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## *Grain, Grass & Growth*

*May 2024*



Field Technician Jerry Pratt drives the tractor and CARA's custom small plot seeder unit while Summer Research Technician Jaskarndeeep Singh seeds each plot for the green and yellow pea, fababean, and lentil Regional Variety Trial. This trial is located west of Consort, along Highway 12 on Cooperator Barry Redel's field.

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# Meet our 2024 Summer

## Kinley Baier

My name is Kinley Baier. I grew up in Compeer, Alberta. Agriculture has always been part of my life. Starting out by helping my parents and grandparents on our family farm to going to school in a strong Ag based environment. I was part of the Altario 4H Beef Club for eight years and had the opportunity to learn many beneficial skills to get me where I am today. All these experiences have helped me to know I want to be in the Ag industry. Which is why going out of high school last year I chose to do my first year at Lakeland at Vermilion where I attended the Animal Science Technology – major of beef diploma course. I enjoyed my time there and will be going back in the fall. Following that year I'm not quite sure what step I'll take, but I know it'll be Ag based. I'm excited to learn at CARA this year since I have a lot more knowledge relating to cows and now, I can broaden my understanding on crop research.

## Nicole Bodnaruk

Hi my name is Nicole Bodnaruk, I grew up just South of Oyen near the small locality called Cappon.

Growing up on a ranch has led me to find a passion in agriculture, specifically with livestock. I finished my second year of Animal

Science at the University of Alberta this spring and plan on continuing my education at NAIT in the Animal Health Technology program. This will be my fourth summer working at CARA, each year has helped me learn more about the crop side of things, and I get to learn about programs that are in place to help out farmers. These last couple of years I've been able to attend seminars like the Southern Alberta Grazing School for Women, and the Riparian Management put on by Cows and Fish which have taught me new practices that can be incorporated at home. I'm excited for what this summer has in store for me!

## Presley Bouvier

My name is Presley Bouvier, I have lived in Oyen for my entire life. I attended Oyen Public School from preschool to grade 8 and then I went to South Central High School from grades 9 to 12. After I graduated from high school I knew I wanted to do something in the agricultural field and I loved animals so I decided to attend Lakeland College in Vermilion enrolled in their Animal Health Technology Program. I have really enjoyed my first year in the program and I am very excited to go back for my second year in the fall. After I

graduate from college I plan to hopefully work in an emergency center for a bit to gain some experience and then go into a mixed animal practice as a Veterinary Technologist. Some of my hobbies during my spare time are curling in the winter and golfing in the summer. I don't have much of a farming background so I am excited to be a part of the CARA team this summer and gain new learning experiences during my time here!

## Randi Meyers

My name is Randi Meyers. I grew up near a small town called Minton, Saskatchewan on a cattle farm. My background is mainly with cattle – assisting with feeding, vaccinating, calving, branding, and sorting/halving pairs.

After graduating from high school, I attended Lakeland College in the Vet Tech Program but have since then changed my mind about the career path I want to be on. I am currently a student at Lethbridge College in the Renewable Management Program where I hope to work in the wildlife field.

I hope to eventually have a farm of my own one day working with a variety of animals as well as wildlife. I am excited to be apart of the CARA team and looking forward to what the summer has in store.



**CARA's summer research technicians from left: Jaskarndeeep Singh, Naman Naman, Kinley Baier, Randi Meyers, Presley Bouvier and Nicole Bodnaruk**

## Our Research Technicians

### Naman Naman

Hi, I am Naman, born and brought up in Rajastham, India. I have completed my high school education from D.A.V. Ganganager, Rajastham in Agriculture stream. At present I am pursuing my higher education as a Precision Agricultural student from Olds College.

In India, I have managed and worked on farms. I love to manage my orange tree grove. In my farm I have one big water tank in which I stored the channels water (pure water) and I have also two underground wells which use underground water with the help of solar energy. I mixed pure and underground water to give the orange trees. In my farm, I used organic matters such as cow dung, litter (soil where cows live) and also sprayed stored butter milk. I stored butter milk for a few days and then sprayed it on plants to control my plants from pests, I used homemade sprays such as juice of Neem Leaf (*Azadirachta India*) dhatura (moon flower and thorn apple) and Aak (Sodom apple). I also use these plant juice to treat the seeds before seeding and also use gud (Jagerry) in my other farm where I grow crops according to season such as wheat, cotton, mustard, gawar (cluster bean).

