THE IRRIGATOR

March 2021

Research Director's Corner

Garry Hnatowich, Research Director
Irrigation Crop Diversification Corporation

It's our Spring Edition of the Irrigator so time to recap the past year. Suffice to say that 2020 was unlike any year in living memory. Operating a research program during a global pandemic was/is challenging and a "normal" environment is still somewhere in the future. Much of this articles material is summarized in my presentation from the ICDC/SIPA Annual AGM held on-line Dec 7-9, 2020. This can be found, along with many other great presentations, at ICDC Research & Development program challenges and takeaways - YouTube

As we approached March of 2020 our intended field program had solidified to a total of 50 projects, encompassing 61 individual trials, divided into three categories. The Fruit and Vegetable program would have 9 trials, Varietal Assessment 27 trials and Agronomy 25 trials. With the uncertainty of the pandemic, Agriculture and Agri-Food Canada (AAFC) closed its national research facilities. At AAFC's request, ICDC staff collected our office equipment and files and removed ourselves from CSIDC. Our administrator, Brenda Joyes, has yet to return. The field staff (Erin Karppinen, Damian Lee, Theodore Nodge and myself) relocated to the town of Outlook's "Rec Plex" and moved our newly delivered seeder onto the hockey rink floor to conduct necessary calibrations and begin setting-up seed for field trials. Permission to re-enter CSIDC with limited trials occurred mid-May with limited staffing levels. Without summer student staffing we reduced the program size. Despite these challenges, we were able to establish a total of 29 individual trials. With less than half our normal seasonal staff we were able to maintain about half of the intended program. Many of the projects unable to be conducted were deferred to 2021 so funding was not lost. Unfortunately, some trials were out-sourced to other agencies, and it is uncertain if we can reclaim these again in 2021?

I must recognize the contributions from the staff at both AAFC-CSIDC and the Saskatchewan Ministry of Agriculture (MOA). Both organizations faced their own internal challenges this year. The four staff of AAFC allowed access to the research station; Barry Vestry, Allen MacDonald, Darryl Jacobson and Richard Wagner, offered us assistance and support wherever possible. Likewise Cary Drury, Connie Achtymichuk and Forrest Scharf with the MOA where invaluable in maintaining the fruit and vegetable trials.

So with a sigh of relief 2020 is behind us. Though the pandemic has not ended, and normalcy still distant, there is reason for optimism. We continue to pursue grant funding, and as of mid-January, our intended program again encompasses 50 projects. Our ability to conduct trials on AAFC land is still questionable. Therefore we have arranged to rent 40 acres of irrigated land about 10 miles from CSIDC. This, along with our present 15 acres of rented town land, will serve to establish the majority of trials. Should CSIDC remain closed, our intended horticultural projects remain in jeopardy.

Land and equipment acquisition has been a goal for the long-term success of ICDC. Ultimately the goal is to achieve full self-sufficiency as an organization. This is no means suggests a separation from the partnership we presently have at CSIDC. Rather, this will strengthen the partnership, as a whole. The relationship ICDC has with AAFC, MOA, U of S and SIPA has, and is, an outstanding success. A stronger ICDC simply strengthens the alliance.

Therefore, I am pleased to announce that ICDC has acquired an additional 95 acres of land immediately adjacent to CSIDC. (see picture page 2). This land is owned by the town of Outlook. Discussions with the town began a year ago and were finalized early this winter. The term of lease is 15 years with a review for extension to occur every 5 years. To-date, this field has been under dryland production. ICDC tendered for the purchase of a linear irrigation system and Western Sales awarded the contract. The system is already constructed on-site, and trenching and power about to occur.

The existing CSIDC partnership land base is shown in Figure 1 (page 2) AAFC owned land is outlined with a blue border and encompasses 198 acres. A previous 15 acre parcel of town land rented by ICDC is outlined in yellow. The "new" 95 acres are outlined in red. This land base addition will greatly assist all members of the CSIDC partnership in future years and add a tremendous efficiency to ICDC's research program. This, and other procurements, demonstrated ICDC's commitment to the partnership and to the irrigation sector. This acquisition is perfectly timed given the Government of Saskatchewan's announced $4 billion expansion of the irrigation sector. We intend to use this ground to further expand and develop extension activities such as field days and special irrigation events in coming years.

