THE IRRIGATOR

November 2024

Research Director's Corner

Gursahib Singh Ph.D., Research Director,
Irrigation Saskatchewan

As I sit down to share this year's research update with our valued members, I am reminded once again of how fortunate we are to have irrigation on our research farm. Without it, completing another successful research season at Irrigation Saskatchewan wouldn't have been possible. While we have always had a substantial research program, I want to emphasize that 2024 has been a peak year for us in terms of both projects and research grants.

As in previous years, our research program was generously supported by funding from the Saskatchewan Ministry of Agriculture and various commodity groups, including SaskPulse Growers, SaskWheat, SaskCanola, SaskBarley, SaskOats, SaskMustard, the Saskatchewan Forage Seed Development Commission, and the Saskatchewan Fruit and Vegetable Growers Association. We are deeply grateful to our funders for their unwavering support.

Most of us were relieved to start the season with enough moisture in May to get crops established before irrigation was needed. However, as the season progressed, July and August brought dry conditions reminiscent of previous years, and our team relied heavily on irrigation to meet crop demands. We are fortunate to have this resource at our fingertips, making our multi-million-dollar research facility a continued success.

This year, our research program focused on two major questions...

How to manage root rots in pulse crops (peas and lentils)?

Our team led several projects in this area, collaborating with multiple Agri ARM sites across both irrigated and dryland conditions. Specific studies focused on Aphanomyces and Fusarium root rots. The Aphanomyces project, involving peas and lentils, explored different varieties and examined their responses to seed treatments, seeding rates, and timings. We also investigated how a severe Fusarium head blight (FHB) year in wheat impacts peas and lentils in subsequent rotations, as Fusarium species cause both root rot and FHB.

Which barley varieties are most prone to post-harvest sprouting?

The Saskatchewan Seed Guide is a valuable resource for variety selection, and we contribute data to this guide as well as our own crop variety guide for irrigation. Notably, the Seed Guide includes wheat and barley tables, but barley sprouting ratings have historically been absent. Last fall, we recognized the need for this information—especially for both malt and feed barley varieties. Working with SaskBarley and Ministry crop specialists, we developed a project to fill this gap. We tested 33 barley varieties, one of our largest projects ever, and the results will help growers make informed decisions based on sprouting risk.

As always, insects kept us on our toes this season. Thanks to Gavin Pederson, we managed to keep them at bay. Our biggest insect challenges included aphids in peas and lentils, blister beetles in

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Conference and AGM

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Research Director's Corner

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faba beans, and quinoa stem borers. Another key observation this year is the significant lodging across all crops. In terms of diseases, while they weren't as widespread this year, we had several ongoing disease projects. With my pathology background and our research team's expertise, we were able to create enough disease pressure for all our disease trials.

One emerging issue we are watching closely is **Bacterial Leaf Streak** in irrigated wheat and barley, which has become a problem in Alberta. This disease, spread through infected seed, has no available control options as it is caused by bacteria. We have partnered with pathologists from Alberta and the University of Saskatchewan to study how different levels of seed infection correlate with disease severity. This project, which started this year, will continue for two more years, but we will have preliminary results soon that will help mitigate the spread of this disease.

Looking Ahead.....

As we wrap up the harvest and another successful research season, I want to thank our research team, collaborators, and funders for their dedication and support. The insights gained this year will be invaluable as we continue to tackle the challenges faced by Saskatchewan irrigators. Looking forward, the Irrigation Saskatchewan research program will remain committed to driving innovation and delivering practical solutions. We are excited to carry this momentum into 2025 and beyond as we continue our mission to enhance crop production and sustainability across the province.

Water Monitoring and Reporting Initiative: Supporting Sustainable Growth in Irrigation

Natalia Bidulka, AAg., Water Security Agency &
Volodymyr Ternovsky, Ph. D., Irrigation Saskatchewan

As Saskatchewan's irrigation industry continues to expand, increased water monitoring and reporting is essential for the growth of our industry in a sustainable manner. In recognition of this, the Water Security Agency (WSA), in partnership with Irrigation Saskatchewan, launched a voluntary Water Monitoring and Reporting Initiative in the spring of 2024. This initiative aims to maintain water stewardship while supporting sustainable irrigation practices and growth of our industry.

