



OVER THE FENCELINE

Summer 2025



Source: Kabir Makan



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Source : Kabir Makan

Vision

**Improving sustainability through
innovation in agriculture**

Mission

**To perform high-quality producer-
driven research & knowledge transfer
for the advancement of all agriculture
stakeholders**

ACKNOWLEDGEMENT

**Battle River Research Group
gratefully acknowledges the base
funding provided by Results Driven
Agriculture Research (RDAR). This
foundational support enables BRRG to
carry out applied research,
knowledge transfer, and producer-
focused innovation across East
Central Alberta. RDAR's investment is
critical to advancing sustainable,
science-based agriculture in our
region.**

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MANAGER'S NOTE



Ahsan Rajper, PhD
Crop Specialist

As we cross into the heart of the 2025 growing season, I am pleased to share a few reflections on the past year and some thoughts as we look ahead. Since stepping into the role of Manager this January, I have had the privilege of working alongside an incredibly dedicated and knowledgeable team. I want to thank the board and staff for their continued trust and support as we carry on the Battle River Research Group's mission to provide practical, science based solutions for local producers.

Despite the weather related challenges of 2024, our team successfully seeded and managed over 20 trials across a diverse range of crops. Our research remains focused on the needs of producers, with work ranging from grain and forage variety trials to studies on lupins, deep rooted cover crops, and kochia control in peas. These trials are more than just numbers. They offer local knowledge that we are proud to share with the communities we support.

Our partnerships continue to be the backbone of this work. We have collaborated closely with groups such as Chinook Applied Research Association, Alberta Pulse Growers, Lakeland Agricultural Research Association, Gateway Research Organization, North Peace Applied Research Association, academic institutions including the University of Alberta and multiple industry partners. These collaborations allow us to address important topics such as soil health, crop performance, and feed efficiency.

Extension remains a core part of what we do. Over the past year, we delivered more than two dozen events, including field days, webinars, and hands on training sessions, covering topics from pest and disease management to soil constraints and drone seeding. This year, 2025, we have already held 18 extension events, with more planned in the coming months as we continue to support local producers through practical learning and knowledge sharing.

Looking ahead, the Battle River Research Group will continue building capacity around key priorities such as climate resilience, crop diversification, and soil health. We are exploring new use cases for humalite, preparing to launch the next phase of our kochia research focused on residual herbicide strategies, and testing the effects of plant growth regulators (PGRs) on barley yield performance. We are also conducting two on-farm research trials on more than 130 acres, examining tillage management in corn and corn-soybean intercropping systems.

On behalf of the staff and board, I would also like to extend our heartfelt thanks to Don Kroetch for his leadership and commitment as President of the Battle River Research Group over the past year. His support during the management transition was deeply appreciated. We now warmly welcome our new President, Stan Schulmeister, and look forward to working together in guiding the organization through its next chapter.

I would also like to thank Khalil Ahmed for his years of service as Manager. To our current staff, Kabir Makan, Alex Olson, and our 2025 summer students, thank you for your continued hard work and dedication to meaningful agricultural research.

To all of our producers, partners, and funders, especially RDAR, thank you for your ongoing support. We look forward to a productive second half of the season and to continuing our shared work in building a more informed, resilient, and sustainable agricultural landscape in east central Alberta.

MEET OUR 2025 SUMMER TECHNICIANS

We are thrilled to announce that the Battle River Research Group (BRRG) has once again hired summer students to work with us. Every year, we provide valuable opportunities for students to gain hands-on experience in agricultural research. This year, we are excited to welcome three new Summer Technicians to our team! This year, we have hired three talented and enthusiastic Summer Technicians who will be assisting us with our research projects. Their contributions will be vital in helping us achieve our goals and support the local farming community.

What Our Summer Technicians Do:

- Assist with fieldwork, including planting, monitoring, and harvesting crops.
- Collect and analyze soil and plant samples.
- Help maintain research plots and equipment.
- Participate in data collection and entry for various research projects.
- Work closely with experienced researchers and gain valuable insights into agricultural research methods.

TingTing Zhang

Tingting recently completed the Land and Water Resources program at Olds College. She is currently working as a summer technician with the Battle River Research Group, where she is gaining hands-on experience in crop and forage management. Tingting is passionate about applying her knowledge in soil science and data analysis to make meaningful contributions to the agricultural industry.

Eve Fetaz

Eve Fetaz lives on an acreage northeast of Castor and is entering her third year of Environmental Sciences at the Augustana Campus in Camrose. She enjoys working outdoors and hopes to pursue a career in the Paintearth area after graduation.

