

Grain, Grass & Growth *August 2025*

What You Missed at the Hanna Crop Tour Day!

Tuesday, July 29th was the CARA Hanna Crop Tour Day held with site cooperators Clayton and Lee Quaschnick. Producers who attended had an opportunity to tour the cereal plots, including the durum and CWRS wheat Alberta Regional Variety Trials as well as the wheat, barley and durum CARA Variety Trials. With abundant moisture (the Hand Hills ACIS weather station has received over 9" of rainfall since May 1) the plots could not be looking any better! Producers were able to see the full expression of proven, new and un-registered cereal varieties side-by-side in the field. In addition to viewing the research plots, producers learned about the applications of drones in agriculture, including being able to spray if the field is too wet for equipment, spraying out woody brush in pastures, seeding and spraying in difficult terrain where equipment cannot be used, or better efficiency for spot-spraying within a field. Roy Farrer of Raptor Dynamics brought an XAG P150 drone for a demonstration. Roy explained the initial set-up and calibration that's required for each job and how drones use satellites to position itself in the field. On the handheld controller, Roy was able to create a map of the field, have areas that were no-spray zones, set the speed and altitude, the spray droplet size and the application rate. The drone then took off and followed the flight map and instructions per the controller. This specific drone would be able to spray 60 ac/hour. The drone would return to the "home base" in the field once empty and would need to be filled. With a different tank attachment, this drone can be used for seeding perennials and cover crops too.

Amanda Jorgensen, Insect Management Specialist with Alberta Agriculture and Irrigation, rounded out the tour with a discussion on predominant crop pests in the Special Areas:

wheat stem sawfly and grasshoppers. Amanda pointed out the inclusion of a newer, solid-stem AAC Oakman VB wheat in the RVT trials that should be on producer's radars: solid-stem varieties are more tolerant to sawfly damage than hollow stem wheat. In addition to variety selection, producers can increase their crop rotation to include more pulse and oilseed crops, decreasing the host crop (wheat) and thus population of the pest. Did you know that there are 85 grasshopper species in



Alberta but only 5 are pests in crops? Amanda had pinned grasshopper specimens for producers to view and learn of the 5 pest species including the Two-striped, Packard's, Migratory, Clearwinged and Bruners grasshoppers. Pest species will have a flat face whereas non-pest species will have a slanted face. To properly inspect and identify the

pests and beneficial species in a crop field, Amanda shared the proper sweeping and collecting procedure. A sweep net should be held at hip height during the entire 180-degree sweep, back and forth ten to twelve times per area in the field. Amanda likes to flip the bag over and collect the contents in a clear plastic bag for identification. Once the population of a pest is known, producers can consult the economic thresholds in the AB Blue Crop Protection Guide or speak with their agronomist or input retailer about the risk and reward for spraying insecticide.

CARA would like to extend a thank-you to Rosedale Nutrien Ag Solutions for the meal sponsorship, Westview Co-op for the donation of ice and water and Starland County for supplying water for the drone spraying demonstration. Thank-you also to the producers who attended and to Quaschnick's for hosting the Special Area 2 site this year!

Evaluating Management Practices for Improving Forage Production, Soil Health, and Drought Resilience of Aged Perennial Stands

*A pasture rejuvenation trial with CARA and BRRG,
funding provided by Results Driven Agriculture Research (RDAR)*



Tame perennial pastures can lose productivity over time due to nutrient deficiencies, limited moisture, invasion of undesirable species, poor grazing management, and limiting soil conditions. Pasture rejuvenation methods intend to improve the yield and nutritional quality of the existing forage without removing or replacing the existing stand.

To determine effective, cost-saving pasture rejuvenation beneficial management practices (BMPs) in the Brown Soil Zone, CARA and the Battle River Research Group (BRRG) are conducting a 2-year trial, read-on to learn more about the trial set-up and timeline for results!



Initial Trial Set-Up

With funding secured by RDAR in Fall 2024, the CARA site was selected. The PR trial is being conducted with site cooperators, Cyndy and Dave Eaton's (NE 34-28-2 W4, NW of Sibbald).

