## Battle River Research Group

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# ANNUAL REPORT 2023

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### To test agriculture practices, products and technologies

Photo by Kabir Makan

#### Improve Agriculture with Independent Producer Driven Research

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WE ARE LOOKING FOR PRODUCERS WHO ARE INTERESTED IN TRYING & TESTING NEW INNOVATIVE IDEAS ON THEIR FARMING OPERATIONS. PLEASE CONTACT BRRG WITH YOUR IDEAS & WE CAN HELP MAKE YOUR IDEA A REALITY!



**Battle River Research Group** is a producer-led research organization located in East Central Alberta. BRRG owns a Facility in Forestburg that includes a fenced compound, and an over 3000 sq. ft shop and an office building.

We offer small plot research services under supervision of qualified staff. We are research partner in many government and industrial research projects including variety, fertilizers and soil health research. Please check our website battleriverresearch.com for further details about projects



Photos by Kabir Makan

### Battle River Research Group

# Tableof Contents







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President's Message	.1
BRRG Group & Membership	.2
Board Members	.3
Our Staffs	.5
Research 2023	6
BRRG Extension Events 2023	.27
UOA Student visit	40
Analytics	42
Financial Report	44
Thank you	45

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## MISSION

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

## VISION

Improving sustainability through innovation in agriculture.

## **President Report 2023**

BY DON KROETCH

As the Battle River Research Group team reviews the many successes we experienced in 2023, we continue to look for groundbreaking ways to serve our producers in our region in 2024. One of our greatest assets of BRRG is the diversity and engagement we have among our board members. With the addition of six new members in 2023, our board is full, and it is very exciting to be a part of the innovative ideas and diverse programing brought forward at our meetings.We are currently in Year 2 of our fiveyear strategic plan with our zero-based budgeting process. This strategic plan is our guiding document that enables BRRG to have long-term sustainability and strategic growth with measured outcomes and goals. BRRG continues to have a strong and cooperative relationship with Results Driven Agriculture Research (RDAR) organization. We continue to receive our base funding from RDAR to provide producer-led research to power the competitiveness, profitability, productivity, and sustainability of agriculture in Alberta. Our goal at BRRG is to be producer-driven to give our farmers the tools needed to be prosperous and sustainable with the many challenges in the agricultural space. BRRG uses extension programing for knowledge transfer from experts in agriculture directly to our producers. Our extension programing is as diverse as our agricultural producers within our region. BRRG uses in-person events, webinars, and a vast library of information on our website available to all producers. This enables our producers to have access to industry and academic experts to make informed decisions for their farming operation. Our extension program also includes going to the schools in the region, to introduce our next generation to the importance of our agriculture industry and the many opportunities in the agriculture sector.



#### DON KROETCH BOARD OF DIRECTORS PRESIDENT

Another tool BRRG uses for supporting our producers is our small-plot and large on-farm trials. These trials are done locally within the environment of our farmers' operations. Our small-plot trials give us the opportunity to partner with industry, post-secondary institution, grain commissions, all levels of government, and producer-led initiatives. Within these partnerships, BRRG can perform new variety trials, soil health trials, fertilizer rate trials, and new emerging trends, such as our Lupin trial. With our large-farm trials, BRRG partners with producers in our region to take advantage of information gained from our small-plot trials, innovative farming techniques, and different management practices to use on a much larger scale. These trials give data that is applicable and relevant for large scale implementation to all producers. BRRG's goal is to have our large-plot trial become 50% of our research program. BBRG is continuing to look for new partnerships with farmers for our large plot-trials. Please reach out tour manager, Khalil, with any suggestions regarding either our small- or large-plot trials. To keep up to date with the exciting programs and services offered by BRRG, follow us on Twitter, Facebook, or go to our webpage and sign up for our newsletter. Stop by our office to take a tour of our equipment and shop or check out our small-plot and large-trials at your convenience. All are welcome to reach out to Khalil and his excellent staff for any assistance needed.

#### **MEMBERSHIP**

The Battle River Research Association (BRRG) came into existence after the amalgamation of the Battle River Forage Association and the Battle River Applied Research Association in 1993. We are in Forestburg, Alberta, allowing us to efficiently serve the east-central region of Alberta. We serve the counties of Paintearth, Stettler, Beaver, and Flagstaff. The Battle River Research Group has three programs to help serve the local producer, including the field Crops Program forage program, extension & Environmental Program.

BRRG Free Membership is open to agricultural producers or other agricultural stakeholders outside East Central Alberta interested in the Association's objectives. Visit **<u>battleriverresearch.com</u>** to Become a Member.



Photo by Kabir Makan



## **OUR BOARD MEMBERS**



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**Dona Stoddart** Payroll & Bookkeeper

## **SUMMER STUDENTS**



Jacqueline Kublik



#### Dayna Everson



Ryan Kientz

## **RESEARCH 2023**



Photo's by Kabir Makan

## SOIL HEALTH IMPROVMENTS WITH HUMALITE 2021-2023

#### INTRODUCTION

This project is being conducted with the University of Alberta under the direction of Dr Linda Gorim. Since 2021 we have had a project looking into the use of humalite as a soil enhancement. humalite is a by-product of coal mining and is fairly plentiful in central Alberta. Humic acid as a component of the Humalite has potential to boost yield and potentially allow for reduce nitrogen application through artificial fertilizer (Rathor et al 2024).

#### **METHODS**

In order to assess if humalite can be used to replace some urea application this experiment was designed in a Randomized Complete Block Design (RCBD) with two main variables, rate of urea and rate of humalite. In 2023 the treatments were divided into three different nitrogen rates no nitrogen, 114.8 lbs/ac and 250.5 lbs/ac. The humalite applications were also separated into four groups 0, 50, 100, 200, 400 lbs/ac. The fertilizer was applied in a shallow sideband. Humalite was applied by broadcasting and then incorporated with a rototiller into the top inch of soil. The site received 255.1mm of rain during the growing season (Government of Canada 2024). There was hail storm on August 23rd that caused some of the plots to be removed.

#### RESULTS

In this, the third year of the trial, we have a good result for the interaction between nitrogen and humalite, with the highest yields coming from the highest humalite and highest nitrogen application. The most impactful component was the nitrogen. There was no significant result for the humalite applied without any nitrogen.



Photo 3. Humalite Trial plots with some damage on them. Photo by Alexander Olson.

Table 1. Wheat Yield in Response to a Gradient of Humalite									
Irt	Urea % Recom- mended Rate	Humalite (lbs/ac)	Yield (kg/ ha)	P = 0.05					
1	0	0	3616.18	ce					
2	0	50	2698.61	f					
3	0	100	2882.78	ef					
4	0	200	3481.28	de					
5	0	400	3992.00	cd					
6	50	0	4257.47	abc					
7	50	50	3939.84	cd					
8	50	100	4033.76	bc					
9	50	200	3803.56	cd					
10	50	400	3934.73	cd					
11	100	0	3931.16	cd					
12	100	50	4201.34	ac					
13	100	100	4845.04	а					
14	100	200	4781.93	ab					
15	100	400	4851.28	а					
The average vield is not statistically different from the other									

#### REFERENCES

overnment of Canada. 2024. Government of Canada: Station Results—Historical Data; [accessed February 8, 2024]. https://climate.weather.gc.ca/historical\_data Rathor P, Rouleau V, Gorim L, Chen G, Thilakarathna M. (2024). Humalite enhances the growth, grain yield, and protein content of wheat by improving soil nitrogen availability and nutrient uptake. Journal of Plant Nutrition and Soil Science, 1–13. https://doi.org/10.1002/jpln.202300280

## INNOVATIVE USE OF DEEP-ROOTED COVER CROPS TO IMPROVE SOIL INFILTRATION AND WATER HOLDING CAPACITY



Photo 1. Taking observations of water holding capacity, and water infiltration by Alexander Olson.

