

Research Director's Corner

Gursahib Singh Ph.D. , Research Director
Irrigation Crop Diversification Corporation



As we wrap up the harvesting season and enter the fall of 2022, I am taking this opportunity to update our members on the changes and opportunities we had at ICDC this summer. To begin with, Garry Hnatowich, ICDC's research director since 2012, officially retired from his role on May 31, 2022. Garry's services and work have been instru-

mental in the strong position of ICDC's research program today. On behalf of the directors and staff, I would like to acknowledge his work and contributions to the ICDC research program and personally want to thank him for his mentorship. As we evolve from the COVID-19 pandemic, we have slowly and steadily started participating in live events and gatherings. This past summer ICDC welcomed 23 diverse groups of people, including funders, collaborators, irrigators etc., for in-person research plot tours. After the long COVID hiatus, ICDC also held its first field day on the new land (Hnatowich field) leased from the

Town of Outlook. With over 80 attendees, suffice to say that the event was huge success, so I would like to take this opportunity to say **Thank You** to all the presenters and sponsors. Social platforms and virtual events also significantly influenced the station's extension activities. Like last year, ICDC partnered with CSIDC and Saskatchewan-Ministry of Agriculture (SK-MoA) Staff and presented research program highlights at the virtual field day in late August.

As indicated on the list of projects and 95 acres of newly leased land, our field program continues to expand; thanks to the help and support of ICDC seasonal/summer staff, CSIDC and SK-MoA staff, this year's research program was a success! 2022 was a busy growing season for the team, where we evaluated a record number of research projects and worked on 27 crops. Although we have started wrapping up the 2022 harvest, we still have some late maturing crops (grain corn, soybean and late-seeded hemp and quinoa) in the field. Work continues seeding the fall cereals research trials and cleaning harvest grain samples.

This year's research program primarily focused on various aspects of crop agronomy, disease/insect management, testing and demonstrating different crops under irrigated conditions. One of the projects highlighted on our group tours and gauged a lot of interest among farmers was: "Expanding Rotational Options using New and Novel Pulse Crops". This project was funded by Saskatchewan Pulse Growers (SPG). The idea originated from their members' feedback on agronomic and economic issues related to pulse crops in their cropping rotations. All eight Agri-ARM sites participated in the demonstration, displaying ten pulse crops determined by SPG based on popularity in their specific region. At ICDC, crops demonstrated include varieties of Fenugreek, faba bean, mung bean, lupin, cowpea, dry beans, soybean, chickpeas, peas, and lentils. Although we have

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Box 1460, 901 McKenzie Street South
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Irrigation Conference and AGM

December 5, 6 & 7, 2022

Registration details

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Research Director's Corner

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limited data available at the moment, I want to point out some speculative findings based on in-season observations. Mungbean and cowpea being warm season pulse crops with a maturity of 90-120 days, performed poorly at ICDC (Photo). Both crops did not establish well enough until the temperature was high enough ($> 30^{\circ}\text{C}$) in late July. Traditional crops, like faba bean, dry beans, soybean, chickpeas, peas, and lentils, performed well under our conditions (Photo 1). The crop that fascinated most of us was lupin. Variety of narrow-leaved blue lupin with a similar growth cycle to faba bean (110–120 frost-free days) had good plant establishment and weed competitiveness.

We plan on sharing the results of several trials undertaken in 2022 at the Annual SIPA/ICDC AGM scheduled for early December. Since releasing the importance of extension, ICDC plans to

release a series of videos of research trials this year on the irrigation Saskatchewan YouTube channel. ICDC and SK-MOA staff collaboratively video-recorded all the research trials we had this year. These videos will be uploaded on our YouTube channel once the final edits are completed.

The photos were taken on July 6 (cowpea, mungbean and Lupin)



2022 Horticulture Update

**Cara Drury, PAg, Irrigation Agrologist, Outlook
Saskatchewan Ministry of Agriculture**

The growing season of 2022 is wrapping up now and it is time to look back on what has been accomplished in the horticulture program. This year saw the addition of a fifth high tunnel to the orchard at the Canadian-Saskatchewan Irrigation Diversification Centre (CSIDC). This addition was funded by Agriculture and Agri-Foods Canada and will allow for an expanded number of horticulture trials to be managed in a growing season at the Centre. There has been the establishment of a new ADOPT trial (Heat Tolerance of Broccoli and Cauliflower Cultivars), an Alternative Pest Management Solutions trial (Integrated Pest Management of Delia Root Magots), and a Strategic Field Program trial (Carry-over Effects of Treating Cereals with Teraxxa (BASF) for Wireworm in Rotation Crops).