Pre-Treatment Forage Inventory

May 2025: Before any PR treatments were applied, an inventory of pasture species was conducted. The CARA site consists of a modified plant community, consisting of tame and native species including: crested wheatgrass, alfalfa, upland sedge, clubmoss, Needle and Thread, western snowberry, prickly rose, and fringed sage. Technicians identified the species present and the percent of cover within each plot.

Fall Soil Sampling

October 2024: The initial, baseline soil health measurements were recorded by taking a CARASHL soil health benchmark within each replication (4) of the trial. The soil health benchmark determines the existing physical, biological, and chemical soil characteristics.



Initial spiking treatment done on the pasture. Khatiwada et al., (2020) found that spiking will improve the compaction that can negatively impact root and water infiltration, biological activity, and air diffusion.



Initial forage harvest of a 1 m² square within a plot on June 17, 2025. Clipped forages were dried to determine the dry matter yield.



Treatment of granular urea fertilizer broadcasted on the plot. A pasture fertilization trial conducted by AAFC Swift Current Research and Development Centre determined an application of 45 lbs actual N led to additional 350 lbs/ac yield increase.



Alfalfa seedlings 32 days post-seeding. Legumes like alfalfa and sainfoin contribute nitrogen to the soil and existing stand via atmospheric nitrogen fixation. Pastures with legumes will improve the forage quality, increasing the protein and thus gain for grazing livestock

Treatments Applied

May 16: mechanical, seeding, and spreading treatments were applied.
May 23: liquid treatments applied with the bicycle sprayer.

1-Month Post-Treatments

June 16: The 1-month post-treatments forage inventory was conducted again in each plot. The continuous and rotational grazing sub-treatment squares were cut. Samples were sent for forage analysis.

PR Trial Treatments

- Control
- Spiking (drill shanks set to 3" depth, drug through pasture to stimulate aeration)
- Low rate of ESN fertilizer (44-0-0) (102 lbs/ac for 45 lbs actual N/ac)
- Low rate of urea fertilizer (46-0-0) (98 lbs/ac for 45 lbs actual N/ac)
- High rate of ESN (205 lbs/ac for 90 lbs actual N/ac)
- High rate of urea (196 lbs/ac for 90 lbs actual N/ac)
- Low rate of UAN liquid fertilizer (28-0-0) (45 lbs actual N/ac)
- High rate of UAN (90 lbs actual N/ac)
- Manure, harrowed (targeting 45 lbs/ac of N)
- Manure, un-harrowed (targeting 45 lbs/ac of N)
- Direct seeding Yellowhead alfalfa (16 lbs/ac)
- Direct seeding Glenview sainfoin (30 lbs/ac)
- Johnson-Su bioreactor compost extract
- (2 kg compost/ac)
- Alfalfa pellets (400 lbs/ac)
- 1/4" humalite (400 lbs/ac)

In addition to each treatment, 3 sub-treatments per plot that simulate grazing will be applied. The grazing sub-treatments include the effect of continuous grazing (cut every month), rotational grazing (cut every 6 weeks), and season-long rest (cut once at the end of the grazing season).

Summer 2025

The grazing treatments will continue to be cut and collected for forage yield and quality.

In September, 0-3" soil samples in each plot will be collected.

Spring and Summer 2026

Forage species composition and cover, grazing harvests, soil sampling, and analysis of forage samples will continue from May-August 2026. A field day at the CARA site will be organized for producers to tour.

Winter 2026

The final results of the forage yields and quality and impact on soil will be compiled for each treatment. Final report with results will be published.

Spring 2027

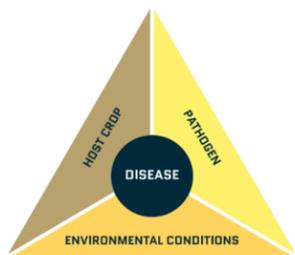
A conspicuous, new site will be established to showcase the top four treatments that met the forage, soil, and cost-based objectives. More field days, factsheets, and publications of the PR trial will be shared locally.