Kaeden Hartman

Kaeden is a Computer Science student entering his fourth year at the University of Alberta's Augustana Campus in Camrose. Originally from Edmonton, he values the sense of community in rural areas and enjoys staying active outdoors. After graduation, Kaeden looks forward to applying the skills he's gained through his studies and his time with BRRG as he begins his career.



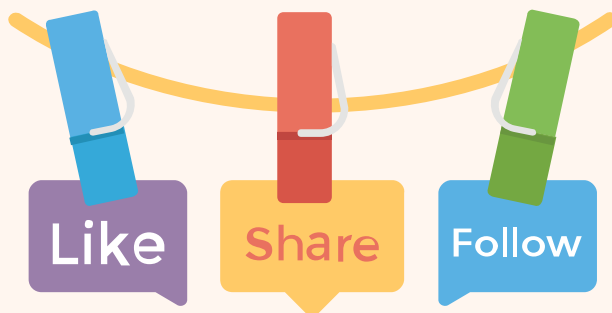
Source: Kabir Makan - Left to Right - Dr. Ahsan Rajper (Manager), Kabir Makan (Extension Coordinator), Alex Olson (Field Coordinator) , Summer Students - Kaeden Hartman , Eve Fetaz , TingTing Zhang

Catch Up on Missed & Upcoming Webinars, Seminars

If you missed any of these enriching events, you can catch up on our website [\[here\]](#) or on our [YouTube channel](#).

Stay connected with Battle River Research Group on Twitter: Battle River Research Group [@BRRG_Ag](#) for updates and information about upcoming events.

With a year filled with growth, learning, and community spirit, Alberta's farming community is thriving, and the Battle River Research Group is at the forefront of this growth, continuously enriching the lives of farmers and promoting sustainable agriculture. Here's to a year of growth, learning, and continued success!





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BRRG FIELD DAY 2025

JULY 23 10 AM SW 16 - 41 - 14 W4

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Zoom Webinar Insect & Disease Scouting



Amanda Jorgensen



Keith Gabert

Amanda Jorgensen is the Insect Management Specialist with Alberta Agriculture and Irrigation. She co-leads the Alberta Insect Monitoring Network and previously spent over 10 years researching insect pest management with Agriculture and Agri-Food Canada. Amanda holds a M.Sc. from the University of Alberta focused on wheat midge forecasting.

Keith Gabert is an Agronomy Specialist with the Canola Council, helping farmers grow better canola. Based in Red Deer County, he has over a decade of experience as the Council's insect lead and holds a BSc in Plant Science from the University of Alberta. Keith is passionate about crops, weeds, insects, and the practices that help manage them.

Topics to be discussed include:

- Late-season canola scouting strategies
- Identification of the "Big 4" diseases: Sclerotinia, Blackleg, Clubroot, and Verticillium Stripe
- Current crop and plant conditions to watch for
- Insect pests and drought: how dry conditions impact insect populations, crop risk, and damage
- How disease and insect scouting complement each other



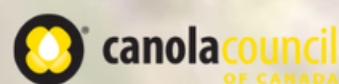
AUGUST 7 11 AM MDT

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ADVANCING REPRODUCTIVE EFFICIENCY & STRESS MANAGEMENT IN BEEF HEIFERS: A WESTERN CANADIAN PERSPECTIVE

Dr. Désirée Gellatly, Ph.D. (Olds College of Agriculture & Technology)

The primary goal of a cow-calf operation is to produce one calf per cow per year. However, the journey to achieving this reproductive success is fraught with challenges influenced by a variety of factors, including genetics, nutritional status, and stress, each playing a crucial role in the performance of heifers. Scientific literature highlights that heifers' reactivity at handling (a proxy for temperament) tend to diminish their feed intake, adversely affecting their nutritional status. Additionally, excitable animals often have higher circulating concentrations of cortisol (a stress hormone). As the cortisol levels rise, so does the concern for the fertility of beef females.



Lance Neilson showcases the process of pail feeding heifers in the pasture.

A comprehensive two-year study was conducted by the Olds College Technology Access Centre for Livestock Production (TACLP) at Neilson Beef in Stettler, Alta, investigating reproductive efficiency and alleviating stress in beef heifers.

The Neilsons provide custom feeding services to beef producers and are currently in their fourth year of providing a specialized heifer development service for the beef industry. Thus, the main goal of the research was to assess the effects of a cost-effective strategy, referred to as acclimation, which involves a combination of repeated non-aversive handling and positive feed reinforcement before breeding, on heifers' stress and pregnancy rates.