Should you have any questions regarding any aspect of ICDC please feel free to contact me at 306-361-6231.

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Research Director's Corner

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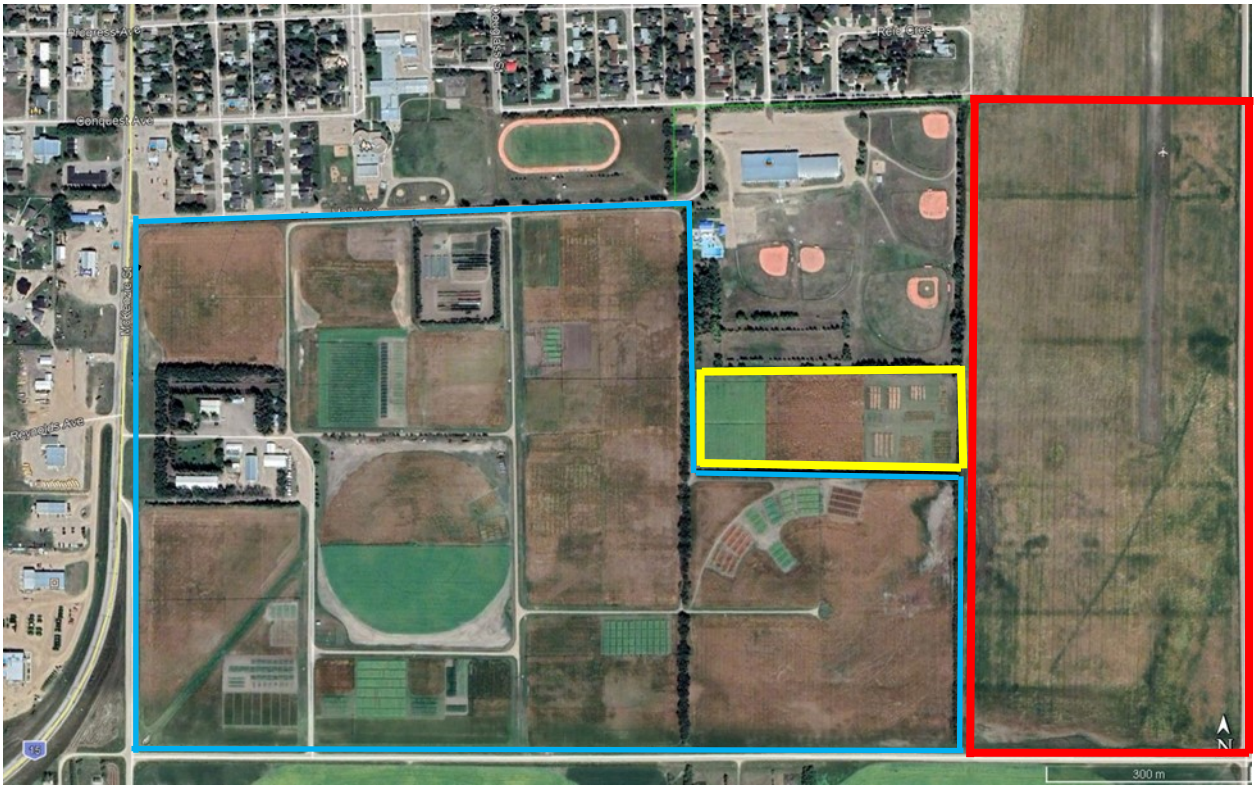

Figure 1. Aerial View of CSIDC and ICDC Land Acquisitions

Irrigation Funding Opportunities Through the Canadian Agriculture Partnership

Karly Rumpel, AAg, Intern Extension Agrologist, Outlook
Saskatchewan Ministry of Agriculture
Karly.rumpel@gov.sk.ca

Through funding from the federal and provincial governments as part of the Canadian Agricultural Partnership (CAP) agreement, programs are available to help you expand, improve or start your irrigation project. Below are some frequently asked questions about irrigation funding.

What kind of irrigation programs are available to producers?

The Irrigation Development Program is available for new irrigated acres. By pre-approval, the program helps to fund the development of irrigation infrastructure to the edge of the irrigable parcel.
There is also the Irrigation Environmental Efficiency Program for converting your pre-existing irrigation system to improve energy and water efficiencies.

Is there funding available for adding a new pivot?