Fungicides: Know when to spray and what factors to consider

Proper fungicide application and timing is crucial so it's important to be familiar with what diseases can occur on your crops and how to best manage them

By Tracy Kinch July 04, 2024
Cargillag.ca

Knowing when, or even if, to spray fungicide is tough to nail down. I find that keeping a diligent eye on your crops and considering some key factors of disease can help in correctly timing fungicide application. One of the most helpful tools I've found when considering use of fungicides is the disease triangle. The disease triangle is composed of three pillars: pathogen, host, and environmental conditions. When you have two of the three pillars, you're prone to disease presence.



Host

Your plants are the host. When considering disease, knowing the condition of the plant and the factors affecting it can help decide if fungicides are needed. Host tends to be the most manageable pillar in the disease triangle as there are lots of resources available to help you learn what diseases can occur on specific crops. Researching what disease your varieties are susceptible to will help you better prepare for disease prevention as some newer varieties tend to have higher resistance. While resistant cultivars are important in disease management, they are only part of the solution and shouldn't be relied on alone.

Sometimes, when wanting to spray for a specific disease, the plants (host) staging is outside of the ideal window but in some cases, an application may still be a good idea. Missing the ideal window can be the result of numerous reasons including weather, equipment breakdowns, or other fields needing to be tended to first. When spraying for something like sclerotinia, for example, the ideal window for canola is generally 20-

40% bloom. If conditions are ideal, infection can still occur past 40% bloom. Some products may have a curative affect as well, so spraying at 50% bloom can still be very effective.

Now that we've recognized the host, let's dive into the next tip of the triangle - the pathogen.

Pathogen

Pathogens are usually introduced to a host through the soil or wind, where it can be difficult to tell what is present. An example of a pathogen and host together would be if you planted canola on pulse stubble that is a carrier of canola disease. White mold is a disease that can impact both lentils and canola so the risk of pathogen carry-over is higher between host plants. When considering pathogen and host together, I find that it's best to think about the whole picture and not get too focused on just the current conditions.

It's hard to measure disease spore levels and a lot of pathogens can last for years in the soil, waiting for the perfect environmental conditions. *F. graminearum* and *sclerotinia* can survive on residues buried 20 to 25cm deep for more than four years with a large host species range. Even if disease pressure is low, this doesn't mean that risk is non-existent.

Environmental conditions

Environment can affect the host depending on moisture, humidity, and time of year. This part of the triangle is the most out of your control and also the hardest to predict. Different diseases thrive in certain conditions so it's important to understand the disease that you're considering spraying for and what environmental conditions are conducive for its development.

If we have a wet and humid spring, I think it's likely that fungicide application will need to be seriously considered to cut down on risk of disease. A good way to visually test this is the "wet pant" test. At what time of day can you walk through your field and come out with dry pant legs? The longer in the day it takes for the field to be dry enough for you to walk through and come out dry, the higher the risk of disease.

Soil Health in Action: Highlights from the ROO Producer Training in Canora, SK, “Bringing the CARA Soil Health Lab to the Producers”

Yamily Zavala, PhD CARA Soil Health Lab Manager

On July 30th I had the opportunity to attend a full-day producer training workshop in Canora, Saskatchewan, hosted by the Canadian Organic Growers’ Regenerative Organic Ongoing (ROO) program. The event brought together at least 25 engaged producers; all committed to learning more about soil health and regenerative practices.



During my session, I focused on practical and science-based topics central to understanding and improving soil health. We began with the fundamentals: the importance of proper soil sampling and identifying visible signs of soil constraints using photo examples of “sick soils.” I walked participants through the lab’s soil sampling procedures and explained which soil health indicators are most meaningful when building a baseline to monitor changes over time.

We then explored the process of how we analyze soil health in the lab and interpreting results through our soil health reports. I shared stories and images illustrating how cover crops support soil aggregation, showing striking comparisons between fields with and without regenerative ground cover.