Along with the new trials, previously established projects have carried on. There is a mix of ADOPT, SFP and federally funded projects, that include a wide variety of crops. The fruit program is looking at apple, pear and sour cherry projects; while also maintaining the Saskatoon, raspberry and haskap rows from previous years. The vegetable program is continuing work with potatoes, sweet potatoes, leafy greens, succulent beans and garlic. This year has also seen the addition of some alternative cropping trials that include herbicide screening on spice crops and various hemp trials.



The horticulture program is made possible by the hard work and collaboration of all the partners at CSIDC. Projects are coordinated through ICDC, Saskatchewan Ministry of Agriculture (MoA), CSIDC, and the University of Saskatchewan. To access updates or completed reports on any of the horticulture program trials please contact MoA Irrigation Extension Agrologists.

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Crop Insurance For Irrigated Crops

**Sara Ingell, AAg, Irrigation Agrologist, Outlook
Saskatchewan Ministry of Agriculture**

As irrigated acres in Saskatchewan increase and the continued unpredictable weather the province receives, irrigated producers may start to wonder what type of coverage they can receive for their irrigated crops. The Saskatchewan Crop Insurance Corporation (SCIC) has tailored their program options to benefit irrigation farmers in a couple of different ways.

First of all, crop insurance premiums are lower for irrigated crops than dryland crops due to the lower production risks associated with irrigated cropping systems. Also, irrigation crops are generally covered to higher levels than dryland crops to reflect the higher production potential that comes with irrigation.

The premium cost is contributed by both the producer and by the government with the producer contributing 40 percent and the provincial government contributing 60 percent. When producers want to go through the process of putting a claim on their crop, the acres from all insured dryland and irrigated crops are combined to calculate the claim. This process does not include the Enhanced Irrigation Program option that is available for producers with irrigation.

Another benefit for irrigation farmers is the opportunity to enroll in SCIC's the *Enhanced Irrigation Program*. This program allows irrigation producers to ensure a separate production



guarantee for irrigated and dryland acres of the same crop. Irrigated and dryland acres of the same crop have coverage and claims calculated separately. Keeping the dryland and irrigation coverage separate enables the coverage to protect from losses on dryland in drought years without the irrigation crop yields impacting the coverage.

SCIC is available to help producers with crop insurance for irrigated crops. Please visit <https://www.scic.ca/> or call 1-888-935-0000 to learn more.

Welcome



Ministry of Agriculture welcomes Sara Ingell as our newest Provincial Irrigation Agrologist in the Ministry of Agriculture Crops and Irrigation Branch. Sara recently convoked from the University of Saskatchewan obtaining her Bachelor of Science in Agriculture majoring in Agronomy and minoring in Agribusiness. She grew up on

a grain farm at Macrorie, Saskatchewan where her love of agriculture started at a young age and continued to grow over the years. Sara and her boyfriend are new homeowners in Conquest where they added their lab Rex to their family. When Sara isn't at work she can be found outside in her garden or enjoying the outdoors through hiking, camping, and hunting.

Irrigation Conference and AGMs

Registration and more information on the Irrigation Conference and ICDC and SIPA AGMs can be found on:

SIPA's website at: www.irrigationsaskatchewan.com/SIPA/conference/

Or

ICDC's website: www.irrigationsaskatchewan.com/ under events:



Conference Details



Book Your Hotel

A New Pulse on the Prairies

**Morgan Coté, AAg, Irrigation Agrologist, Outlook
Saskatchewan Ministry of Agriculture**

Many know lupins as a plant in their flower beds, but with 280 species globally there are a few important varieties which have been bred for domestication. By breeding out natural high alkaloid levels of 0.8- 0.9% to 0.01 – 0.03% lupins can be consumed



by humans and livestock. Breeding also increased the softness of the seed and reduced the amount of pod shatter. This has led to a large uptake of lupin production in Australia, where they grow 85% of all lupins. Lupins are slowly making headway in Canada and agronomic research efforts are ongoing in the prairie provinces.

There are many reasons growers are trying to incorporate lupins in their crop rotations. Lupins provide another pulse option and are an acceptable substitute crop for peas or lentils. The seeds contain 30–40% protein, 25% fibre, 6–8% oil and 2–5% starch, placing them with a higher protein level than peas and lentils. Lupins are not susceptible to Aphanomyces disease, which can last upwards of 8 years in the soil and create yield losses as high as 70% in a normal pea or lentil crop. They also have notable standability, and thick tap roots that aid in efficient nutrient uptake.