Under the Irrigation Development Program, on-farm land irrigation systems, such as pivots, are not covered. However, infrastructure expenses leading up to the edge of the irrigable parcel may be eligible. Under the Irrigation Environmental Efficiency Program, if you are converting from a gravity or side wheel system, a new low pressure pivot or linear system may be eligible.

I've accessed a CAP program in the past, can I access the same one again?

During the five-year lifetime of CAP, eligible applicants can receive the lesser of 67 per cent of eligible costs or $1,320 per irrigable acre developed, to a maximum program payment of $300,000 under the Irrigation Development Program. In addition, another $50,000 is available under the Irrigation Environmental Efficiency Program. The Irrigation Environment Efficiency Program will cover up to 30 per cent of the eligible costs for each qualified project.

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Building on Success

Cara Drury, PAg, Irrigation Agrologist, Outlook
Saskatchewan Ministry of Agriculture
Cara.drury@gov.sk.ca

In the upcoming 2021 growing season, the ICDC horticulture program will be building on the success experienced in previous years. Involvement in the multiple year, Strategic Field Program (SFP) trials for expansion of the pickling cucumber industry and the expansion of the garlic industry in Saskatchewan have been both fruitful and rewarding. Valuable agronomic and production questions have been answered by these projects; and the findings have been adopted by vegetable growers in Saskatchewan.

This spring two new horticultural SFP trials will begin: Identification of Onion Cultivars Suited to Saskatchewan Production Conditions and Market Requirements and Potential to Grow Roma Tomatoes in Saskatchewan for Processing. Both of these trials will evaluate best management practices for crop production and processing potential for value-added products. As with the previous horticultural SFP trials, these trials will be coordinated by Dr. Doug Waterer. Field project management will be covered by ICDC and the quality/processing assessments will be conducted at the Saskatchewan Food Industry Development Centre.

The onion cultivar trial will evaluate approximately 60 onion cultivars: 30 yellow, 15 Spanish, 10 white and 5 red. Yellow onions will receive the greatest amount of attention in this project as they represent the largest component of the overall onion market and have superior storage characteristics. Each onion cultivar will be assessed on parameters including seedling vigor (competitiveness against weeds), tolerance to registered herbicides, sensitivity to disease or insect pests, harvest date, yield, bulb size distribution and overall appearance of the bulbs. The food quality/processing parameters assessed include measuring the % dry matter, sugar content (Brix) and the pyruvate content (an indicator of pungency).

The primary objective of the tomato trial is to determine how Roma Tomatoes perform in Saskatchewan's growing season. The trial will identify adapted cultivars and provide baseline information on yield and the quality that can be expected for Roma Tomatoes grown for a single harvest in Saskatchewan. Similar to last year's pickling cucumber trial, this trial will look at destructive one time harvesting that will mimic a mechanical harvester. Yield and fruit quality of a single harvest will provide important information to growers who are looking to produce tomatoes for processing and value-added products.

Results from these trials will not be published until 2023, but if you are interested in discussing this research or new horticultural research ideas please contact Cara Drury at cara.drury@gov.sk.ca or (306) 867-5517 Crops and Irrigation Branch, Saskatchewan Ministry of Agriculture for advice and assistance.

ICDC to host 2021 Crop Diagnostic School

Crop Diagnostic School

A Virtual Workshop To Advance Your Agronomic Knowledge

Save the date!

Where: Free online event
When: July 26 to 29, 2021
Hosts: Ministry of Agriculture crops extension specialists and Irrigation Crop Diversification Corporation in Outlook

Topics will include disease, insects, irrigation, soil fertility, weeds, soil compaction and herbicides.

Follow us online for more details coming this spring or call the Agriculture Knowledge Centre at 1-866-457-2377.

