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THE VERDANT ELEMENT

Lakeland Agricultural Research Association

Hope to Hustle

With the long days of June upon us and the summer solstice fast approaching, we're reminded how quickly the season shifts from hope to hustle. In this issue of The Verdant Element, we highlight some timely tools and insights to help you navigate the busy months ahead—whether it's understanding Delta T for better spray decisions, learning about local innovators in Agriculture, or digging into what makes native bees worth protecting.

A Note on Smoke & the Air Quality Health Index (AQHI)

Health Risk	AQHI Index	Health Messages	
		At Risk Population ¹	General Population
Low	1 - 3	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.
Moderate	4 - 6	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High	7 - 10	Reduce or reschedule strenuous activities outdoors. Children and the elderly should also take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High	Above 10	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.

¹ People with heart or breathing problems are at greater risk. Follow your doctor's usual advice about exercising and managing your condition.

As much as we welcome the long daylight hours of summer, they now come with a familiar haze. Wildfire smoke is becoming a seasonal norm across the Lakeland, and it's more than just an inconvenience—it impacts our health, our crops, and our peace of mind. Whether you're out spraying, checking fence lines, or just trying to keep animals and family comfortable, keep an eye on the Air Quality Health Index (AQHI) and plan accordingly. Local monitoring through LICA provides real-time updates to help you make safe, informed decisions on smoky days.

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For up to date and forecasted Air Quality Health Index check out <http://lica.ca/airshead/air-quality-health-index-aqhi/>



THE VERDANT ELEMENT



LARA Weather Stations

Hyper-Local Weather Data

In 2025, LARA took a major step forward in the accuracy and relevance of its trial data by installing new weather stations at each of our plot locations. While we've long relied on Environment and Climate Change Canada for regional weather information—a valuable and dependable resource—we all know that in Alberta, the weather can swing dramatically even across short distances. By adding localized weather monitoring, we're bridging that gap.

These new stations are providing us with detailed, plot-specific weather data—something we've never had direct access to before. They measure rainfall accumulation, heat waves, monthly temperature trends, and growing degree days, giving us a clearer picture of how each site is experiencing the season. This is especially important for interpreting industry trial results, where even a few extra millimetres of rain or a heat spike can influence crop response and performance.

Spraying conditions are another area where these stations shine. They track wind speed and direction, temperature, humidity, and dew point, offering a critical metric called the Delta T value. A balanced Delta T—typically between 2 and 8—is key for minimizing spray drift and maximizing product efficacy. As spray expert Tom Wolf often notes, if conditions are too hot, spray droplets evaporate too quickly. If it's too cold, droplets may precipitate before they reach their target. These new weather stations let us better navigate those windows of opportunity.

Not only are we using this data for internal reporting and analysis, but we'll also be sharing relevant snapshots on our social media platforms during unusual or noteworthy weather events. It's one more way we're helping producers stay connected to real-time conditions and better understand the context of the data we generate from our trial work.

Whether it's validating trial outcomes or choosing the right time to apply a product, better weather data means better decisions. We're excited to keep bringing that value back to our community.





**Ideal Delta T for spraying:
Between 2°C and 8°C. This balance reduces the risks of both drift and evaporation.**



Why Delta T Value Matters

Delta T (ΔT) is a weather-related value that measures the difference between the air temperature and the dew point temperature at a given time. It's usually expressed in degrees Celsius ($^{\circ}\text{C}$).

1. Spray Application & Drift Risk

Delta T is especially important for farmers and gardeners applying pesticides, herbicides, or fertilizers. It helps determine whether it's safe and effective to spray.

- Low Delta T (less than 2°C) $\rightarrow$ Air is very moist and stable $\rightarrow$ High risk of droplets lingering in the air and drifting off-target.
- High Delta T (greater than $10\text{--}12^{\circ}\text{C}$) $\rightarrow$ Air is dry and unstable $\rightarrow$ High risk of evaporation before droplets reach the target.

2. Disease Risk Monitoring

- A low Delta T often means humid conditions, which promote fungal growth and plant diseases (e.g., powdery mildew, rusts, blights).
- Watching Delta T helps farmers decide when to scout or treat crops for disease.

3. Spring Volatility

Spring often brings rapid temperature swings and variable humidity, so Delta T can change quickly. Monitoring it helps with:

- Timing fieldwork
- Protecting early crops
- Choosing the right time to apply inputs

Example

Time of Day	Air Temp ($^{\circ}\text{C}$)	Dew Point ($^{\circ}\text{C}$)	Delta T ($^{\circ}\text{C}$)	Spraying Suitability
6:00 AM	10	9	1	✗
11:00 AM	18	10	8	✓
3:00 PM	24	9	15	✗

Local Innovators: ZS Farms

Nestled near the community of Daysland, Alberta, ZS Farms is a fourth-generation, family-run operation. After decades of conventional farming, Brian—who now operates the farm alongside his wife and two children—began to question what was really happening beneath the soil. Troubled by declining plant and soil health, he set out in search of answers. His journey led to a powerful realization: the health of the soil’s microbiome is directly connected to the vitality of plants, animals, and ultimately, people.

Today, ZS Farms is rooted in sustainability, transparency, and regenerative practices. Guided by the philosophy of “food, feed, and fungus” the farm has grown into a vibrant hub for ethically raised pork, biologically rich compost, and nutrient-dense whole grains.



What’s in your bucket?