#### INTRODUCTION

This trial is being done in conjunction with Northen Peace Applied Research Association (NPARA) Gateway Research Organization (GRO). This Project is a four year trial established in 2022 with deep– rooted cover crops. The goal is to test the improvement to the hydraulic capacity of the soil by the rotation of deep-rooted cover crops in a rotation with conventional cash crops. 2023 was the first cash crop year where we grew canola, wheat and peas.

#### METHODS

In 2022 12 cover crop mixes were planted on double wide (2.7m) plots. Measurements were taken in 2022 to establish a baseline infiltration rate and water holding capacity. Before seeding in 2023 these same measurements were taken again to see if any change in the soil hydraulic conductivity. Conventional cash crops of canola, peas and wheat were seeded in 2023 perpendicular to the plots from 2022. Every cover crop mix from 2022 then had four small plots; canola, peas, wheat and fallow seeded across the stubble.

#### RESULTS

In 2022 and 2023 the water infiltration was tested as well as bulk density and the water holding capacity of the soil. There was no observable difference or improvement to those factors from the different cover crops from only one year.

Another factor we looked at was the yield from the conventional crops. If there is a benefit to having the cover crops in the year prior it might be that there is a larger yield in the following year. In this trial there was found to be no difference between fallow plots and those that were seeded with deep rooted cover crops.

The yields from the three crops were not affected in the first year by the stubble that they were placed on. There was no difference in wheat protein on the different cover crop stubbles.

	Wheat	Canola	
	13.5%	10%	Peas 16%
	moisture	moisture	moisture
Trt	bu/ac	bu/ac	bu/ac
Fallow	57.87	36.94	20.83
2	53.82	35.71	22.52
3	57.62	40.50	24.44
4	54.04	41.32	27.69
5	56.16	34.64	32.51
6	56.43	33.89	29.49
7	51.78	44.78	27.88
8	54.92	36.38	32.62
9	53.46	31.10	30.10
10	47.07	43.94	27.95
11	44.43	44.24	32.00
12	62.11	45.59	27.89
13	60.29	38.46	24.51

Table 1. .Yield on different cover crops stubble. Cover crops were planted in 2022. Conventional grain crops were planted in 2023

## PERENNIAL CEREAL GRAIN CROP SYSTEMS (2022 - 2024)



Photo 1. PCGC Trial June 28th photo by Kabir Makan

#### INTRODUCTION

Perennial cereals have certain advantages over annual cereals. Once established there is less need for inputs of herbicide to control weeds. If the stand is planted with a legume understory it can also supply it's own nitrogen and not require increasingly costly nitrogen inputs. A perennial cereal crop also has a greater flexibility in how it is used. It can be grazed or cut earlier than an annual crop and will maintain greater nutrition than a conventional cereal crop if it is harvested as a ripe grain crop and then grazed. By using a perennial crop there is no need to disturb the soil for the duration of the time that crop is planted. This will have a lot of benefits in years when moisture is a problem. By not opening the soil even to plant in the spring all of the moisture from the winter will be available to the plants.

This moisture can even be more then in a field with annuals if regrowth of the prennials means there are taller plants to hold the snow. However there are disadvantages as well. Our current perennial cereals are not as high yielding as annuals. If establishment is poor there is no longerterm payoff because the crop has to be reseeded. Even the use of a legume intercrop can have its drawbacks. The legume can provide nitrogen to the whole system but can make harvesting the ripe grain more of a challenge if the legume is tall enough to interfere with combining. This trial in partnership with Peace Country Beef and Forage Association, University of Alberta, Gateway Research Organization, Makenzie Applied Research Association and Chinook Applied Research Association, undertakes the challenge of gathering accurate data on perennial cereal and legume mixes, and their interactions with soil health.

#### METHODS

2022 was the establishment year for this trail. We seeded 16 treatments with 2 different harvesting schedules to observe both a forage yield and a grain yield. Half of the treatments were a cereal leagume intercrop where all six rows had both the cereal and legume. The other half of the treatments had three rows of legumes interspersed with the three rows of cereals. The crops used were perennial rye and Kernza wheat grass as the cereals and white clover, alfalfa, and sainfoin as the legumes. Our control treatments were a monocrop of perennial rye and a monocrop of Kernza wheatgrass. 2022 had some challenges to the trial. Volunteer canola threatened to choke out the crop below and the sprays that controlled the canola put the legumes behind the cereals. However in 2023 most of the legumes made a pretty good recovery. In 2022 there were 293.7 mm of rain from May to October and 255.1 from May to October in 2023 (Government of Canada 2024). Throughout the season we are taking a plethora of measurements, soil temperature, soil moisture, a rating of the sprouting in the cereal heads, and NDVI measurements with a handheld Green Seeker. The protocol requires has two different uses for the crops to be tested on different sets of plots. One set of plots was harvested as a forage crop on June 29th. The other plots were combined to measure the grain yield of the cereals.

#### RESULTS

With so many different factors being observed for this trial there are a lot of results. However with so many results it is better to focus in on certain differences that are significant and will impact the value these crops can bring whether that is reduced inputs, improved soil health, or increased flexibility for crops use. With so many different factors being observed for this trial there are a lot of results. However with so many results it is better to focus in on certain differences that are significant and will impact the value these crops can bring whether that is reduced inputs, improved soil health, or increased flexibility for crops use. Throughout the Summer moisture was measured in every plot and the moistures were averaged for each treatment. In the treatments where the rows were alternating legumes and cereals there was a difference where the rye plots, even the control (plots without legumes) had more mosture later in the Summer (from July 10th to Aug. 27 as seen in figure 1) than the Kernza wheat plots. This could be because of the large root mass of annual rye that is locking moisture close to the plant. It could also be that the larger leaves of the rye are shading the soil and reducing evaporation. There was not this same divide between the cereal plots when all 6 rows were seeded with both the cereal and the legume or when they were harvested earlier for Summer forage.

The plots that were harvested as forages were harvested on June 29th. There were no significant differences statistically between the different seeding methods. There was so much variation between the plots that it was hard to see if any of the differences were not from random variation. Yields can be seen in Table 1 and Table 2.



Figure 2. Soil moisture measured at 8 inches throughout the summer. Moisture is measured in % Volumetric Water Content

#### Perennial Cereal Crop

	Table 1. Same row plots forage harvest June 29th									
Treatment Descrip-	Average ) a	∕ield ton∕ c	Crude Protein	TDN	Calcium	Phosphorus	Potassium	Magnesium		
tion	At 65% Moisture	Dry Yield	%	%	%	%	%	%		
Wheat Mono	4.72	1.65	10.89	58.11	0.68	0.27	1.55	0.23		
Wheat - Alfalfa	6.70	2.35	11.28	57.60	0.71	0.27	1.51	0.25		
Wheat-White Clover	6.63	2.32	13.31	59.39	0.68	0.29	1.55	0.13		
Wheat-Sainfoin	5.17	1.81	12.13	58.56	0.69	0.27	1.42	0.16		
Rye Mono	5.31	1.86	12.69	59.63	0.67	0.26	1.30	0.08		
Rye-Alfalfa	3.68	1.29	11.97	59.24	0.65	0.25	1.32	0.10		
Rye-White Clover	5.17	1.81	10.70	58.23	0.66	0.24	1.38	0.17		
Rye-Sainfoin	4.24	1.48	12.23	57.78	0.69	0.24	1.18	0.11		