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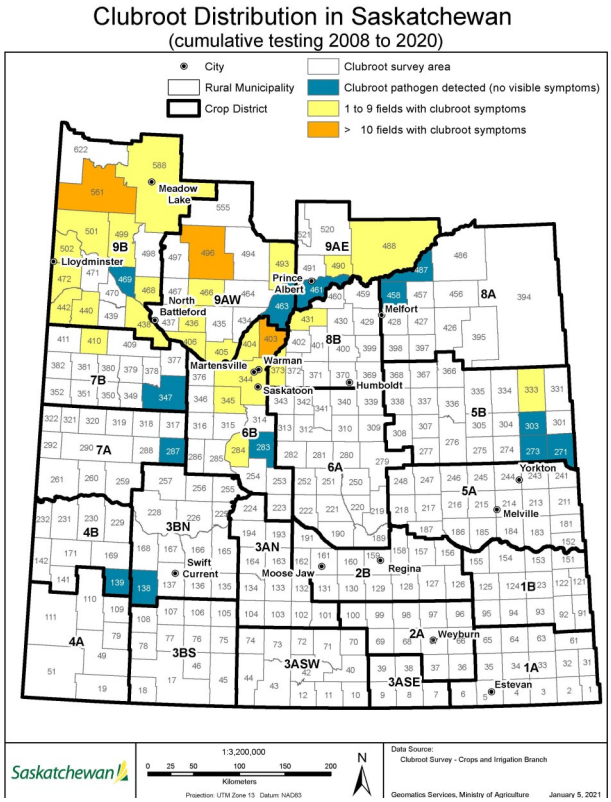
Saskatchewan

Clubroot in the RM of Rudy: What are the next steps?

Kaeley Kindrachuk, TechAg, B.App.Sci
Crops Extension Specialist, Ministry of Agriculture
Kaeley.kindrachuk@gov.sk.ca

With the recent clubroot distribution map being released, you may be wondering what to do now that it has been found in our area. Irrigation increases the risk of clubroot development and spread, no matter where in the province you are located. It increases the risk because the disease moves with soil and the nature of irrigation means more traffic and increased soil moisture. This is why it's important to remain diligent in trying to prevent or manage this disease from spreading, regardless of where you farm.



For some producers, prevention practices are already in place, while others are planning to start implementing them soon. The best time to begin using clubroot management strategies is before the disease is in your field. The recommendations for clubroot prevention are the same for everyone: use a three-year crop rotation (or two-year break) between canola crops, use clubroot resistant canola varieties, reduce soil movement in and out of fields, control brassica weeds which can also act as a host for clubroot, and scout your fields regularly. Managing the disease will look different for everyone especially between dryland and irrigated fields as it needs to be tailored to your farm.

Should you find clubroot on your farm, ministry staff and SARM's Plant Health Officers (PHO's) will work with you to ensure that management practices you put in place on your farm are science-based and practical for your operation.

Photos courtesy of Ministry of Agriculture

There are a couple of different ways to monitor for clubroot on your farm. The clubroot pathogen can be detected at low levels by soil test. This soil test is taken in low spots, water runs, high traffic areas and the field entrance. In addition to soil testing, regularly pulling up brassica plants and checking roots for galls is helpful in detection as well. Reporting clubroot is encouraged, either on your own or through your agronomist. Each report to the Ministry is kept confidential and can be reported to your nearest crops extension specialist, provincial plant disease specialist or through your SARM division PHO. Specific land locations will only be shared with the RM if it has a clubroot-specific bylaw in place.

If you find clubroot on your farm in 2021, don't panic! We are here to help you keep growing canola profitably, while only implementing a few different practices. An informed producer has a higher chance of managing the disease early, to find more information on clubroot, management plans, recent maps, scouting tips, how to report clubroot, biosecurity protocols and more:

-visit www.saskatchewan.ca/agriculture and search "clubroot"

-contact your nearest Crops Extension Specialist, Provincial Plant Disease Specialist or Plant Health Officer

Photos courtesy of Ministry of Agriculture

Seeding Hemp: How Late Can You Go?

Joel Peru, PAg, CCA, Irrigation Agrologist, Outlook
Saskatchewan Ministry of Agriculture
Joel.peru@gov.sk.ca

Growing Hemp for grain production is a fairly new concept to most producers in Saskatchewan, including irrigators. There has been limited uptake of irrigated hemp production in the Lake Diefenbaker Development Area with growers experiencing both the pros and cons. A reason for low uptake is that markets for hemp are not yet well established, although they have seen consistent improvement in recent years. Another deterrent is the lack of local agronomic research needed to provide growers with recommended production methods. Currently the majority of Saskatchewan's conventional hemp extension material is derived from other provinces such as Alberta.