Reinke Control Panel

The Water Monitoring and Reporting Initiative was designed to improve WSA's monitoring and reporting procedures for irrigation activities. The initiative was trialed in three keys areas including the Swift Current Creek Basin, the Saskatoon Southeast Water Supply System (SSEWSS), and the Upper Qu'Appelle River Basin. A dedicated consultant from Irrigation Saskatchewan, trained by WSA, worked directly with voluntary irrigators to calibrate their systems and increase the frequency of water usage reporting throughout the 2024 growing season. Irrigators reported their water usage bi-weekly, providing data on the total volume used and the methods employed to determine this usage.

Over the 2024 growing season, nearly 10 000 acres under sixty-seven pivots were monitored in this initiative, with participation from thirteen private irrigators across the three locations. Collaborators used a range of water monitoring technologies from analog hour meters in control boxes to advanced digital water management systems. The results of this initiative, including detailed data collected throughout the growing season, will be outlined in a final report available in early 2025.

This initiative was based on stakeholder feedback received at the 2023 Irrigation Saskatchewan Conference, where stakeholders acknowledged that water usage monitoring is essential for the sustainable expansion of Saskatchewan's irrigation industry. The data collected through this initiative will not only help ensure compliance with water regulations but will also support potential future expansions, particularly in areas facing water shortages.

Additionally, the program helps build public confidence in the province's irrigation practices, demonstrating that farmers are responsible stewards of both land and water.

By working together, Saskatchewan's irrigation industry can continue to grow while protecting one of our most vital resources—water. The findings and progress of this initiative will be discussed in greater detail during the Water Workshop at the Irrigation Saskatchewan Conference on December 2, 2024.

For more information on the Water Monitoring and Reporting Initiative or other irrigation projects, please contact:

Natalia Bidulka AAg, Email: Natalia.bidulka@wsask.ca

Volodymyr Ternosky, Natalia Bidulka and Alanna Howell evaluating irrigation control specification

2024 Field Season Highlights

Flexible Allocation Pilot Project—Year 2

Natalia Bidulka, AAg., Water Security Agency

In Saskatchewan, the standard water allocation for intensive irrigation is 12 inches per acre, or 1 acre-foot. However, with some water bodies fully allocated, meaning no additional water can be licensed for new irrigation development, a more flexible approach to water allocation is being evaluated to facilitate additional irrigation development. The Water Security Agency (WSA), with third-party support from Irrigation Saskatchewan, is trialing a Flexible Allocation approach through the Pilot Project Initiative located on the Saskatoon Southeast Water Supply System (SSEWSS). This project is now in its second year, and it aims to support potential policy to for Flexible Allocation, allowing irrigators with more flexibility in their water use and supporting more acres of development.

A Flexible Allocation approach allocates water based on volume at the point of diversion, rather than a fixed volume per acre. This approach aims to provide irrigators with the flexibility to spread their allocation over a larger area, increase economic opportunities from water supplies with limited allocation, and promote more efficient water management. While this approach offers numerous benefits, it also presents challenges such as the risk of overuse of the water supply. As a result, monitoring and compliance plays an important role in this initiative.