ZS Farms’ journey into whole grain feed began in 2014 with the introduction of FLAX 4 ALL, a premium brown flax supplement for equine diets. Today, their offerings have expanded to include milled green peas, whole oats, and the Signature Barnyard Blend. What sets their products apart is the meticulous in-house process—cultivation, cleaning, processing, and packaging—all conducted on-site. This approach ensures a zero-tolerance policy for contaminants like minerals, concentrates, or untraceable byproducts, resulting in non-GMO, residue-free feed that’s safe for both animals and humans.



A Closed-Loop Pork Production System

Understanding that soil health is foundational to overall ecosystem vitality, ZS Farms integrates pig farming into their composting strategy. Pigs are raised outdoors with unrestricted access to fresh air and sunlight, consuming only the farm’s own feed and forage. This method not only promotes animal welfare but also enhances the composting process, enriching the soil microbiome and closing the nutrient loop.



Check out ZS Farms at www.zsfarms.com and on social media.

Save the Bees? Let's Talk About the Whole Picture

We hear a lot these days about “saving the bees”—and for good reason. Pollinators are essential to our food systems and ecosystems. But when most people talk about bees, they're usually thinking of one kind: the European honeybee (*Apis mellifera*). These bees are the ones we see in wooden boxes, producing honey and working in large colonies of up to 50,000 individuals. They're incredibly important for agriculture, especially when it comes to pollinating crops like canola, berries, and orchard fruit.

But here's something many people don't realize: honeybees are not native to Alberta. They were brought here from Europe and are managed just like any other form of livestock. That's not a bad thing—in fact, they play a vital role in food production. But honeybees are just one species among hundreds.

Right here in Alberta, we have around 370 species of native bees, most of which are solitary and live in the ground or in hollow stems. These bees are wild, not managed by humans, and they've been here long before honeybees arrived. They pollinate native plants and wildflowers, and some of them are even better suited to pollinate certain crops due to their body size, foraging habits, or the time of year they're active. For example, bumblebees are excellent at “buzz pollination,” a method essential for crops like tomatoes.

Honeybees and Native Bees: Different Jobs, Same Team

Both honeybees and native bees are important, but they serve different roles. Think of honeybees as the generalists—they are managed by people, can work large fields of a single species and fly farther distances. Native bees, on the other hand, are the specialists. Many of them have co-evolved with native flowers and plants, and they help keep our natural systems functioning.

When we talk about biodiversity and the health of ecosystems, we need to recognize that it's our native bees that support the bigger picture. They're key to healthy pastures, forests, and even the windrows and shelterbelts that support wildlife on the farm.

What you can do on the Farm or in the Yard

- Plant diverse flowering species: Native wildflowers support native bees throughout the season. Even a small corner of a field or garden can make a difference.
- Leave some bare ground or natural areas: Many native bees nest underground or in dead plant stems.
- Limit pesticide use: Especially during bloom times. Always follow integrated pest management best practices.
- Support habitat conservation: Natural areas around your farm are valuable for more than just aesthetics—they're working pollinator habitat.



**Check out Alberta
Native Bee Council for
more great
information and
resources.
www.albertanativebee.org**



**At the end of the day,
both honeybees and
native bees are
valuable—just in
different ways. The
more we understand
and support their
unique roles, the
stronger and more
resilient our
agricultural systems
will be.**



Riparian Area FIELD DAY

Smoky Lake County

Join us for a day in the field exploring the lifeblood of our landscapes - riparian areas. This hands-on event will take you to local examples of healthy and degraded riparian zones, offer real world insights into the management practices that make a difference.

- bag lunch provided
- please bring appropriate footwear and weather gear

Register Now
www.laraonline.ca

July 9
9:00 am - 4:00 pm



Sign up today for...

LICA's Riparian Health Campaign!

Launch Date: June 16, 2025

'Green Shore, Clean Water'

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: Outreach@lica.ca



Get registered for these upcoming events on our website. While you are there, don't forget to sign up for our email list.



www.laraonline.ca

Lakeland Agricultural Research Association

Ag in the Field Tour & Tradeshow

Innovation. Research. Education.

July 24, 2025
Smoky Lake Agriplex
1:30 pm - 9:00 pm

What to
Expect



Door Prizes
& Draws!



PLOT TOUR

Tour the research plots and
hear from experts in the field
on insect pests, polycultures
and lupins!
Bus leaves the hall at 3:00 pm

TRADESHOW

View the newest in agriculture
technology at the tradeshow
Open 1:30 pm - 8:30 pm

PRODUCER PANEL

Hear from local producers
implementing regenerative
agriculture practices on their
farm. Bring your questions!
Panel starts at 6:30 pm

FREE SUPPER PROVIDED

5:00 PM - 6:30 PM

Come for the day or join us for part
of the day!

CALL 780-826-7260
WITH QUESTIONS OR
TO LET US KNOW YOU
ARE COMING

Mark
YOUR
Calendars



**31
July**

**LARA RESEARCH FARM
FORT KENT
5:00PM-08:00PM**

Dr. Christina Eynck
Camelina and Carinata
Breeder

Dr. Michael Harding
Alberta Agriculture and Irrigation
Pathologist

Keith Gabert
Canola Council of Canada Agronomy
Specialist

**7
August**

**MALLAIG LEGION HALL
10:00AM-3:00PM**

Robyne Davidson
Lakeland College Research Scientist

Trent Whiting
Secan Parent Seed Manager

Biologicals
Ecotea Representative



780-826-7260



**www.laraonline.com/
upcoming-events**



780-826-7260

**Box 7068
Bonnyville, AB
T9N 2H4**

<http://laraonline.ca>



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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.**