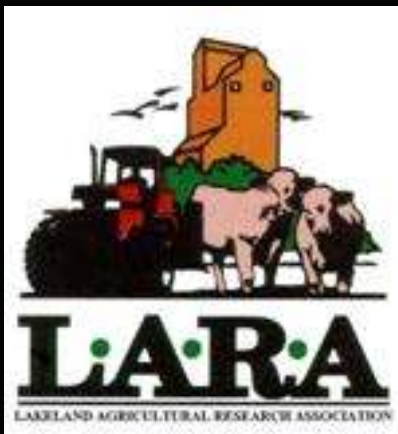
Breathe in slowly through your nose for a count of five, hold briefly, and exhale through your mouth. This helps calm your nervous system and refocus your mind.

Gentle Movements

Perform five gentle stretches or movements, like rolling your shoulders or stretching your arms. These actions help release physical tension.

5-Sec Sensory Check

Spend five seconds focusing on each of your senses—look around, listen to the sounds, notice any smells, feel textures, and taste or sip something if possible.



CULTIVATING CONNECTION

Draw
Stay connected with us!

- Weather Station
- Canning Package
- LARA Swag

How to Enter:

- **Subscribe to Our Email List:** Visit our website and subscribe to our email list to receive one entry into the draw and to stay up to date with what's going on at LARA!
- **Follow Us on Social Media:** Follow us on any of our social media platforms (Instagram, Facebook, X (formerly Twitter), and YouTube) to receive an additional entry.
- **Share and Tag:** Share this contest on your social media and tag us to receive one additional entry per platform you share on. Ensure your profile is public so we can verify your entry.



What is Soil Microbiology?

Soil microbiology is the study of microorganisms in the soil and their functions. There can be billions of microorganisms in a handful of soil, performing critical roles in decomposing organic matter, cycling nutrients, improving soil structure, and suppressing diseases. While most people think of biodiversity in terms of tropical rainforests or coral reefs teeming with life, the greatest biodiversity actually exists beneath our feet. This underground ecosystem is vital for agriculture, as healthy soil microbiomes enhance plant growth by making nutrients more available, promoting root development, and increasing resistance to pests and diseases. Understanding and managing soil microbiology is essential for sustainable agricultural practices, helping to reduce reliance on chemical inputs and improve crop yields and resilience.



Microorganisms & Their Roll

1. **Viruses** - Infect and alter soil organisms
2. **Bacteria & Archaea** - Break down organic matter, fix nitrogen, and recycle nutrients
3. **Fungi** - Decompose complex organic compounds and form symbiotic relationships with plants (mycorrhizae)
4. **Protists** - Single-celled organisms that consume bacteria and other microorganisms, regulating populations
5. **Nematodes** - Microscopic worms that feed on bacteria, fungi, and plant roots, contributing to nutrient cycling
6. **Micro-Arthropods & Micro-Animals** - Small insects and mites that help break down organic material and enhance soil structure.

**WITHOUT
BIOLOGY SOIL
IS JUST
GEOLOGY**

-NICOLE MASTERS

Functions of Soil Microorganisms

- **Nutrient Cycling** - Soil microorganisms decompose organic matter, releasing essential nutrients like nitrogen, phosphorus, and sulfur. This process makes nutrients available to plants, supporting their growth and productivity.
- **Decomposition** - Microorganisms break down dead plant and animal matter, recycling organic materials into simpler forms. This decomposition process is vital for maintaining soil structure and fertility.
- **Nitrogen Fixation** - Certain bacteria and archaea convert atmospheric nitrogen into forms usable by plants. Symbiotic bacteria, such as *Rhizobium*, form nodules on the roots of legumes, providing them with nitrogen in exchange for carbohydrates.
- **Disease Suppression** - Beneficial soil microorganisms can outcompete or inhibit pathogenic microbes, protecting plants from diseases. For example, *Trichoderma* fungi are known for their antagonistic effects on plant pathogens.
- **Soil Structure** - Microorganisms produce extracellular polymers that help bind soil particles together, improving soil structure, aeration, and water retention. This leads to better root growth and plant health.
- **Detoxification** - Some soil microorganisms can degrade or transform harmful pollutants, such as pesticides and heavy metals, reducing their toxicity and environmental impact.



Microorganisms act as the 'organizers' in the soil, facilitating nutrient cycling, enhancing plant health, and maintaining ecosystem balance.



Rethinking Shelterbelts

The concept of Shelterbelts gained traction during the Dust Bowl era when the Prairie Farm Rehabilitation Administration initiated a program to distribute trees for planting across the prairies. The primary aim was to combat soil erosion and improve farming conditions. Early shelterbelts were simple, often consisting of two rows of the same species such as spruce.