### Jaskarndeeep Singh

Greetings, fellow enthusiasts of the earth!

Allow me to introduce myself—Jaskarndeeep Singh, hailing from the picturesque province of Rajasthan, India. Born into a world where the scent of soil and the whispers of the wind were my first companions, my roots run deep in the fertile lands tended by my farmer father and nurtured by my teacher mother's wisdom.

My academic journey, a mosaic of disciplines, led me to Maharaja Ganga Singh University, Rajasthan, where I pursued a bachelor's degree with a fervent passion for

botany, zoology, and the ever-evolving realm of computer science.

In the crisp autumn of 2023, fueled by an insatiable thirst for knowledge and a yearning for new horizons, I embarked on a transcontinental odyssey to Canada. The Olds College of Agriculture and Technology beckoned with its promise of a post-diploma certificate in Environment—a gateway to understanding the intricate dance between nature and humanity.

Immersed in the vibrant tapestry of Canadian academia, I traversed the realms of ecological harmony and sustainable practices, honing my skills and expanding my intellectual horizons. As the autumn leaves gave way to the blossoms of spring, I proudly emerged, diploma in hand, ready to embark on the next chapter of my journey.

But my thirst for knowledge knows no bounds. Eager to deepen my understanding and contribute meaningfully to my field, I now find myself treading the path of practical experience. As a Summer Technician at the esteemed Chinook Applied Research Association (CARA), I am privileged to be at the forefront of innovative projects aimed at addressing the pressing challenges facing agriculture and the environment.

Yet, amidst the bustling laboratories and verdant fields, my heart remains tethered to the earth. The memories of childhood days spent in the embrace of my father's farm fuel my unwavering passion for agriculture—a flame that burns ever brighter with each passing day.

Looking ahead, I aspire to scale greater heights, to delve deeper into the mysteries of our natural world. A Ph.D. in Environment beckons, a beacon of knowledge illuminating the path towards a greener, more sustainable future.

As I stand on the cusp of tomorrow, I invite you to join me on this odyssey—a journey of discovery, of growth, and of relentless pursuit of a world where harmony between humanity and nature is not just a dream, but a tangible reality.

### COMING EVENTS

*In addition to the events listed on the last page, watch for details of crop walks in late July/early August at our Redel site (Special Area 4), Smigelski site (Special Area 3) and our MD of Acadia crop trial sites.*



## Stressed Pasture Recovery



Dry or drought conditions reduce forage yield and quality. High temperatures are the biggest factor in reducing forage quality. When combined with a lack of moisture, metabolic efficiency in the plant is reduced which results in lower yield and quality. If these stresses occurred last summer and fall and carried into the spring, some plants will remain dormant, especially the cool season grasses.

When plants are stressed due to environmental conditions or from over grazing, the size of the root ball is reduced. With less root mass, fewer nutrients are available to the plant which reduces growth potential during the growing season. Root systems regenerate in late fall and early spring. Pastures that were overgrazed did not regenerate the root system last fall and this limits recovery in the spring.

Plants that are stressed can take several years to fully recover. Providing the plants with an opportunity to rest and redevelop the root system is key. A grazing management plan is needed to regain a healthy productive stand. There are four components.

1) What is a realistic estimate of forage production per year? This depends on plant density, species of grass and amount of legume present, soil type and fertility, and moisture. There will be yield differences between pastures. Collecting forage samples from different locations in the pasture, drying the material, and calculating dry matter per acre provides yield data. A second method is to use a forage stick, or a yardstick to estimate yield. Depending on the stand, yields can be anywhere from 150 to 450 pounds of dry matter per acre inch of height. Height used to calculate yield is the amount (height) of forage to be consumed not the total height of the plants. A good reference: <https://am.gallagher.com/en-CA/Solutions/Case-Study->

Listings/How-to-Estimate-and-Allocate-Your-Forage-with-a-Grazing-Stick#:~:text=Record%20the%20density%20or%20number,DM%2Facre-inch).