In 2022, ICDC conducted an ADOPT project titled “Demonstration of Lupin as an Alternative to Field Pea or Lentil.” The primary objective was to see how adapted lupin is for production in Saskatchewan conditions under irrigation. In this demonstration, ICDC evaluated two varieties of lupin as an alternative legume crop to be incorporated into producers’ crop rotations. The trial consisted of cv. Boregine (*Lupinus angustifolius*; narrow leaved, blue lupin) and cv. Dieta (*Lupinus albus*; white lupin) two varieties that show strong commercial potential. Plant height, plant populations, days to maturity, yield and seed protein data was collected. The results of all the data collected will show the viability of lupins to be grown in Saskatchewan. The final report will be published in the ICDC R & D report and also presented on at 27th Annual Irrigation Saskatchewan Conference.

ICDC Research and Demonstration Field Tour July 28, 2022

Highlights



2022 ICDC program

Cereals	
Fungicide Timing to Mitigate Fusarium Head Blight in Cereal Crops	Fall Rye Variety Eval for Irrigation vs Dry Land Production
Fall Rye Variety Evaluation for Irrigation vs Dry Land Production	Saskatchewan Variety Performance Group Regional Barley Trials
Saskatchewan Variety Performance Group Regional Oat Trial	Saskatchewan Variety Performance Group Regional Durum Trials
Demonstration of Wireworm Control in Spring Wheat	Managing Drought Risk with Split Applications of N in Spring Wheat
Saskatchewan Variety Performance Group Regional Wheat Trials - Hex 1 Wheat	Saskatchewan Variety Performance Group Regional Wheat Trials - Hex 2 Wheat
Winter Wheat Variety Evaluation for Irrigation vs Dry Land Production	Development of Field-Ready Cultivars of Canada Western Soft White Spring Wheat .
Teraxxa Treatments of Cereals for Wireworm Control	Can winter barley be growing in central Saskatchewan?
Enhanced Barley variety trial- Plant Growth Regular	Enhanced Barley variety trial- Fungicide
Enhanced Barley variety trial-Fertility	

Forage	
Developing Target Yield Nitrogen Fertilizer Recommendations for Irrigated Silage and Grain Corn	Demonstration of Barley Underseeded with Ryegrass for Forage Production – Irrigated & Dryland Production.
Sheildex in Corn	Varietal Assessment of Forage Seed Production

Specialty	
Lentil and camelina intercropping	Hemp Seeding Date Demonstration for Grain Production
Demonstrating seeding methods to improve yield and maturity in camelina	Regional Adaptation and Response to Nitrogen of Hemp and Quinoa in Saskatchewan

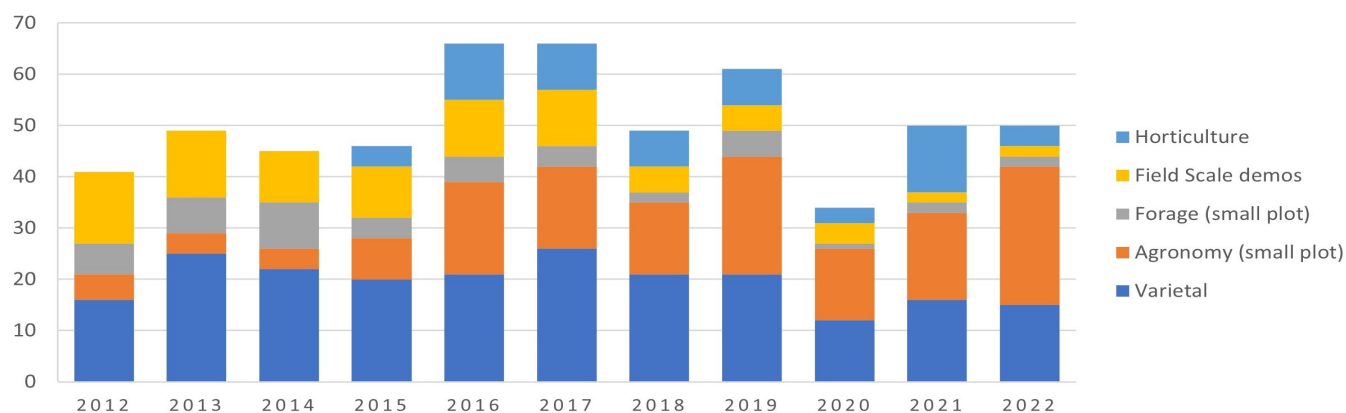
Pulses	
Dry Bean Pod Height	Pea Regional Variety Trial
Effect of Tillage Management and Seeding Date on Dry Bean Establishment and Yield.	Demonstration of Lupin as an Alternative to Field Pea or Lentil
N Fertilizer Rate Response in Irrigated Dry Bean	Expanding Rotational Options using New and Novel Pulse Crops
Faba bean agronomy to enhance yield, hasten maturity, and reduce disease	When does it pay to apply fungicide to faba beans in sk and what does the weather have to with it?
Soybean Regional Variety Trial – Herbicide Tolerant	