	Table 2. Alternate row plots forage harvest June 29th									
Treatment Descrip-	Average Y	ield ton/ac	Crude Protein	TDN	Calcium	Phosphorus	Potassium	Magnesium		
tion	At 65% Moisture	Dry Yield	%	%	%	%	%	%		
Wheat Mono	4.86	1.70	12.25	57.61	0.75	0.27	1.38	0.18		
Wheat - Alfalfa	10.13	3.55	12.98	58.77	0.75	0.27	1.42	0.18		
Wheat-White Clover	6.48	2.27	11.87	58.84	0.69	0.28	1.56	0.19		
Wheat-Sainfoin	7.32	2.56	11.94	57.78	0.75	0.26	1.38	0.16		
Rye Mono	4.04	1.42	11.86	59.10	0.68	0.25	1.42	0.12		
Rye-Alfalfa	6.61	2.31	10.93	57.55	0.76	0.22	1.15	0.20		
Rye-White Clover	10.50	3.68	12.48	58.46	0.72	0.24	1.14	0.11		
Rye-Sainfoin	8.31	2.91	12.83	57.82	0.77	0.22	0.98	0.12		

Table 3. Grain Yield on Sept. 13th									
Seeding ar- rangement	Treatment Description	Average Bu/ ac	Average TKW						
alternate row	Wheat Mono	1.56	6.27						
alternate row	Wheat - Alfalfa	1.60	5.47						
alternate row	Wheat-White Clover	1.09	6.42						
alternate row	Wheat-Sainfoin	1.01	5.30						
alternate row	Rye Mono	7.78	24.90						
alternate row	Rye-Alfalfa	13.36	25.49						
alternate row	Rye-White Clover	9.15	23.58						
alternate row	Rye-Sainfoin	10.02	23.89						
Same Row	Wheat Mono	1.69	5.83						
Same Row	Wheat - Alfalfa	1.53	5.58						
Same Row	Wheat-White Clover	1.88	5.89						
Same Row	Wheat-Sainfoin	1.23	5.78						
Same Row	Rye Mono	10.23	23.43						
Same Row	Rye-Alfalfa	10.26	24.22						
Same Row	Rye-White Clover	8.17	22.38						
Same Row	Rye-Sainfoin	9.04	24.24						

#### RESULTS

Forage lab tests showed a very good results for all treatments. With the early summer harvest date the nutrients in the forage had good protein and good energy (Table 1 and 2). Their energy was comparable to our other silage trails that grew from June until September. Therefore having the crops overwinter gave them enough of an edge that they did in three months of growth what other forage trials achieved in four.

Grain plots were harvested on September 13th and the straw was also harvested to test how it could be used as forage or grazed after the grain harvest. Statistical analysis of the yield show that there is no difference between the partner legume or the seeding arrangement in terms of yield. Rye had a much higher yield due to the larger seeds and the hail that the trial received. On August 23rd there was a hail storm that knocked many of the Kernza wheat seeds out of the heads resulting in a much lower yield. The perennial rye did not lose as many kernels to the hail but even so there was still not much rye yield compared to annual crops.

This trial has a lot of parameters and will be interesting to see how the different uses provide value for the duration of the trail. Check back next year to see how the 2024 yields compare.

#### REFERENCES

Government of Canada. 2024. Government of Canada: Station Results—Historical Data; [accessed February 8, 2024]. https://climate.weather.gc.ca/historical\_data



## DEMONSTRATIONS OF DIFFERENT WHEAT VARIETIES TOLERANCES TO DISEASE AND PESTS

#### INTRODUCTION

Wheat is always one of the most important crops in central Alberta with a million more acres of wheat than canola harvested in Alberta in 2022 (Alberta Crop Statistics 2024). The value of the wheat crop for Alberta agriculture is therefore hard to understate. Diseases and pests of wheat require special attention to ensure that this vital crop continues to perform for producers and be the bread and butter of the ag industry.

There has been a lot in interest in recent years in fusarium head blight a fungus that infects the growing kernels and causes loss of quality and yield. Older wheat varieties do not have much tolerance to fusarium and can be heavily damaged by infection. Breeders have been working to find strains of wheat that are resistant to infection and the damage by fusarium.

Another pest that can cause a lot of damage to the wheat crop is the wheat midge. This is a small insect that lays its eggs in the wheat flower. As the wheat seed grows the eggs hatch and the midge larvae consume the wheat kernel. In severe cases this can cause complete abortion of the wheat kernel. One of the best was to avoid damage by wheat midge is to maintain a good rotation of crops with non-cereal crops interspersed to avoid a buildup of the midge population (Alberta Wheat Midge Overview 2024).

#### METHODS

To showcase the fusarium resistant wheat varieties a susceptible and non susceptible variety were seeded in a CRBD (complete randomized block design). Our resistant variety was AAC Starbuck and our nonresistant variety was Elie. The two crops were checked throughout the year for signs of Fusarium damage.

To observe the differences in a wheat midge tolerant variety and a susceptible variety AAC Brandon was seeded as a control and AAC Wheatland was the midge tolerant varietal blend.

The main event of this demonstration was having Harpinder Randhawa Singh come and speak at our field day on July 26

#### RESULTS

There was no difference in the yield from this demonstration. There was not significant infection with either fusarium or wheat midge to see the significance of having the resistant cultivars as opposed to the non resistant varieties.

Table 1. Average yield of Demo varieties								
	Fusarium head							
Wheat Midge	Demo	Blight	t					
Average	Bu/ac	Average	Bu/ac					
Brandon	48.95	Elie	49.42					
Wheatland	54.27							

#### Wheat Demonstrations



Photo by Kabir Makan

#### REFERENCES

Alberta. Data unknown. Crop Statistics. [accessed Feb 16, 2024] https://www.alberta.ca/crop-statistics

Alberta. Date unknown. Wheat midge – Overview. [accessed Feb. 16, 2024]: https://www.alberta.ca/wheat-midge-overview

## TEST OF WHEAT VARIETIES IN EAST CENTRAL ALBERTA

#### INTRODUCTION

Regional variety trials are very important for producers to have an idea of how new varieties perform compared to the ones that are already being used. The regional part is equally important. Crops that are performing very well in one region may not perform equally well in east central Alberta due to differences in weather, soil conditions, or even cultural practices that are normal here.

#### INTRODUCTION

For this trial BRRG worked with Gateway Research Organization to come up with the 19 wheat varieties and the seed that would be used from local seed plants. Varieties were obtained from three different wheat classes, Canadian Western Red Spring, Canadian Prairie Red Spring and Canadian Northern Hard Red (CWRS, CPRS and CNHR Table 1). Plots were seeded on May 16, with 119:15:20:10 lbs/ac of N:P:K:S applied through the seeder with the phosphorus being applied infurrow and the rest of the fertilizer being applied in shallow sidebands. Over the Summer the plots received 255.1mm of rainfall as recorded by the Government of Canada Forestburg AGCM weather station (Government of Canada 2024). These results were a fortunate success in spite of capricious Alberta weather. Our site experienced two hail storms on July 4th, and August 23rd that did more damage to some other trials present. These wheat crops were small enough in the first storm that they recovered quite quickly, The August storm nocked some seeds off of other wheat plants that were more mature but this trial was young enough there was minimal damage.