2) How much forage can an animal consume? The weight of the animals is important. A 1,000 pound cow will consume approximately 2.6% of body weight of dry matter per day (26 pounds) or 800 pounds per month. If the cow weighs 1,400 pounds, it will consume 1,030 pounds of dry matter per month.

Fresh forage contains between 80 to 90% water. If 1,030 pounds of dry matter is consumed per head per month, that equates to 5,150 to 10,300 pounds of fresh forage depending on moisture content.

3) Calculate carrying capacity. Using forage yield per acre, number, and size of animals on pasture, the carrying capacity can be calculated. Cows are not efficient when grazing. Trampling losses and inefficient grazing can reduce forage use efficiency to 60% or less.

The AUM (Animal Unit Month) is a system that calculates the amount of forage required by an animal per month. The standard AUM is based on a 1,000 pound dry cow consuming 780 pounds of dry feed per month. A 700 pound steer is 0.8 AUM and a 1,400 pound cow with a 4 month old calf 1.4 AUM.

To calculate the length of time a pasture will supply adequate forage: Multiply the number of animals on pasture by type (AUM's per month i.e.: 1.4 for a 1,400 pound cow with a 4 month old calf) by number of months. Divide the required number of AUM's by AUM's available to determine the months of grazing that are available.

For more details, refer to the Beef Cattle Research Council website. It has two AUM calculators online. Links are: <https://www.beefresearch.ca/tools/carrying-capacity-calculator-method-1/> and <https://www.beefresearch.ca/tools/carrying-capacity-calculator-method-2/>

4) Is a continuous or rotational grazing system used? Continuous grazing does not provide any rest periods for the plants to recover from grazing and environmental stress. In some research, forage yields were increased up to 30% when rotational grazing is used compared to a continuous system.

To improve forage yields, different management strategies can be used.

1) Delay spring turn out. Plants should have 3 to 4 leaves present to allow the plants to produce sufficient

nutrients to be self-sustaining. For every day that animals are turned out early in the spring, it reduces fall grazing by 3 to 4 days.

2) Graze to remove approximately 50% of the available plant material. Leave some leaf material to help the plant to recover and continue growing.

3) Provide winter feed on pasture rather than feeding cows in dry lot. Move feeding areas to spread out manure deposits. University of Saskatchewan research results found that nitrogen retention is 40% higher when animals are fed in fields compared to spreading manure from wintering pens. This provides more nutrients for the next forage crop.

4) Use a rotational grazing system to provide rest to the pastures. Having a minimum of 30 day rest is recommended.

5) Soil sample and apply recommended amounts of fertilizer. This may not be practical in large pastures but should be considered.

6) If possible, direct drill in a seed mix to increase plant density. Increasing legumes in the stand will increase yield and overall quality.

Reduce pressure on pastures by:

1) Creep feeding calves. Calves at 45 to 50 days of age can digest grain. An 18% creep is needed for calves under 350 pounds and can be reduced to 16% once they weigh more than 350 pounds. Calves will consume very little feed at the start. When they are 500 pounds, intake could be 5 pounds per day or more. Average daily gains are improved when creep feed is provided. Weaning calves is less stressful when they have previously consumed grain.

2) Wean calves early. Calves that are 150 days have a fully functional digestive system. With a balanced ration, it is possible to maintain or improve daily gains compared to a poor pasture. This also allows cows to gain condition on pasture prior to winter.

3) Seed an annual crop to provide an alternate grazing area. Young cereal crops are high quality and can maintain cow calf pairs. Time off of the perennial pasture allows plants to rest and develop top growth and root systems.

4) Double crop annual silage crops. Planting fall rye, winter wheat, or winter triticale with the regular silage crop can provide late season grazing. Fall or winter annuals will germinate in the spring. Growth will be slow at first but will increase in mid to late August. The late season growth is very high quality when grazed. Winter or fall cereals will germinate next spring providing very early grazing. Providing a fall and spring rest period to the perennial pastures allows the plants expand existing root systems.



When to stop grazing is a moving target. Having 4 inches of growth remaining on the plant is recommended to prevent winter kill and to catch snow. If cows are losing condition, it is time to either provide supplemental feed or take them off pasture. Over grazing in late season can remove growth buds that are needed to start plant growth next spring.