Oilseeds	
Canola Performance Trial – Conventional	Straight Cut Canola Performance Trial
Saskatchewan Variety Performance Group Regional Flax Trials	Short Season Soybean Regional Variety Trial – Herbicide Tolerant
Lygus in flax	Hybrid brown mustard vs yellow vs canola on irrigation

Soil	
Influence of K Fertilizer on Yield and Seed Quality of Malt Barley and Spring Wheat—a continuation	Top Dressing Nitrogen Fertilizer on Frozen or Snow Covered Soils in Saskatchewan

Horticulture	
Growing Methods to Assist in the Expansion of the Garlic Industry in	Screening Cauliflower and Broccoli Cultivars for Heat Tolerance
Methods to Improve Productivity of Sour Cherry Suffering from Blind	Apple Scoinwood and Dwarf Apple Rootstock Productivity and Disease

ICDC PROJECTS 2012-2022



ICDC Chairman's address

Jeff Ewen, Board Chairman, ICDC



2022 has been another successful year for the Irrigation Crop Diversification Corporation (ICDC). In December of 2021 at the Annual Irrigation Conference and AGM, ICDC welcomed some new faces to our board of directors. The start of the new year in 2022 marked the end to the previous 5-year strategic plan at which our organization had reached the majority of the major milestones recognized over that time including acquiring numerous pieces of equipment, larger land base, and future Research Director to replace Garry Hnatowich.

The current board came together to prepare the next 5-years strategic plan in January of 2022 which had an emphasis on further exploring amalgamation with Saskatchewan Irrigation Projects Associate (SIPA). First steps that were taken was the formation of a joint Executive Committee between SIPA and ICDC. The Executive Committee was tasked with further exploring the route to amalgamation which started with recognizing the amount of overlap and joint efforts that already existed. This then followed with a formal Memorandum of Understanding (MoU) for the two organizations to advance discussions of amalgamation. The Executive Committee also pursued branding to allow both organizations to work under a joint entity now known as "Irrigation Saskatchewan" which was unveiled in July at Ag in Motion. The committee has since started to create a road map for amalgamation by getting support from both boards and preparing for a vote at this years Annual Irrigation Conference in December.

The strategic plan also outlined continued research and extension along with further engagement from non-district irrigators and private retailers. The emphasis on non-district irrigators is a result of the fact that the Ministry of Agriculture is in the process of phasing out funding to ICDC that was once covering many non-district irrigators' levy. This process has involved extensive work to pull together and identify the current non-district acres. ICDC administration was busy sending out introduction packages and

will be following up with invoicing as it is a requirement by the *Irrigation Act 2019* that all licensed irrigation in the province of Saskatchewan pay the levy to ICDC. This has been a tremendous undertaking for Brenda, but is integral for the future of ICDC to fund the research program.

As mentioned in the previous strategic plan of the replacement for Garry Hnatowich was identified as his plans for retirement in 2022, after 10 years as Research Director of ICDC. Dr. Gursahib Singh was hired in April 2021 to begin the transition and in spring 2022 Gursahib had taken the reins with Garry's support to the end of planting at which Garry formally retired at the end of May 2022.

This year marked the first season of plot research under the newly acquired Town of Outlook lease land and lateral pivot. With the gates still closed to the public at the Canada-Saskatchewan Irrigation Diversification Center (CSIDC) this presented the perfect opportunity for ICDC to host our own field day on the new land and showcase the excellent work our team had put together which took place at the end of July. A special invitation as a guest speaker was sent to Garry Hnatowich to attend as we took the opportunity to honor his hard work and dedication to the organization by naming our new block of lease land the "Hnatowich Field" along with permanent signage. I personally had the honor of working with Garry for the better part of this time with ICDC and witnessed the tremendous amount of hard work to grow the research program to what it is today. We appreciate everything he has done and his continued support wishing him well in retirement. The program has been left in very good hands with Gursahib and the team.

ICDC was also able to highlight our program through the virtual CSIDC Field day which took place at the end of August. The full slate of projects were successfully harvested and Gursahib and the team have moved to processing samples, quantifying data, and report writing following the busy growing season. We eagerly await final results of this year's program and look forward to the research update at the Annual Irrigation Conference taking place at Dakota Dunes December 5,6,&7th.

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