Kamut/Durum, Flax, Alfalfa, and Canola grown in the 2024 Pilot Project

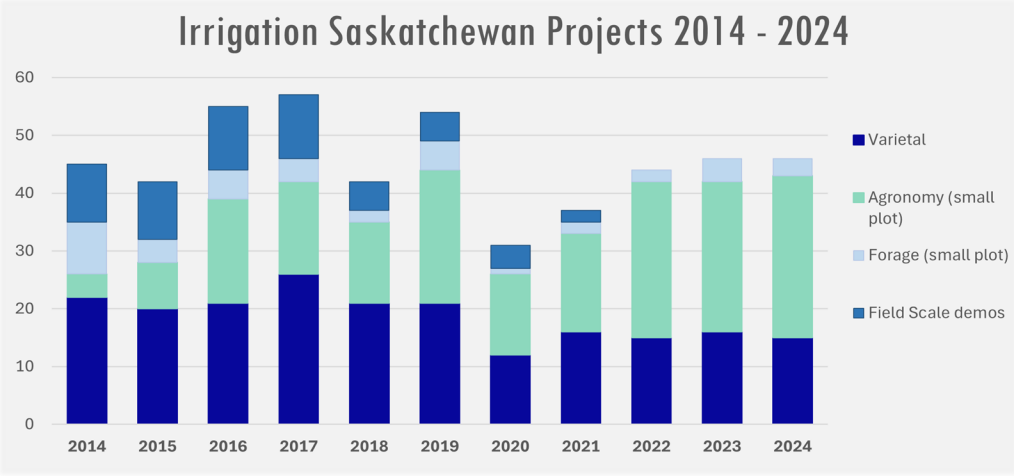
The Flexible Allocation Pilot Project, which began in 2023, has already shown economic benefits, but ongoing evaluation is required to support the policy. A total of 1,500 acre-feet of water has been allocated across 2,428 acres under a Water Rights License (WRL), averaging approximately 7.5 inches of water per acre. In 2024, crops grown under the pilot included high-usage crops such as alfalfa and low-usage crops such as lentils. The project also included technologies that can help manage water efficiency including sub-surface drip irrigation and variable rate irrigation. This flexible approach allows the producers to apply more water to high-water-use crops, and less to low-water-use crops, optimizing water efficiency and maximizing crop productivity.

Electromagnetic Flow Meter

One of the key components of the Flexible Allocation Pilot Project is the installation of flow meters to closely monitor water usage. In 2024, two electromagnetic flow meters were installed on the irrigation system, with an accuracy of about 98% for tracking water usage. This data is automatically transmitted to WSA to ensures that the producer stays within their licensed allocation and WSA can provide notifications when the producer is approaching their full allocation.

The second year of the Pilot Project will conclude at the end of 2024, with results shared at the Water Workshop at the Irrigation Saskatchewan Conference on December 2, 2024. If successful, this approach could be expanded to other areas in the province, supporting irrigation expansion and sustainable irrigation development.

For more information on the Flexible Allocation Pilot Project or other irrigation projects, please contact: Natalia.bidulka@wsask.ca



2024 Irrigation Saskatchewan Research Program

Cereals

Generating Pre-Harvest Sprouting Ratings for Barley Varieties	Grasshopper Control with Cultural Methods
Demonstration of Novel and Niche Barley Varieties	Development of Field-Ready Cultivars of Canada Western Soft White Spring Wheat
Plant Growth Regulator Products and Mixes to Improve Crop Safety and Efficacy in Barley	Standing Up with Your Own Stalk: Do the Plant Growth Regulators Available for Spring Wheat Improve the Productivity of Current CWRS Varieties?
Saskatchewan Variety Performance Group Regional Barley Trials	Saskatchewan Variety Performance Group Regional Wheat Trials - Hex 1 & 2 Wheat
Assessing Seed to Seedling Transmission of Xanthomonas Translucens Causing BLS of Cereals to Establish Inoculum Thresholds	Investigating the Impact of Crop Rotations on Root Rot Diseases of Pulse Caused by Fusarium spp. and Its Relationship with Fusarium head blight (FHB) in Wheat
Demonstrating the Efficacy of Foliar-Applied Nitrogen Fixing Bacteria for	Saskatchewan Variety Performance Group Regional Durum Trial
Efficacy of Fungicides Active Ingredient for Fusarium Head Blight (FHB) and Deoxynivalenol (DON) Manage-	Saskatchewan Variety Performance Group Regional Oat Trial
Components of Potash Fertilizer Affecting Yield Response of Malt Barley and Spring Wheat	Saskatchewan Variety Performance Group Regional Wheat Trials – Winter Wheat
Winter Cereal Demonstration Showcasing Winter Wheat, Winter Triticale, and Fall Rye	

Oilseeds

Does Seeding Date and Rate of Canola Effect Spring Flea Beetle Pressure, Yield, and Quality?	Flax Seeding Dates and Seeding Rates
Enhancing Canola Disease Management: a Comprehensive Canola Disease Training Program for Farmers	Growing Hybrid and Composite Mustard Under Irrigation in Saskatchewan.
Saskatchewan Variety Performance Group Regional Flax Trials	Irrigation Saskatchewan Sponsored Canola Variety Trial

For more information on ISASK projects visit the ISASK website under *Research* to view project lists and objectives .
Website: https://irrigationsaskatchewan.com