The highlight for many not only was our deep dive into the soil microbiome but also hands on evaluation of their own soil stability. I shared microscope images of bacteria, fungal hyphae, nematodes and even nematode-infecting fungi (trapping fungi nematode as well as nematophagous fungi)—offering a rare look into the microscopic life that drives soil health.



Hands-On Soil Discovery:

The afternoon sessions brought soil health to life with three interactive demonstrations using real samples submitted by producers:

1. Soil Microbiology Live Readings

Using our most advanced microscope from the CARA Soil



Health Lab, we examined live producer-submitted soil samples.

Together we discovered a



variety of life forms—nematodes, rotifers, bacteria, and protozoa—right from the farmers’ fields. We also conducted a nematode extraction from a compost tea sample; interestingly, only two dead bacterivore nematodes were found in 150 mL of extract.

1. Soil Wet Aggregate Stability (WAS) Demo and Protocol Validation

Participants used the **Soil WAS Kit** to test the stability of their own soil samples and compared their results to those obtained by our lab. Results were incredibly close, ranging between 5% and 10% difference, and in several cases, matching exactly. One enthusiastic producer asked to purchase a WAS Kit for home use, and the collective excitement around the reliability of these results validated our confidence in this protocol as a practical on-farm monitoring tool.



1. Water Infiltration Demo: A Visual Wake-Up Call

We simulated rainfall over soils collected in stainless steel bottomless boxes to observe how water behaves in different systems. The three soils represented:

- o Undisturbed soil from the Yorkton, SK region (never tilled)
- o A native grassland soil
- o An annual cropping system (peas)

As the rain hit the surface, the results were dramatic :

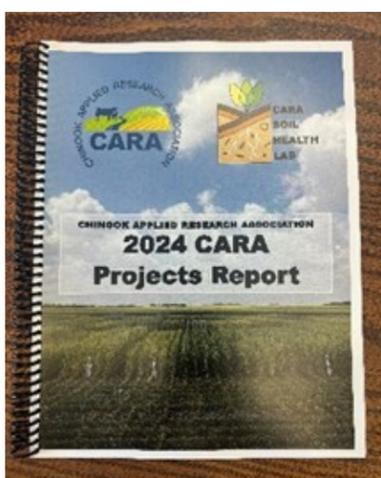
- o One sample caused water to run everywhere with no infiltration.
- o Another allowed water to infiltrate quickly with minimal runoff.
- o The third showed partial infiltration with moderate runoff.



The visuals spoke for themselves, and everyone was glued to the demonstration. You can even guess which soil belonged to which management system just from what you can see in the pictures below. It was a powerful reminder of how soil structure (aggregate stability) and land use directly affect water movement and retention.

This workshop was a fantastic blend of science, hands-on learning, and community engagement. Thank you to the ROO program and all the producers who participated, asked questions, shared stories, and helped validate some of the tools we aim to share more widely. We're excited to keep learning together.

“If you can not come to our lab to learn, we will come to you” – Yamily”



Hot off the Press!!

Copies of CARA's 2024 Projects Report summary are now available!

Please contact the office to check out your membership status to ensure you receive a copy.

403-664-3777 or cara-1@telus.net

Applied research associations receive \$3.2 million in provincial funding

One-time grant from Alberta government to help applied research associations upgrade equipment, facilities and infrastructure

Taken from Alberta Farmer Express
akienlen@fbcpublishing.com

Alberta's government has provided a one-time grant of \$3.2 million to 12 applied research associations across the province.

This capital funding will enable the research associations to upgrade equipment, facilities and infrastructure.

With the additional funding, the research associations will be able to address pressing capital equipment issues.

"Applied research associations play a vital role in supporting farmers and ranchers with top-notch research that helps improve and advance agriculture," said RJ Sigurdson, Minister of Agriculture and Irrigation, in a press release.

"This funding helps ensure associations can concentrate on providing research and extension to help our producers adopt new technologies and practices and improve their competitiveness."