Figure 1. These are the average yields from the test plots conducted by BRRG. Any yield that shares a letter with another yield is not statistically different from that yield. For example Megnet and Redstar appear to have a different yield but that difference is not statistically significant which is shown by them both being marked with the letters f and g.



Photo 1. Wheat RVT photo by Kabir Makan

Table 1. Performance characteristics of the wheat varieties tested. TKW is the mass of 1000 kernels shown in grams.

	Variety	Mean Test Weight (lbs/ bu)	Mean TKW (g)
	AAC LeRoy VB	62	34
	AAC Megnet	61	33
	AAC Redstar	59	36
	AAC Wheatland VB	61	34
	CDC SKRush	61	33
Canadian	Jake	61	33
Western	Parata	61	34
Red Spring	AAC Russel	59	34
	AAC Hodge	60	35
	PT 5003	62	34
	Broad Acres	62	37
	SY Torach	60	30
	Redberry	61	33
	AAC Crossfield	60	36
Canadian	CDC Reign	60	37
Prairie Red	CS Accelerate	61	33
Spring	Proven 5700	60	38
	Sy Rorke	60	36
Canadian Northern Hard Red	AAC Foremost	59	36

#### RESULTS

The highest yielding CWRS wheat was SKRush as seen in Figure 1. SKRush performed very similarly to the CPRS varieties which, with the exception of SY Rorke had no statistical difference between them. Foremost wheat our CNHR variety also performed in the same range as our other top performing varieties. The additional harvest data was very similar to other each other (Table 1).

#### REFERENCES

Government of Canada. 2024. Government of Canada: Station Results—Historical Data; [accessed February 8, 2024]. https://climate.weather.gc.ca/historical data

## **REGIONAL SILAGE TRIALS**



Photo 1 and 2. Top photo is harvesting the Cereal Silage trial. Lower photo is the Cereal Pulse Mix RST. Photos by Alexander Olson and Kabir Makan.



## **ANNUAL SILAGE TRIALS 2023**

#### INTRODUCTION

Battle River Research Group has been looking at annual silage yields for many years under different programs and with different funding. These trials are monocrops and mixes of different feed crops that could be used as a silage crop or fed as swath grazing or green feed. Since these trials have mostly been done with silage in mind the times for harvest have been staged when the crops would normally be harvested for silage. However this data can still be useful for looking at these crops for use in other feeding systems. The highest yielding crops will still likely have a high yield if the crop is used for swath grazing for example.

In other years we have had trouble getting our faba beans mixed with cereals to yield because there was no good herbicide that could be used with both crop types. In 2023 we seeded into heavier trash than other years and as a result we had low enough weed pressure that we did not need the herbicides that would normally not allow our faba beans to compete.

#### **METHODS**

All of the Annual Silage Trials were seeded 4 miles south of Forestburg Alberta with a fertilizer rate of N:P:K 119:15:20 lbs/ac using urea: monoammonium phosphate: muriate of potash products, with the exception of the Pulse Cereal Mix Trial which received only the 15:20 lbs/ac of phosphate and potash. From May 1st to Sept. 30th our site received 255.1mm of rainfall as recorded by the Government of Canada Forestburg AGCM weather station

(Government of Canada 2024). The maximum temperature from May to September was 33 °C. Our site soil has Solonetzic Black Chernozem on medium textured loam and clay loam (Alberta Soil Information Viewer 2024). With the exception of the Alternative Silage Trial all of these trials were harvested plot wise, with whole plots being harvested and weighed in the field with our plot harvester. Moisture was then determined by drying down a subsample of each plot to find the subsample's dry weight. All of the RST were seeded toward the beginning of June and harvested in the soft dough stage as seen in table 1.

Annual Silages Important Dates								
Trials	Seeding	Harvest						
Alternatives	6/2/2023	8/23/2023						
Cereal Mix	6/2/2024	9/18/2023						
Cereal Silage	5/25/2023	9/5/2023						
Cover Crops	6/12/2023	9/19/2023						
Pulse Cereal Mix	6/2/2023	9/25/2023						

#### RESULTS

#### **CEREAL PULSE MIX**

This is an exciting trial that has a lot of utility for good nutrition as a feed for any ruminants in east central Alberta. We planted four crops of cereals Wrangler Barley, Baler Oats, Delight Triticale, and Awseome wheat that we mixed with four legume crops, Lacross peas, Fababeans, lentils. With promising yields and nutrition these traditional grain legumes create a forage or silage comparable to an alfalfa and grass hay from a perennial hay field. Unlike years past, 2023 was a great year for our fababean mixes.

	Table 2. Ceral Pulse Mix										
Trt	Desrcription	Yield (ton/ac)		Crude Protein	TDN	Са	Р	к	Mg		
		65% Moisture	Dry Yield	%	%	%	%	%	%		
1	AB Wrangler Barley	5.08	1.78	3.32	50.64	0.26	0.12	1.00	0.10		
2	CDC Baler Oats	13.06	4.57	3.70	58.32	0.19	0.16	1.47	0.10		
3	AAC Delight Triticale	5.07	1.78	3.87	53.19	0.18	0.18	0.98	0.10		
4	Awesome SW Wheat	6.25	2.19	3.52	52.12	0.15	0.13	1.15	0.08		
5	Wrangler/Lacross	2.67	0.93	4.30	47.33	0.45	0.11	0.91	0.14		
6	Wrangler/Fababean	11.18	3.91	6.44	50.91	0.37	0.12	1.26	0.12		
7	Wrangler/Lentil	6.21	2.17	8.44	60.13	0.38	0.22	1.14	0.15		
8	Baler/Lacross	9.42	3.30	4.75	56.36	0.32	0.14	1.30	0.12		
9	Baler/Fababean	15.04	5.26	7.88	59.11	0.33	0.17	1.47	0.16		
10	Baler/Lentil	12.64	4.42	3.58	58.18	0.22	0.15	1.50	0.12		
11	Delight/Lacross	5.49	1.92	5.50	54.38	0.40	0.20	1.18	0.14		
12	Delight/Fababean	13.95	4.88	5.19	51.63	0.28	0.13	1.21	0.13		
13	Delight/Lentil	8.85	3.10	6.15	56.07	0.28	0.16	1.09	0.12		
14	Awesome/Lacross	4.62	1.62	5.71	52.15	0.30	0.16	1.16	0.13		
15	Awesome/Fababean	14.54	5.09	8.06	55.30	0.36	0.15	1.65	0.16		
16	Awesome/Lentil	7.95	2.78	4.59	54.96	0.18	0.15	1.08	0.11		

With Protein at 6.44 at least (Table 2). This crop has the protein required for a dairy cows so it could be used to supplemental protein for pregnant or lactating beef cows. These crops were taken on the mature side of things so it is possible there could be more protein in some of the cereal checks if they were harvested earlier.

#### **COVER CROPS**

Cover Crops are another tool that can be used as a green feed or as a way to build organic matter in rotation with traditional cash crops. Our harvest date was later in the season but they could have been harvested earlier which would allow significant regrowth and potential for spring grazing but would reduce the yield in the first harvest. Our best yielding cover crops were Custom Blend 1 and TG Rejuvenate (Table 3). The protein levels of these crops are low but most blends have sufficient protein for maintenance or mid pregnancy. However 9% and 11% protein is required for late pregnancy and after calving respectively therefore protein supplements would be required along with this silage. These crops all have a significant amount of Ca which is a benefit to lactating cows. The amount of Ca is important not just for milk production but having at leas a 2:1 ratio with phosphorus is also important to ensure that dietary calcium can continue to be absorbed and stored in the bones.