Spruce-lined farmyards, a common sight on the prairies, and are receiving a modern makeover. These new shelterbelts, while retaining some traditional elements, are embracing biodiversity, much like the agricultural shift away from monocropping. According to the University of Saskatchewan, the key aspect of traditional shelterbelts that remains valuable is the spacing of plants. However, the new trend emphasizes a diverse mix of species, including fruit trees and nitrogen-fixing trees. This diversity mirrors the shift from monoculture to diversified crops in farming, and the new shelterbelts look different from the neat rows of lilacs and spruce of the past.

These contemporary shelterbelts are designed to mimic forests more than manicured lawns. This approach marks a significant shift in thinking, focusing on the forest's ecological functions and values. By understanding and appreciating these natural processes, farmers and landowners are gradually adopting this new paradigm. The benefits of this shift are manifold. Diverse shelterbelts can enhance biodiversity, improve soil health, and create more resilient ecosystems along with providing



**Shelterbelts
provide wind
protection 10 - 12
times the
distance of the
tallest tree**



**Check out:
gardening.usask.ca**





“Eco-Belts or Eco-Buffers are shelterbelts with diverse tree, shrub and herbaceous plant species planted densely to mimic a natural forest.”
- Drew Patterson

Key Benefits of Eco-belts

Increased Biodiversity: Eco-belts incorporate a variety of native and non-native species, including trees, shrubs, and grasses, fostering greater plant and animal diversity. This supports pollinators, wildlife, and beneficial insects.

Improved Soil Health: With diverse species, eco-belts help improve soil structure and fertility. Nitrogen-fixing plants enhance nutrient availability, while deeper-rooted plants reduce soil compaction and erosion.

Greater Resilience: By mimicking natural ecosystems, eco-belts create more resilient landscapes. The diversity of species increases resistance to pests, diseases, and extreme weather events.

Water Management: Eco-buffers help with water retention and filtration. Deep-rooted plants improve groundwater recharge, and diverse vegetation reduces surface runoff and improves water quality.

Carbon Sequestration: The varied plant structure in eco-belts sequesters more carbon compared to single-species shelterbelts, helping mitigate climate change.

Wind Protection and Microclimate Control: While still providing windbreaks like traditional shelterbelts, eco-belts also create microclimates that can help regulate temperature and humidity in adjacent fields.

Aesthetic and Recreational Value: Eco-belts often resemble natural forest landscapes, offering visual appeal and potential recreational benefits for landowners.





Rejuvenating an Old Shelterbelt

Transforming an old or existing shelterbelt into an eco-belt can be a gradual yet rewarding process. Here are some effective ways to rejuvenate your shelterbelt

1. **Thin Overcrowded Areas:** Remove overcrowded or unhealthy trees to improve air circulation, light availability, and the overall health of the shelterbelt. This also makes space for diverse species to thrive.
2. **Incorporate Diverse Plant Species:** Introduce a variety of native trees, shrubs, and grasses to replace or supplement existing species. Consider adding fruit trees, pollinator-friendly plants, and nitrogen-fixing trees and forbs.
3. **Add Multiple Layers:** Mimic the structure of a natural forest by creating vertical layers. Include ground covers, understory plants, and canopy trees to create a more complex ecosystem.
4. **Encourage Natural Regeneration:** Allow natural regeneration of native species by reducing mowing and disturbance. Encourage volunteer plants, especially those that attract wildlife and insects.
5. **Enhance Soil Health:** Improve soil quality by planting deep-rooted species that loosen compacted soil and promote better water infiltration. Mulching and composting can also boost organic matter and nutrients.
5. **Diversify Functions:** Add species that provide multiple benefits, such as fruit-bearing plants for food production, nectar-rich flowers for pollinators, or fast-growing trees for timber and firewood.
6. **Create Wildlife Habitat:** Incorporate nesting boxes, deadwood, and plants that offer food and shelter to birds, insects, and small mammals, further supporting biodiversity.
7. **Water Management:** Introduce plants that tolerate wetter conditions near drainage areas to better manage water runoff and improve groundwater recharge. .