Pulses

Phosphorus Fertilizer Rate Response in Irrigated Dry Bean	Faba Bean Seeding Rates
Efficacy of GWN 9790 as a Seed Treatment	When Does it Pay to Apply Fungicide to Faba Beans in SK and What does the Weather Have to Do With It?
Pulse & Soybean Regional Variety Evaluation	When should Rapidly-Maturing Soybean Varieties be Planted in Sas-
Integrated Pest Management for Lentils in Aphanomyces Soil	Demonstration of Biological Enhancements in Pulses
Assessing the Economic Viability of Seed Treatments and Their Impact on Root Rots in Field Peas and Lentils	Investigating the Impact of Crop Rotations on Root Rot Diseases of Pulses Caused by *Fusarium* spp. and

Horticulture

Fall Foliar Application of Low Biuret Urea to Improve Sour Cherry Overwintering Success in Saskatchewan	Containerized Soilless Blueberry Production Grown under Protected Culture in Saskatchewan
Training Apples on Trellis Wire to Create a High-density Wall Production System	Demonstrating the Effects of Cultivar Choice and Heat Stress on Ripening of Tomatoes
Testing Alternatives to Chlorpyrifos for Control of Root Maggots in Vegetable Cole Crops	Evaluation of New Cultivars of Sweet Corn for Suitability to Saskatchewan Growing Conditions and Market Requirements

Forage

Demonstrating Forage Options in Cropping Rotations	Varietal Assessment of Forage Seed Production

Soil

Performance of saline tolerant forages on saline soils.	Strategies to Build Sustainable Phosphorus Levels and Optimize Water Use Efficiencies on Low P Soil.

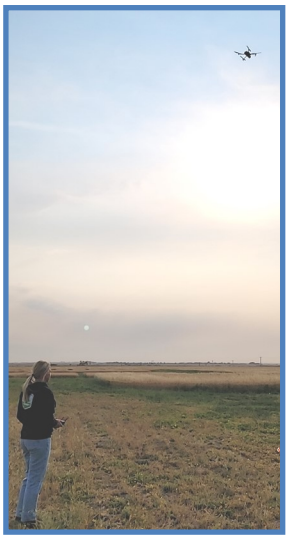
Specialty

Comparing Irrigation Scheduling Tools in Saskatchewan	Regional Adaption of Quinoa and Response to Nitrogen and Phosphorus Fertilizer
Fenugreek Response to a Range of Nitrogen Fertilizer Rates	

Irrigation Saskatchewan's New Equipment

AnneMarie McGowan, AAg., Irrigation Saskatchewan

The Irrigation Saskatchewan research program has expanded in recent years, necessitating additional equipment to support our broadening scope. In early 2023 ISASK staff and representatives from the Ministry of Ag, SaskWheat, SaskCanola, SaskBarley, and Saskatchewan Pulse Growers met to discuss a proposal outlining specific equipment to enhance our research capabilities. The investments acquired through this proposal include a small plot combine and variable rate irrigation system. Additionally, ISASK acquired a research-focused drone (a technology exhibiting promising results in agricultural research), a dockage machine, and plot mowers.



The Ministry of Ag and commodity groups collectively pledged $620,000 for Irrigation Saskatchewan's equipment.

We extend our heartfelt gratitude to all our funding partners for recognizing the potential of investing in Irrigation Saskatchewan. We are committed to honoring their support by striving for excellence in our research program.

New Irrigation Saskatchewan Staff

Gavin Pederson, Field Technician, is a local producer and irrigator with strong community ties. He has spent his life in the Outlook area, from his roots on the family farm to working in the agriculture sector. He is a talented equipment operator and brings a wealth of agronomic and irrigation knowledge to our research team.

Volodymyr Ternovsky, **Advocacy Coordinator,** has spent his entire career in the agricultural sector, working with extension service agencies, NGOs, and agricultural educational institutions focused on helping farmers develop their businesses. He is experienced in delivering value to organizations by conducting economic research and providing strategic insights that support growth and development in the agricultural industry.

Ryan Husband, Executive Director, has worked on agricultural water management projects with a variety of organizations, including government agencies, non-profits, and consulting firms. He is passionate about supporting farmers in producing more food for the world and is eager to contribute to the growth of the irrigation sector in Saskatchewan.

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