	Table 3. Cover Crops Yield											
Trt	Mix	Yield (ton/ac)		Crude Pro- tein	TDN	Са	Р	к	Mg			
		65% Moisture	Dry Yield	%	%	%	%	%	%			
1	Austenson	14.78	5.17	6.44	57.12	0.34	0.14	1.73	0.14			
2	Swath Graze Blend (UF)	17.66	6.18	8.38	58.91	0.50	0.18	1.94	0.17			
3	Double Down Blend (UF)	16.81	5.89	8.31	56.38	0.63	0.19	2.20	0.18			
4	Dryland (UF)	17.66	6.18	7.44	56.63	0.42	0.18	1.99	0.16			
5	Custom Blend 1	21.32	7.46	6.69	56.41	0.42	0.16	2.21	0.15			
6	Fall Grazer (IS)	20.25	7.09	6.56	56.82	0.35	0.15	2.18	0.14			
7	TG Extend (IS)	19.01	6.65	7.19	56.31	0.37	0.16	1.97	0.15			
8	TG Balance Silage	19.06	6.67	7.75	55.47	0.37	0.15	2.08	0.15			
9	TG Rejuvenate (IS)	21.09	7.38	6.81	57.36	0.35	0.18	2.07	0.14			
10	Regraze Blend (UF)	19.61	6.86	7.56	58.18	0.35	0.18	1.90	0.14			
11	Finito	15.98	5.59	6.81	55.79	0.58	0.19	2.15	0.16			
	LIE etens	le fer Union For	anaa and l	C atanda far l	man arial C	a a d						

UF stands for Union Forages and IS stands for Imperial Seed



Photo 3. forage Brassica. Photo by Alexander Olson



Photo 4. Alternative Trial Corn photo by Alexander Olson



Photo 5. Alternative Silage Trial with different crops labeled in the photo. Photo by Alexander Olson



Photo 6. Sorghum Sudan Grass in the Alternative Silage Trial. This picture better shows the heads of the grass. Photo by Alexander Olson

	Table 4. Alternative Forages									
Itt	Desrcription	Yield (ton/ac)		Crude Protein	TDN	Ca	Р	к	Mg	
		65% Moisture	Dry Yield	%	%	%	%	%	%	
1	Corn *	31.09	10.88	8.85	70.66	0.09	0.27	0.97	0.13	
2	Proso Millet	29.97	10.49	12.93	60.52	0.28	0.16	2.97	0.37	
3	Japanese Millet	47.94	16.78	12.83	60.04	0.51	0.20	4.08	0.58	
4	Sorghum Sudan Grass	17.26	6.04	13.39	63.00	0.39	0.15	2.52	0.22	
5	Forage Collards	25.90	9.07	25.67	74.82	1.94	0.32	4.68	0.50	
6	Forage Radish	54.79	19.18	15.60	54.86	1.32	0.23	3.47	0.52	
7	Phacelia	16.52	5.78	17.47	59.77	2.44	0.22	4.14	0.79	
8	Plantain	18.89	6.61	17.64	64.57	1.61	0.20	2.89	0.31	
9	Chicory	4.10	1.44	20.53	70.80	1.17	0.24	5.14	0.34	
10	Wrangler Barley	37.36	13.08	9.42	67.44	0.24	0.15	1.71	0.13	
11	Sorghum Sudan Grass *	42.25	14.79	7.38	64.04	0.27	0.16	1.39	0.19	
	* Havested	October 3rd n	ot on August	28th with th	ne earlie	r alterna	tives.			

#### ALTERNATIVE SILAGES

Forages are a dynamic field that can be mixed and matched to give the nutrition required, most often the use case is for winter feed however there can be summer grazing on some cover crops. Our alternative forages are always of interest to me to see what kind of nutrients are available in less conventional crops. The Sorghum Sudan Grass did very well this year where we have not always had success with it. We did two harvests with that crop one with the rest of the alternatives when the grass was still vegetative and another harvest at corn harvesting timing. This was not a harvest of the regrowth as one might do with alfalfa but a harvest of different areas of the plots. The later harvest provided more then double the yield but with lower protein but still very good for a winter feed (Table 4). Balancing what nutrients the crop has with yield is especially challenging with crops that our new for our region.

For these alternative crops all of them provide what a cow requires as far as protein. Corn, Collards, and Chicory all have a great energy with corn having the best yield of those three. However corn had the worst Ca:P ration so feeding this corn crop would require some Ca supplementation.

Table 5. Cereal Silages Yield and Nutrients									
Trt	Desrcription	Yield (ton/ac)		Crude Protein	TDN	Ca	Р	к	Mg
		65% Mois- ture	Dry Yield	%	%	%	%	%	%
1	AB Advantage	18.80	6.58	7.88	60.02	0.26	0.12	1.98	0.14
2	AB Cattlelac	16.67	5.84	8.94	69.46	0.18	0.20	1.35	0.12
3	AB Hauge	15.64	5.47	7.56	60.93	0.24	0.12	2.11	0.13
4	AB Wrangler	10.11	3.54	4.47	57.22	0.25	0.10	2.12	0.11
5	Altorado	13.97	4.89	6.75	59.61	0.21	0.11	1.99	0.11
6	CDC Baler	29.15	10.20	6.18	55.34	0.36	0.19	2.12	0.17
7	CDC Haymaker	26.50	9.27	7.31	58.70	0.29	0.13	2.57	0.17
8	CDC Nasser	25.90	9.07	5.86	56.17	0.24	0.10	2.55	0.13
9	CS Camden	24.95	8.73	8.19	58.05	0.33	0.13	2.53	0.18
10	Murphy	25.72	9.00	6.31	57.10	0.21	0.11	2.38	0.14
11	Taza	14.76	5.16	10.56	61.01	0.39	0.22	3.28	0.16
12	AAC Awesome	16.67	5.83	6.94	61.27	0.18	0.14	2.16	0.12
13	AAC Delight	16.71	5.85	7.75	63.07	0.25	0.16	1.61	0.11
14	Tyndal	19.20	6.72	6.50	60.20	0.24	0.13	1.74	0.10
15	AB Stampeder	20.85	7.30	5.73	59.40	0.24	0.14	1.90	0.14

Table 6. Lodging observed in silage plots on a scale of 1-9. 1 being no lodging and 9 being the entire centre of the plot is laying flat. The score in this table is the average of four replications for each variety.

Description	Average lodging		
AB Advantage	3.25		
AB Cattlelac	2.00		
AB Hauge	2.00		
AB Wrangler	3.25		
Altorado	1.25		
CDC Baler	3.00		
CDC Haymaker	5.25		
CDC Nasser	1.00		
CS Camden	1.00		
Murphy	2.00		
Taza	1.00		
AAC Awesome	1.00		
AAC Delight	1.50		
Tyndal	1.25		
AB Stampeder	1.00		

#### **CEREAL SILAGES**

Our regional cereal silage trial looks at the yields and nutrition in various varieties of silage barley, oats, and triticale. This year all of the oats had the largest yields (Table 5). Taza triticale performed best in terms of protein with Wrangler barley being so low in protein it would need supplementation. These cereal silages generally have sufficient calcium with the triticale being generally lower in calcium compared to phosphorus.

Haymaker oats had the worst lodging with some plots almost completely lodged. Over all the barley treatments were more lodged as seen in Table 6. Compared to our mixed trials it can be seen that the yield of the unmixed oat crops had the highest yield. The crude protein in the monocrop silages was relatively similar to that seen in the pulse mixed crops but that required large inputs of N by urea. This means that it costs much more to get the necessary protein in a monocrop.