By gradually integrating these strategies, your shelterbelt will evolve into an eco-belt that not only provides wind protection but also enhances biodiversity, soil health, and ecosystem resilience

Nitrogen Fixing Shrub Species

- **Siberian Peashrub** (*Caragana arborescens*)
 - a classic shelterbelt species, Caragana are drought tolerant and have good windbreak capabilities
- **Sea Buckthorn** (*Hippophae rhamnoides*)
 - high edible berry yield, can thrive in poor soils
- **Green Alder** (*Alnus viridis*)
 - fast growing, excellent for stabilizing slopes and wet areas
- **Silver Buffaloberry** (*Shepherdia argentea*)
 - thrives in dry conditions, and provides bright red berries that are beneficial for wildlife.



WESTERN CANADA CONFERENCE ON SOIL HEALTH & GRAZING

A Path to Resilience: Healthy Soil, Plants, Economics & People

DECEMBER 10-12, 2024

Double Tree by Hilton
16615 – 109 Ave NW Edmonton

Register at:

www.absoilgrazing.com



Upcoming Events



17 OCT 2024

GROW YOUR OWN MICROGREENS WORKSHOP

In our hands-on workshop, with grower Kristy Tetreau from Happy Hollow Microgreens, you'll learn everything from seed selection to harvesting, with simple techniques that work in any space. Whether you're a gardening novice or an experienced grower, this workshop will help you cultivate vibrant greens in just days all year long!



TOPICS WILL INCLUDE:

- Seed selection
- Step-by-step planting & care
- Harvesting & using microgreens
- Troubleshooting common growing challenges



OCTOBER 17, 2024

Ardmore Hall
6:00-8:00
Supper included

\$15

REGISTER TODAY: 780-826-7260 www.laraonline.ca/events

LARA **mummi's**

LAKELAND AGRICULTURAL RESEARCH ASSOCIATION PRESENTS

CowBytes

RATION BALANCING WORKSHOPS

OCTOBER 29, 2024
SMOKY LAKE UKRAINIAN NATIONAL HALL

NOVEMBER 14, 2024
FORT KENT COMMUNITY HALL

What is Cowbytes?
Cowbytes ration-balancing software allows Canadian beef cattle producers to formulate their own feed rations. Producers can input various combinations of feed and byproducts at different prices to reduce feed costs while meeting animal production targets.

Bring your laptop and join us for a day of hands-on training using Cowbytes. We will be going through step-by-step instructions for the computer based cattle ration tool.

Bring your feed and water test results to build a ration based on your own herd, feed and water!

If you do not have Cowbytes installed on your computer, please arrive at 9:00 am for assistance. Computers must have a Windows operating system to run Cowbytes. If you do not have a laptop, please let us know so we can try and provide one for the day.

LUNCH PROVIDED

Event Agenda
9:00 am - Doors open, coffee and registration
9:45 am - Workshop begins
12:00 pm - Lunch and networking
12:45 pm - Workshop resumes
5:30 pm - Wrap-up and head home

Registration is required. Free for LARA members or \$10.00 for non-members*
First 8 registrations per workshop will receive a free copy of the Cowbytes program on a USB drive! Please note that registrants must attend to receive their free copy. Cowbytes has a \$60.00 value, comes on a USB drive and can be downloaded and utilized on multiple computers.

*Members include all producers in the RM of Smoky Lake, County of the Peace and Haskay Lake County.

www.laraonline.ca/events
780-826-7260 director@laraonline.ca

BCRC

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& Campaigns

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Watershed Resiliency and Restoration Program



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'Green Shores, Clean Waters'

Those who sign up for the campaign will receive:

1. Resources to learn what a riparian area is, its role in watershed health and areas of high-conservation and high-restoration priority.
2. Information on invasive species.
3. A desirable wood plant presence checklist.
4. Resources to learn how to complete a riparian area health assessment.
5. A bundle of 10 FREE native shrubs to kick-start riparian restoration on YOUR property!
6. A small lawn sign stating your commitment to riparian health.

Contact LICA today to sign up!
Phone: 780-812-2182
Email: Watershed@lica.ca





Growth Mindset :

The power of continuous learning in Agriculture

In a world where change is the only constant, fostering a growth mindset is essential for thriving in the ever-evolving field of agriculture. Embracing this mindset means staying open to new ideas, continuously learning, and seeking common ground for the greater good. This approach not only helps us adapt but also drives revolutionary change within our industry.

To support your journey of continuous learning, we're excited to share some of our favorite podcasts that are perfect for listening while you're in the tractor or tackling other farm chores. These podcasts offer valuable insights, innovative practices, and inspiring stories from the agricultural community.

We also want to hear from you! Share your favorite podcasts and what you've been tuning into lately with us on social media . Let's spark a conversation and learn from each other's experiences. Together, we can keep growing and advancing in our agricultural pursuits.



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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.