Study Design

The central focus of this project was addressing the challenge posed by observed excitable reactivity in cattle during routine handling, a factor that often results in injuries to both handlers and animals. In the first year, 200 Angus crossbred heifers, aged 13-14 months were enrolled. Prior to the breeding season, all heifers were ranked by body condition score and were subsequently divided into four equivalent groups. These groups were housed in distinct feedlot pens (50 heifers per pen per treatment) for approximately four weeks, with two groups assigned to each treatment — acclimation or control. The acclimation process combined feed reinforcement and non-aversive successive handling techniques, aiming to reduce stress levels towards handlers and handling facilities. Briefly, prior to breeding and for five alternate days, a familiar handler entered the acclimated treatment pens.

The handler adopted a soft-spoken approach while pail-feeding the heifers with a small amount of mixed barley (approximately 100 grams per heifer). This method aimed to create, under animals' perspective, a positive association of humans. Subsequently, these heifers were guided through the chute on three separate days (adopting low-stress handling techniques and without restraint), receiving identical feed rewards immediately after handling. Conversely, heifers in the control groups were solely fed by a feed truck without any human interaction and were not exposed to handling acclimation procedures before breeding.

During the second year, a new group of 122 Angus crossbred heifers, aged 13-14 months, underwent an identical evaluation to the one conducted in the 2020 study, ensuring consistency in experimental procedures.



Dr. Gellatly collects saliva samples from heifers using cotton swabs to further salivary cortisol concentration assessment.

Assessment Metrics

During both trial years, a veterinarian performed rectal palpation on all heifers before hormone treatment. Cycling heifers with a corpus luteum were given intramuscular injections of PGF2 α (Estrumate®; Merck Animal Health) for estrus synchronization purposes



The reactivity assessment is conducted by Dr. Gellatly using the chute score method with Lance Neilson operating the squeeze chute.

During both trial years, a veterinarian performed rectal palpation on all heifers before hormone treatment. Cycling heifers with a corpus luteum were given intramuscular injections of PGF2 α (Estrumate®; Merck Animal Health) for estrus synchronization purposes

In both years, heifers were randomly selected to be either exclusively exposed to bulls (Black Angus & Gelbvieh sires; approximately 1:25 bull-to-cow ratio) or subjected to artificial insemination (AI) before bull exposure (~100 heifers per breeding method). Cattle reactivity to handling was assessed using two different methods, chute score and flight speed, providing insights into excitability while enclosed in the squeeze chute and the exit speed from a hydraulic squeeze chute, respectively. In the initial year, saliva samples were collected to measure salivary cortisol concentration as an indicator of acute stress. Following the breeding season, pregnancy rates were determined using ultrasonography. Behavioral assessments and salivary samples were obtained before breeding (baseline measurement), during estrus synchronization, and on pregnancy check day.

Key Findings

The outcomes on pregnancy rate for both treatment groups were independent of the breeding methods (natural or AI). Acclimated heifers exhibited a numerical rise of 2.23% in pregnancy rates compared to the control group in the initial year. In the second year, utilizing the new set of animals, this increase significantly escalated to 10.84%. Additionally, in the second year, the adoption of handling acclimation procedures elevated the likelihood of heifers becoming pregnant by 7.5 times.

During the baseline assessment (prior to acclimation) in the first year, heifers from both treatment groups exhibited similar salivary cortisol concentrations. However, post-acclimation (on synchronization and pregnancy check days), heifers that underwent acclimation showed significantly lower cortisol concentrations.

This suggested a notable reduction in stress levels at handling compared to the control group.

In the second year, handling acclimation successfully decreased reactivity in home-raised heifers at Neilson Cattle Development compared to externally sourced heifers, as evidenced by significantly lower flight speed.

Industry Benefits

After analyzing outcomes of the two year study, the Neilsons have opted to permanently integrate handling acclimation protocols for all heifers and cows raised at their operation, as well as for their customers' heifers. In the latest breeding season, Neilsons observed no instances of open heifers subjected to either natural breeding or AI after receiving handling acclimation procedures. Additionally, Neilson's customers, whose heifers experienced handling acclimation at Neilson's operation within the last three years, also observed an 100% of pregnancy rate. In terms of time commitment, there is a requirement to handle cattle up to 2 weeks prior to breeding or other processing procedures. However, the Neilsons indicated that a group of up to 100 heifers being handled only by him and his wife, Karyn Neilson, incurred 15 minutes of time per session to perform the acclimation procedures. Further, they emphasized that the minimal time invested into acclimating their animals is well worth the results.