#### WINTER SPRING CEREAL MIXED SILAGE

Most annual silage crops have a short window to be harvested where there is maximum yield but still retains as much protein as possible. One of the solutions is to intercrop winter and fall cereal varieties with spring varieties. When planted in the spring the spring varieties mature normally and head out in time for silage harvesting. The fall or winter varieties do not vernalize and therefore remain in a vegetative state. This means that when the crop is harvested in late summer there is energy and a lot of yield in the heads but then the green leaves of the winter varieties contribute to the amount of protein in the forage. In this trail Baler oats performed the best in terms of yield and the intercrops with baler had the largest intercrop yields though that was still less than the monocrop Baler (Table 7). Intercrops with fall rye as the vegetative crop had the most protein with most of the other treatments requiring some kind of supplementation. All of the treatments have sufficient %TDN for mid pregnancy which is 55% threshold. Only the Baler mixes had the energy for late pregnancy at 60% TDN. Only the Wrangler and Wrangler and Louma triticale mix had a 2:1 ration of calcium and phosphorus.

Table 7. Winter and Spring Cereal Mixes Yield and Nutrients									
Trt	Desrcription	Yield (ton/ac)		Crude Protein	TDN	Ca	Р	к	Mg
		65% Moisture	Dry Yield	%	%	%	%	%	%
1	AB Wrangler Barley	8.51	2.98	4.56	52.52	0.23	0.10	1.41	0.09
2	CDC Baler Oats	20.09	7.03	5.14	58.85	0.25	0.16	1.95	0.12
3	AAC Delight Triticale	12.39	4.34	5.14	58.49	0.20	0.15	1.23	0.09
4	Awesome SW Wheat	14.02	4.91	5.21	58.52	0.16	0.15	1.41	0.09
5	Wrangler/Prima Fall Rye	8.54	2.99	6.08	58.58	0.27	0.20	1.83	0.12
6	Wrangler/Luoma W Triticale	10.30	3.61	5.34	55.43	0.29	0.14	1.97	0.11
7	Wrangler/Wildfire W Wheat	7.44	2.60	4.97	55.88	0.22	0.16	1.49	0.10
8	Baler/Prima Fall Rye	16.72	5.85	4.99	60.72	0.25	0.21	2.00	0.13
9	Baler/Luoma W Triticale	17.91	6.27	4.84	59.86	0.22	0.16	1.99	0.10
10	Baler/Wildfire W Wheat	16.43	5.75	5.13	60.36	0.26	0.16	1.87	0.12
11	Delight/Prima Fall Rye	9.08	3.18	7.50	58.87	0.28	0.23	1.86	0.13
12	Delight/Luoma W Triticale	12.31	4.31	6.81	58.17	0.23	0.19	1.77	0.10
13	Delight/Wildfire W Wheat	9.06	3.17	5.48	57.17	0.34	0.27	1.42	0.14
14	Awesome/Prima Fall Rye	11.72	4.10	6.44	57.84	0.26	0.21	1.95	0.13
15	Awesome/Luoma Triticale	12.11	4.24	6.31	58.03	0.26	0.20	1.90	0.12
16	Awesome/Wildfire W Wheat	13.51	4.73	6.50	59.34	0.22	0.19	1.63	0.12

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## **EXTENSION EVENTS 2023**



Photo's by Kabir Makan

In the dynamic and ever-evolving realm of farming, where technological advancements and best practices continually shape the landscape, staying informed is not just a choice but a necessity for success. Amidst this backdrop, the Battle River Research Group (BRRG) has emerged as a stalwart, consistently delivering valuable insights and knowledge to Alberta's farming community throughout the year 2023.

In the span of this transformative year, BRRG has orchestrated an impressive series of 19 extension events, each meticulously crafted to empower farmers with the tools and knowledge essential for not just surviving but thriving in the ever-changing agricultural environment.

The first of these events kicked off early in the year, focusing on the latest innovations in crop management. From cutting-edge technologies to sustainable practices, farmers were provided with a comprehensive overview of the strategies that could elevate their crop yields while maintaining ecological balance. The event served as a platform for farmers to interact with experts, fostering an exchange of ideas crucial for adapting to the rapidly evolving agricultural landscape.

Following the success of the crop management event, BRRG continued its stride with a series of workshops delving into livestock management practices. These workshops aimed to address the nuanced challenges faced by livestock farmers, ranging from health management to breeding strategies. The incorporation of hands-on demonstrations and expert-led discussions made these events not just informative but also engaging, ensuring that participants could translate knowledge into actionable practices on their farms.

Recognizing the significance of sustainable farming practices, BRRG hosted events dedicated to environmental stewardship. These gatherings focused on conservation practices, water management, and the integration of eco-friendly technologies. Farmers were not only educated about the importance of environmental sustainability but were also provided with practical approaches to implement on their farms, aligning productivity with environmental consciousness.

BRRG's commitment to the community was further exemplified in events specifically tailored to address the unique challenges faced by small-scale and family-run farms. These events fostered a sense of community, creating a platform for farmers to share experiences and strategies for navigating the intricacies of smaller agricultural operations. The emphasis on collaboration and mutual support underscored BRRG's dedication to ensuring that every farmer, irrespective of scale, had access to relevant and impactful knowledge.

In the latter part of the year, BRRG shifted its focus towards the future of farming, exploring emerging technologies and trends that could reshape the industry. The events covered topics such as precision agriculture, automation, and data-driven decision-making, providing farmers with a glimpse into the cutting-edge technologies that could define the next era of agriculture.

Throughout these 19 extension events, the Battle River Research Group has not only disseminated knowledge but has fostered a sense of community among Alberta's farming fraternity. The events were not just opportunities to learn but also occasions for farmers to connect, share experiences, and build a network of support.

As the year draws to a close, BRRG's impact on Alberta's farming community is undeniable. The 19 extension events stand as a testament to their unwavering commitment to the betterment of agriculture, equipping farmers with the knowledge and tools needed to navigate the complexities of modern farming successfully. In a rapidly evolving industry, the Battle River Research Group has proven to be a beacon of guidance and a catalyst for positive change in Alberta's farming landscape.

#### February 22nd - Dugout for livestock Operation

Shawn Elgert's "Webinar on Dugout for Livestock Operations" was a pivotal learning experience, drawing 25 attentive participants. Focused on Dugout Design, Maintenance, and Water Quality Treatment, the session provided essential insights into optimizing water resources on farms. Attendees actively engaged in discussions, highlighting the webinar's impact on enhancing the understanding and practices related to crucial aspects of livestock operations. This successful event underscores our commitment to delivering valuable knowledge and fostering community engagement within the Alberta farming network



#### February 24 - Calving Clinic

Dr. Colin Nicholas led a highly attended "Calving Clinic" online webinar, featuring 30 participants. Addressing the crucial topic of managing calving problems, Dr. Nicholas emphasized the paramount importance of calves receiving colostrum. Attendees gained valuable insights into effective calving practices, contributing to improved livestock health and overall farm productivity. The event exemplifies our commitment to delivering pertinent information to the Alberta farming community and fostering a collaborative environment for shared knowledge and expertise



#### March 9 - Hemp Agronomy Seed & Fiber Production

Jeff Kostuik's webinar on "Hemp Agronomy Seed and Fiber Production" was a standout event with 18 participants. Kostuik, an authority in the field, shared invaluable insights into the intricacies of hemp cultivation, covering both seed and fiber production. The session highlighted sustainable practices and optimal techniques for maximizing yields. This event not only demonstrated our commitment to disseminating crucial agricultural knowledge but also facilitated a collaborative learning environment. The engagement and participation underscore the relevance of hemp cultivation in the Alberta farming community



#### MARCH 14 - ANNUAL GENERAL MEETING

Battle River Research Group celebrated a significant milestone at its Annual General Meeting on March 14th, 2023, marking 30 years of dedicated service to the community. The event, held at the Stettler Agricultural Society, welcomed around 60 attendees. President Donald Kroetch expressed gratitude for the community's support and highlighted BRRG's 2022 projects. The auditor provided a comprehensive overview of the budget and expenditures.