If insufficient forage is available on pasture to meet requirements, a choice is required. Increase forage supply by supplementing or finding more grazing land, reduce animal numbers, or shorten the grazing period to prevent over grazing.

*Barry Yaremicio M. Sc., P. Ag.*

### DATA LITERACY For Cow-Calf Producers

Are you interested in improving results on your ranch by better data management? Reach out to the Simpson Centre to take part in a new project for cow-calf producers. Join 30 other producers in two workshops, followed by 6 months of mentoring, in this free program. Evaluate best management practices that will provide effective tools for your operation.

For more information, contact Tarra Drevet ([tarra.drevet@ucalgary.ca](mailto:tarra.drevet@ucalgary.ca)) or

go to: [simpsoncentre.ca/data-literacy-program-for-cow-calf-producers](https://simpsoncentre.ca/data-literacy-program-for-cow-calf-producers)

CARA Soil Health Lab Presents

## MASH: THE JOHNSON-SU BIOREACTOR WORKSHOP



**"Do not underestimate the influence of a healthy, diverse soil microbiome!"**  
David Johnson, PhD & Hui-Chun Su-Johnson

Developers of the Johnson-Su Compost Bioreactor will share the details on creating a fungal-dominant, biologically diverse compost inoculant to increase farm and ranch profitability with better plant, soil, and ecosystem health.

**Producer Experiences with the Johnson-Su Bioreactor in Alberta**  
Shorty Fensky and Jana Von Freier

**The Science Behind Johnson-Su Bioreactors**  
Yamily Zavala, PhD

**JUNE 25TH \* OYEN \* \$150/PRODUCER**  
**REGISTER: (403) 664-3777 / CARA-3@TELUS.NET**

Cost of registration includes: lunch, hands-on Bioreactor construction with Dr. Johnson and Hui-Chun Su-Johnson, and an in-house soil microbial diversity (SFW) evaluation of compost developed as a result of the Workshop.



## BACK TO OUR ROOTS; NATIVE PASTURE RENOVATION WORKSHOP

June 25, 2024 - Dalum, AB

Once native grassland has been lost, it never returns to its original state. However, what happens when we decide to try anyways? This workshop will help producers explore what it takes to reduce risk & encourage establishment of renovated native pastures by exploring a seeding project initiated 20 years ago in the Dalum area. Join us for presentations from experts who will give you tools to start planning your own native pasture renovation project.

**AGENDA**  
9:00AM - COFFEE & REGISTRATION AT DALUM COMMUNITY HALL  
9:30AM - RANCH HISTORY AND GRAZING STRATEGIES FOR NATIVE PASTURE  
10:30AM - SEEDING NATIVE PASTURES; PLANNING, PREPARATION, PLANTING & PATIENCE  
12:00PM - LUNCH (PROVIDED)  
1:00PM - FIELD TOUR OF WADE CATTLE COMPANY  
4:00PM - WRAP UP

**COSTS (includes lunch) : FFGA or CARA Member: \$20 / Non-Member: \$25**  
**DETAILS & REGISTRATION: <https://www.foothillsforage.com/nativepasture>**



**JULY 17-18, 2024**  
CONSORT GOLF CLUB  
SPECIAL AREAS NO. 4

## ALBERTA RANGE STEWARDSHIP COURSE

**Topics:**

- Hands on Learning of Range Management Principles
- Indoor and Outdoor Classroom Setting
- Native Plant Identification
- Riparian Management Discussions
- Beavers and Drought
- Brush Encroachment
- Rancher Perspectives
- Plus More!

**TO REGISTER: [HTTPS://2024RANGE.EVENTBRITE.COM](https://2024range.eventbrite.com)**

21st Annual

## SOUTHERN ALBERTA GRAZING SCHOOL FOR WOMEN

**JULY 24 & 25**  
**SEVEN PERSONS, ALBERTA**

**Topics include:**

- Grazing Principles and Practices
- Soil Health
- Hands On Plant ID
- Range & Riparian Health
- Succession Planning
- Drought Management Strategies
- Water Security
- Funding Opportunities
- Ranching Women Talks
- And MORE!

@grazing schools for women  
Cost: \$125.00 (includes all meals)  
Details & Registration: <https://SAGSW2024.eventbrite.ca>  
\*Register before July 17, 2024\*



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