“Frequently, beef producers express concerns that handling animals more often will increase stress levels. Nonetheless, our research indicates that consistently and gently managing cattle can actually reduce stress and anxiety during routine procedures”, explains Dr. Gellatly. The owner and operator, Lance Neilson, emphasizes that the improved fertility rate is evident, but he particularly highlights his own observation of the reduced hesitation of acclimated heifers when entering the calving barn. He noticed a more efficient calving process from an operational perspective.

References

Dr. Désirée Gellatly

Olds College of Agriculture & Technology

<https://www.oldscollege.ca/smart-farm-research/articles/livestock/advancing-reproductive-efficiency-stress-management-in-beef-heifers-a-western-canadian-perspective.html>

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SCAN ME

Zoom Webinar Role of Spray Adjuvants & Postemergence Herbicides



Dr. Tommy Butts

Dr. Tommy Butts is a Extension Weed Scientist at Purdue University, specializing in site-specific and precision weed management. His work focuses on improving herbicide application effectiveness and safety. Originally from Wisconsin, Tommy brings practical farm experience and a strong academic background in agronomy and weed science.

This webinar will explore the use of adjuvants to optimize our herbicide applications. It will dive into helpful tips, as well as things to watch out for, to effectively use these tools in our application toolbox. Specific topics to be covered by this webinar are:

- Types of adjuvants,
- Spray water quality,
- Spray retention on leaf surfaces,
- Mixture compatibility concerns,
- Nozzle and adjuvant interactions,
- Proper mixing techniques,
- Q & A to address specific concerns.



AUGUST 8

10 AM MDT

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FEEDING THE SOIL: HOW PROBIOTICS AND COVER CROPS ARE REVIVING SOIL HEALTH

Dr. Ahsan Rajper Ph.D (Manager & Crop Specialist at Battle River Research Group)

Introduction

Healthy soil is the foundation of healthy food and a sustainable environment. However, years of chemical fertilizers and tillage have taken a toll on soil ecosystems. What if we could heal the soil using some of the same ideas we use to support human health, such as probiotics?

This study explored how adding soil probiotics, in combination with cover crops such as hairy vetch, can enhance soil quality in natural, sustainable ways. Conducted both in the field and in greenhouse settings, the research offers exciting insights into the power of microbial life beneath the surface.

Design and Methodology

The study was carried out at a Soil Health Demonstration Farm in Missouri and in a controlled greenhouse environment. Different doses of a liquid probiotic blend were applied to soil where cover crops were growing. Hairy vetch, known for its ability to enrich the soil with nitrogen, was the primary crop used.

Researchers tested:

- Different probiotic application levels (ranging from none to high doses),
- Soil samples collected at various times throughout the season,
- Biological indicators such as microbial biomass and enzyme activity,
- Root development and microbial colonization using electron microscopy.



Source : Ahsan Rajper

Key Findings

The results showed clear benefits when probiotics were applied at moderate levels:

- **Microbial Boost:** There was a significant increase in beneficial soil microbes, especially fungi and rhizobia, which help plants access nutrients.
- **Enzyme Activity:** Enzymes such as dehydrogenase and fluorescein diacetate hydrolase, which are vital for soil nutrient cycling, were much more active in probiotic-treated soils.

- **Root Growth:** Hairy vetch plants grown in probiotic-treated soils developed more root hairs, which allow plants to absorb water and nutrients more efficiently. Electron microscope images revealed denser microbial communities around these roots.
- **Balance is Crucial:** When too much probiotic was applied, microbial activity actually declined, which shows that more is not always better.

Conclusion

This research shows that carefully managed probiotic applications can support vibrant soil ecosystems and promote healthier plant growth, naturally. When combined with cover crops, soil probiotics offer a promising alternative to synthetic fertilizers by fostering biodiversity underground.

Whether you are a farmer, a gardener, or simply someone who cares about sustainable agriculture, the message is clear: if we take care of our soil, it will take care of us. And sometimes, that begins with something as small and powerful as a microbe.

This promising approach offers farmers a natural, ecological method to boost soil fertility and crop productivity while protecting the environment. As the study emphasizes, probiotic applications tailored for cover crops can be a vital tool for soil conservation and long-term agricultural sustainability.