Speakers included Fiona Briody from RDAR, discussing the on-farm climate action fund and Agriculture and Agri-Food Canada's \$33 million commitment to combat climate change. Another presenter from ARECA focused on the Environmental Farm Plan (EFP) and the Alberta Farm Mental Health Network, fostering mental well-being in farming communities. After a delightful lunch break featuring slowroasted pulled beef, Ted Nibourg explored Cropland Lease Agreements and statistics on rented agricultural land in Alberta. The final speaker, Barry Yaremcio, enlightened attendees on cattle grazing, emphasizing nutrition, pre-calving impacts, and sustainable practices.

The meeting concluded with the introduction of new board members, ushering in fresh perspectives and expertise to continue BRRG's legacy. The new members include Shawn Charbonneau, Bryan Zwack, Kirk Sorensen, Stuart McMahon, Carl Bergstrom, Terry Magneson, Paul Mckay. The AGM showcased BRRG's commitment to community engagement and knowledge dissemination.



#### March 22 - Cutting Edge Technology in farming

Battle River Research Group hosted a pivotal "Cutting Edge Technology in Farming Seminar" on April 13th, 2023, at the Camrose Regional Exhibition. Portfolio and Land Rent Manager, Chuck Blackburn, initiated the event, welcoming attendees and introducing an array of informative sessions.Jesper Voois from Weed-It presented revolutionary sprayer technology, showcasing its potential for significant reduction in crop protection chemical use. Chuck Blackburn delved into finance and investments, followed by Jason Bradley from Carbon Asset Solutions addressing challenges posed by CO2 taxes and climate change, emphasizing soil carbon increase strategies. Avery Shepherd of Imperial Seed enlightened attendees on cover cropping basics, addressing diverse soil concerns. Keith Driver from Replenish Nutrient discussed regenerative fertilizers, presenting insightful data from field trials in Strathmore, AB.

Mokah Shmigelsky from One Cup AI concluded the seminar with an introduction to real-time cattle monitoring systems, offering a revolutionary solution for ranchers. The event concluded with gratitude to attendees and speakers, anticipating continued success in future endeavors.



#### April 28 - Spray Drones in Row Crop & Beyond

Taylor Moreland led a highly engaging online webinar on "Spray Drones in Row Crop and Beyond," attracting 12 enthusiastic participants. The session delved into the transformative applications of spray drones in optimizing row crop farming practices. Moreland, an expert in the field, provided valuable insights into the efficiency and advancements in drone technology for precision agriculture. Attendees gained a comprehensive understanding of the benefits and practical implementation of spray drones, marking the webinar as a successful knowledge-sharing platform within the agricultural community.



#### May 26 - Carbon Asset Solutions boosts farm/ranch income by adding a carbon revenue stream

Neil Smith delivered a compelling online webinar on "Carbon Asset Solutions boosts farm/ranch income by adding a carbon revenue stream," drawing an impressive audience of 35 participants. Smith delved into the strategies and benefits of integrating carbon revenue streams into agricultural practices, shedding light on the pivotal role Carbon Asset Solutions plays in enhancing farm and ranch income. The session provided valuable insights into navigating the evolving landscape of sustainable and economically viable farming, making it a noteworthy and well-attended event within the farming community.

#### June 23 - Field Day on Grazing Management

On June 23rd, Battle River Research Group, in collaboration with CARA, organized a comprehensive field day on grazing management at Coronation Hall, Alberta. Renowned speaker Greg Judy from Green Pastures Farms, Missouri, led the event, covering crucial topics to enhance farming practices. Judy's insights on "How to think like a Grazier" emphasized proper grazing management's impact on animal and farm health, discussing microbial soil, winter stockpiling, and soil life. He also addressed economical watering and fencing techniques, highlighting the significance of accessible water points for livestock. The final session emphasized maximizing profits through animal performance, stressing the role of healthy nutrition and watering. The day included a hearty lunch, a demo by Neil Thorsteinson on portable electric fences, cattle walks, and farm tours, providing practical insights for attendees.





#### JULY 26 - BRRG FIELD DAY

The Battle River Research Group (BRRG) orchestrated a highly successful Field Day on July 26th, 2023, at the Galahad research plots site. Gathering around 60 participants, including agricultural experts and enthusiasts, the day was marked by informative sessions covering diverse aspects of agriculture. Vice President Stan Schulmeister initiated the event, expressing gratitude and setting an enthusiastic tone. Dr. Khalil Ahmed, BRRG Manager, introduced the speaker lineup, commencing with Matthew Enright's insightful presentation on Hybrid Fall Rye, emphasizing its yield and sustainability benefits. Adam Smith from Covers followed, delving into the crucial role of Full Season Cover Crops in soil health and weed suppression. Keith Gabert from the Canola Council delivered an impromptu yet informative talk on Canola and Canola insects, enriching the audience's knowledge.

The lunch break, sponsored by Flagstaff County and Blair Kuefler, provided a networking opportunity. Post-lunch, Dr. Harpinder Randhawa Singh presented on Wheat Midge Resistant Spring Wheat Varieties, underscoring the importance of pest-resistant crops.

Maria Champagne from AgSafe addressed farm safety, emphasizing best practices and safety measures. Markus Weber concluded the day with a live spray drone demonstration, showcasing the technological marvels in precision spraying and leaving attendees inspired.

BRRG's Field Day was a resounding success, offering a platform for knowledge exchange, networking, and collaboration. The diverse range of topics covered ensured attendees gained valuable insights into cutting-edge agricultural advancements.



#### July 17 - Farm Safety & Mental Health

On July 17th, the Battle River Research Group (BRRG) orchestrated a impactful Farm Safety & Mental Health Seminar at the Norsemen Inn in Camrose, Alberta. The event, beginning at 9:30 am, focused on raising awareness about mental health support for farmers and advocating farm safety practices. Extension Coordinator Kabir Makan welcomed attendees, highlighting the seminar's significance. Lead Researcher Rebecca Purc-Stephenson from AgKnow delivered an insightful presentation on mental health awareness, emphasizing unique farmer challenges and available resources. Camrose County sponsored a delightful lunch, fostering networking opportunities. MARIA Champagne of AgSafe Alberta then shared valuable insights on farm safety, covering machinery, chemical handling, and emergency protocols. The seminar, a triumph, heightened awareness, provided practical guidance, and emphasized BRRG's commitment to farmer well-being and sustainable practices. Gratitude was extended to attendees and sponsor Camrose County. The success of this seminar inspires future BRRG initiatives.

#### August 10 - BRRG Tailgate Tour

On August 10, 2023, the Battle River Research Group (BRRG) hosted an insightful Tailgate Tour centered on Pea-Ola, a unique blend of peas and canola crops. With Blair Kuefler as the expert guide, the event gathered approximately 18 attendees in Galahad, Alberta, starting at 10 a.m. The Tailgate Tour aimed to explore Pea-Ola's potential and challenges while fostering networking among those interested in sustainable agriculture. Participants enjoyed a friendly atmosphere with coffee and donuts before delving into the educational session led by Mr. Kuefler. The field tour provided valuable insights into Pea-Ola cultivation, crop management, soil health, and pest control. A delicious barbecue lunch and thoughtful discussions rounded off the event, highlighting its success in promoting collaborative learning and sustainable farming practices within the agricultural community. The BRRG expresses gratitude to all participants for contributing to this enriching experience.