Applied research stations provide information from scientists and experts to help farmers and ranchers improve farming techniques. These organizations run learning and extension programs for producers and conduct research to discover farming techniques that improve crop and soil quality, manage pests and enhance sustainability.

The funding will help applied research associations to reduce operating costs and extend the life of their facilities, applied research and extension activities.

Ken Coles, executive director of Farming Smarter Association in Lethbridge, said in a press release that the applied research capital grants will empower organizations like Farming Smart to deliver substantial returns on investment by driving innovation and supporting the growth of value-added industries. Farming Smarter will be better positioned to enable advancements across Alberta's agri-food sector, said Coles.

The associations can use the funding for activities such as purchasing seeders, tractors, swathers, irrigation equipment and research equipment.

The 12 applied research stations across the province are:

- Battle River Research Group
- Central Alberta Forage and Livestock Association
- Chinook Applied Research Station
- Farming Smarter Association
- Foothills Forage and Grazing Association
- Gateway Research Organization
- Lakeland Agricultural Research Association
- Mackenzie Applied Research Association
- North Peace Applied Research Association
- Peace Country Beef and Forage Association
- SARDA Ag Research Association
- Farming Forward (formerly the West-Central Forage Association).

NOTE: *CARA is utilizing our capital grant to complete renovations within our Soil Health Lab, lab and soil sampling equipment, maintenance within the main office area as well as vehicle upgrades. Huge thanks to Alberta Agriculture and our MLA Nate Horner for supporting this initiative!*



MICROBES, MINERALS, AND MYTHS

Thursday, August 14 2025 - Coronation Hall - 9:30am-3pm

Free To Attend, Courtesy of the County of Paintearth

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



Registration

(403) 664-3777 or cara-3@telus.net

Eventbrite: <https://bit.ly/3ZwLLYa>

or scan the QR code to register!

There are also some diseases that thrive in cooler, dryer conditions, such as powdery mildew, so it's important to remain vigilant and fully understand what diseases the crops you're planting can be susceptible to.

When to assess the situation

Fungicide timing is very important to get infection under control before it becomes serious. Know the signs and symptoms as the sooner you catch the disease, the more likely you can treat it and prevent it from getting worse. Fungicides will be most effective at slowing disease development when applied at the very first sign of symptoms.

There are three factors you should consider when assessing the crop in-season for a fungicide application:

- What were the conditions of that field last season? What diseases may have been present the last time that crop species was grown there?
- * *High disease pressure can carry over from one growing season to the next in the form of soil or residues pathogens.*

- How does that crop look this season?
- * *Thick plant stands are more prone to locking disease in the canopies. Fungicides help the plant survive disease pressure and can help lock in the yield potential, protecting it against yield robbers.*
- What is the economic value of the crop?
- * *Disease result in billions of dollars in economic losses and management inputs each year.*

Conclusion

Mid-June to mid-July is the ideal window for assessing disease and spraying a fungicide to protect your crop. The disease triangle can be an excellent tool for helping to make most of your fungicide decision ahead of time and it's a tool I use very often with farmers. If you do end up needing to spray, by using this tool you'll be ready to hit the crop at the appropriate, most effective time. If you think there might even be a chance that you'll need a fungicide, pencil it into your plan. Talk to your rep about whether the present conditions might be an issue for disease. There's no harm in being proactive.

AGKNOW

ALBERTA FARM MENTAL HEALTH NETWORK

Whether it's accessing resources for yourself, or pointing a farmer in the right direction, AgKnow is your partner in the evolving landscape of farm mental health. Our vision is to create a shift in farming culture to one where caring for mental health is a natural part of farm life. We want to increase resiliency in farming communities, de-stigmatize mental health, reduce barriers to services, and stay relevant and current with the issues impacting the agriculture industry in Alberta. **Please check out our website for more information or to connect to a counsellor at www.agknow.ca**



Hanna Crop Tour Day . . . Continued from page 1

Alberta Regional Variety Trials—Cereals and Flax

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Municipal District
of Acadia #34