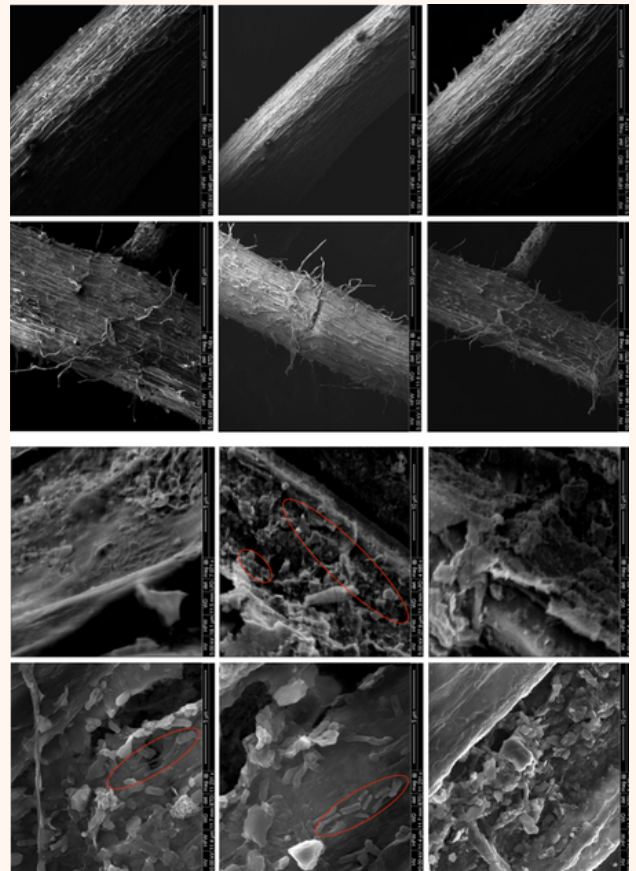


Figure. Scanning electron microscope (SEM) images showing the rhizobacteria colonization on the hairy vetch roots treated with probiotics (2nd and 4th row) and control (1st and 3rd row) after seven days of first split application of probiotic (120L ha⁻¹ yr⁻¹) at the University of Missouri-Columbia greenhouse. Image acquisition conditions were different among images.

References

Dr. Ahsan Rajper Ph.D (Manager & Crop Specialist at Battle River Research Group)

University Of Missouri (U.S.A)

<https://mospace.umsystem.edu/xmlui/handle/10355/50186>

Disclaimer

The information in this article is based on research conducted by Ahsan Mir Rajper at the University of Missouri (U.S.A). Some findings are still under review or preparation for scientific publication. Conclusions presented here are for outreach and educational purposes and may be subject to revision.



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MICROBES, MINERALS, AND MYTHS

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Lunch Included!



"IS A HIDDEN KILLER LURKING IN YOUR SOIL?"

"NUTRIENT MANAGEMENT TO CONTROL PLANT DISEASES"

Dr. Don M. Huber

Emeritus Professor of Plant Pathology

Purdue University



**"ALBERTA BENCHMARK VERIFICATION PROJECT RESULTS:
EVALUATING THE EFFECT OF MANAGEMENT ON SOIL HEALTH
PARAMETERS"**

Dr. Yamily Zavala

CARA Soil Health Lab Manager



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Zoom Webinar Grazing Decisions in a Dry August



Dr HA (Bart) Lardner

Dr. Lardner is a Professor in the Department of Animal and Poultry Science at the University of Saskatchewan where he mentors undergraduate and graduate students and teaches beef cattle nutrition and forage management. For the past 30 years, his research has focused on applied beef and forage management including water quality, summer and winter grazing systems, heifer development, applied genomics and industry impact on the environment. Dr Lardner works closely with producers to ensure applicability of results back to industry.

Topics to be discussed include:

- Pasture management
- Forages – management strategies for drought
- Annual forages
- Salvage crops



AUGUST 19

10 AM MDT

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UPCOMING EVENTS

Event	Date	Click On the Link to Register
BRRG Field Day 2025	23rd July 10 AM MDT	https://lp.constantcontactpages.com/ev/reg/5e3tjux
Webinar on Insect & Disease Scouting	7th August 11:00 AM MDT	https://us06web.zoom.us/webinar/register/WN_ZxmELr97T5-YpE9t0aD9jA
Webinar on Role of Spray Adjuvants & Postemergence Herbicides	8th August 10:00 AM MDT	https://us06web.zoom.us/webinar/register/WN_ZW-zbpWDT0-yaLoVLI2UIA
Microbes, Minerals & Myths	14th August 9:30 AM MDT	https://www.eventbrite.com/e/microbes-minerals-and-myths-tickets-1412530389419?aff=oddtcreator
Zoom Webinar on Grazing Decisions in Dry August	19th August 10:00 AM MDT	https://us06web.zoom.us/webinar/register/WN_JSstgjJGSb2nsbq8n1ur2g

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