Battle River Research Group

#### **BRRG Extension Events 2023**

#### August 12 - Low-Stress Livestock Handling Workshop

On August 12, 2023, the Battle River Research Group (BRRG) organized a successful Low-Stress Livestock Handling workshop at Agriplex in Stettler, Alberta. Featuring Dylan Biggs from TK Ranch, the event attracted 36 eager participants. Starting at 9 a.m., Mr. Biggs shared insights into effective and humane livestock handling, drawing on his childhood experiences. The workshop covered strategies for uncooperative livestock, predictable hunter tendencies, and herding maneuvers. Neil Thorsteinson from RangeWard conducted a demo on electric fencing, showcasing the latest technology. A sponsored lunch by RangeWard provided Chinese cuisine. Afternoon sessions included a live demonstration at Neilson Signature Beefs Farm, offering practical experience. Attendees left with enhanced knowledge and gratitude was expressed to Dylan Biggs, participants, and Lance Neilson for the farm venue.

#### August 21 - BRRG Tailgate Talk

On August 21, BRRG hosted a Tea Talk on Swath Grazing featuring Dr. Obioha Durunna. Dr. Durunna shared valuable insights on Swath Grazing with a group of 10 attendees at the event held in Strome. The talk delved into the nuances of this grazing practice, offering participants an opportunity to enhance their understanding of sustainable and efficient agricultural techniques. The intimate setting fostered meaningful discussions and knowledge exchange, contributing to the collective expertise within the agricultural community. The Tea Talk on Swath Grazing proved to be an informative and collaborative session for all involved.





#### September 1 - Paddock Walk on Resilience through Diversity

BRRG hosted a Paddock Walk on Resilience Through Diversity with Kevin Elmy, where 12 attendees gathered at Ugly Head Feeders Farm. Kevin Elmy shared insights on building resilience through diverse farming practices. The event provided a unique opportunity for hands-on learning in the field. Following the informative session, a lunch featuring delicious pizzas was served, fostering a casual and collaborative atmosphere. Attendees benefited from the practical knowledge shared by Kevin Elmy and engaged in meaningful discussions, making the Paddock Walk on Resilience Through Diversity a valuable experience for all involved.



#### PADDOCK WALK ON RESILIENCE THROUGH DIVERSITY AT UGLY HEAD FEEDERS FARM SEPTEMBER 1ST, 2023 10 AM

LOCATION- KILLAM SW-27-454-133-W4 COORDINATES 52.9029576,-111.8071546

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Kevin Elmy started his regenerative agriculture journey in 2000 while farming in eastern Saskatchewan. At that time, he was attempting to farm dirt. By focusing on building soil organic matter, diversifying their cropping rotation, engaging in custom livestock grazing, and then cover cropping. he was able to transform his farming practices. As a result, Kevin could farm without the need for fortilizers, insecticides, and fungicides, and he also minimized herbicide applications while maintaining a positive net margin without incurring additional expenses. To share his knowledge and experiences with others, Kevin wrote a book titled "Cover Gropping in Western Canada, and currently Kevin is in the process of getting his second book, "Not Just Dirt: Regenerative Arriculture Principles," published.

#### October 10 - Using Livestock Guardian Dogs and Other Management Practices to Reduce Livestock/Wildlife Conflicts

In a Zoom webinar on October 10, 2023, Louise Liebenberg engaged 30 participants in an insightful discussion on "Using Livestock Guardian Dogs and Other Management Practices to Reduce Livestock/Wildlife Conflicts." Liebenberg's expertise illuminated effective strategies, with a focus on utilizing Livestock Guardian Dogs and other management practices. The participants gained valuable insights into mitigating conflicts between livestock and wildlife through proactive and humane measures, showcasing the importance of coexistence in agricultural landscapes. The webinar provided a platform for shared knowledge and practical solutions, fostering a deeper understanding of sustainable practices in livestock management.



#### November 15 - FORAGE STAND SOD SEEDING REJUVENATION

BRRG organized a successful event on Forage Stand Sod Seeding Rejuvenation with Grant Lastiwka at Castor Community Hall on November 15. Fifteen participants gathered to learn about the rejuvenation techniques discussed by Grant. The day included a break for a delicious pizza lunch, fostering a casual and informative atmosphere. In the afternoon, attendees had the opportunity to witness the practical application of the discussed methods in the field. The event not only provided valuable insights into forage stand management but also facilitated networking among participants, making it a productive and engaging experience for all involved.



#### November 23 - Highs & Lows of Hybrid Rye

In a Zoom Webinar on the Highs & Lows of Hybrid Rye, Matt Gosling engaged 35 attendees. He provided valuable insights on managing volunteer rye, addressed concerns about excessive nitrogen application (180lbs actual N), and explored the dynamic aspects of cultivating hybrid rye. The discussion included practical tips on maximizing the benefits of this crop while emphasizing the fun factor in farming. Attendees gained valuable knowledge on optimizing hybrid rye cultivation, making the webinar a rich source of information for those seeking effective farming practices.



#### **December 1 - Winter Wheat**

On December 1st, BRRG hosted a webinar on Winter Wheat featuring Dr. Harwinder Sidhu. With 18 attendees, Dr. Sidhu delved into essential aspects of winter wheat cultivation, providing valuable insights. The webinar covered key topics related to winter wheat, addressing various considerations for successful cultivation. Participants had the opportunity to enhance their understanding of winter wheat practices, contributing to informed decision-making in their agricultural endeavors. The event fostered knowledge exchange and further strengthened the community's expertise in winter wheat cultivation.



#### **December 14 - Fusarium Head Blight**

On December 14th, BRRG organized a webinar on Fusarium Head Blight featuring Trevor Blois from 20/20 Seed Labs. With 22 attendees, the session provided critical insights into the challenges posed by Fusarium head blight and strategies for management. Trevor Blois shared expertise on identification, prevention, and treatment of Fusarium head blight, offering valuable information to the participants. The event facilitated knowledge exchange and equipped attendees with essential tools to address and mitigate the impact of this fungal disease on crops.



#### **UNIVERSITY OF ALBERTA STUDENTS VISIT TO BRRG**



#### THE YEAR OF TRANSFER OF KNOWLEDGE 2023 BRRG SOCIAL MEDIA AT A GLANCE

ANNUAL REPORT BRRG publish one yearly report to share the organization's performance and the ongoing research project results with our members and subscriber. The reports are available for the public at our website	E-NEWSLETTER BRRG published three newsletters/year. All newsletters are available for the public on our website www.battleriverresearch.com	YOUTUBE BRRG started a YouTube channel in 2020. We always shared our live events and webinars on YouTube
		BLOG ARTICLES
<b>TWITTER</b> 1.6K FOLLOWERS	FACEBOOK 801 FOLLOWERS	BRRG created an <u>online</u> <u>Blog</u> so farmers can comment and share their thoughts we share specialist articles and fact sheets on our blog

#### WEBSITE ANALYTICS

#### Traffic Over Time (split, bar chart)

Select a time period is from 2023/01/01 until 2024/01/01 Group by is Week. Select a measure is Site sessions. Split by is Visitor type Exclude bots is Yes



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YOUR POSTS During this 91 day period, you earned 153 impressions per day.

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