ICDC's 2021 Irrigation Economics and Agronomics publication shows that it is possible to obtain a net return of $544/acre if a producer is able to growing a crop yielding 2000lbs/acre. On the flip side, if a producer only received an "average" yield of 890 lbs/acre the crop would result in a net loss. Establishing local production practices for this province's growing conditions will help growers increase the "average" yield and help hemp be profitable more consistently. This is similar to how well-researched crops such as wheat and canola continue to generate higher yields and production methods are refined.

In 2021, ICDC will host one of the four regional sites for a recently approved three-year Strategic Field Program: Hemp Seeding Date Demonstration for Grain Production. This project will provide producers with the yield response of differing hemp varieties to a wide range of seeding dates, from differing geographies within Saskatchewan. Discovering optimum seeding dates for this higher value crop will help insure new growers have access to information that will contribute to their success.

This study will evaluate three hemp varieties and three different planting timings: the end of May, middle of June and beginning of July. Seeding a crop in July may seem unusual in Saskatchewan, but the success of an experienced hemp grower near Shellbrook shows that it is possible. The varieties selection for this trial are based off of previous ADOPT variety demonstrations conducted by ICDC in Outlook. ICDC's location is the only irrigated site in this trial with the other sites including Melfort, Scott, and Indian Head. The successful completion of this project will help promote hemp production by providing producers with best seeding date practices for their location. If a July seeding date proves to show consistent success, this crop could also be an important tool for helping with time management during seeding. A sustainable conventional hemp industry in Saskatchewan will help attract processers for local value added production and add another crop option for producer's rotations.

If you are interested in learning more about this project, contact Joel Peru at (306) 860-7201 or joel.peru@gov.sk.ca. Project updates and findings will also be reported on ICDC's YouTube, Twitter and Facebook pages.

2021 Premiere Pulse Virtual Series Session: Dry Beans

Dry beans are currently the most suitable and profitable pulse crop grown under irrigation in Saskatchewan. The Saskatchewan Pulse Growers will be hosting a virtual session in their 2021 Premiere Pulse Virtual Series, focusing on dry beans. This session will take place on March 9th from 9:30-11:15am. Topics include research, production, agronomics and expansion of the dry bean industry in Saskatchewan. The speakers include Jeff Ewen, Agronomist, ICDC board member and Dry Bean Grower, and Joel Peru, Irrigation Agrologist with the Saskatchewan Ministry of Agriculture and more. The agenda and a link to register can be found here: https://saskpulse.com/news-events/events/2021-premiere-pulse-virtual-series-session-dry-beans

P Fertilization on P Deficient Soil: Rate not Time or Placement Drives Wheat Yield

Erin Karppinen, PhD, PAg
Former Research Director, Irrigation Crop Diversification Corp.

Phosphorus (P) is an important nutrient for early season crop vigour that will ultimately influence the final yield. This early season growth, also known as the "pop up effect", is commonly observed with seed-placed phosphorous fertilizer applications. Although the importance of appropriate P fertilization has been demonstrated amply since the 1950s, many Saskatchewan soils continue to decline in soil test available P - with P exported in harvested grain exceeding annual P inputs from fertilizer additions. As P fertilizer use efficiency can be very low (< 20%), it is crucial to optimize its application using the 4R principles. That means applying the right P fertilizer source, at the right rate, at the right time, and in the right place.

In the fall of 2019, ICDC established an ADOPT funded trial to evaluate the yield response of spring wheat to varying rates, timing, and placement of P fertilizer on an irrigated field where years of under fertilization has resulted in very low soil test available P. Urea (46-0-0) was applied to all treatments at a rate of 120 kg N/ha and monoammonium phosphate (MAP; 11-52-0) was either side banded in the fall, side banded in the spring, or seed placed in the spring at rates of 0 kg P_2O_5/ha (0P), 20 kg P_2O_5/ha (20P), 40 kg P_2O_5/ha (40P), and 60 kg P_2O_5/ha (60P).

The rate of P fertilizer application, not the timing or placement, drove differences in yield, protein content, and seed quality. For example, yield increased with each incremental addition of 20 kg P_2O_5, but the greatest benefit occurred from application of the first increment. Average yield increased by 78% from 0P to 20P, by 16% from 20P to 40P, and by 11% from 40P to 60P. Based on their specific soil test recommendations, producers should be able to increase yield and seed quality by applying P fertilizer whether it is side banded in the fall, side banded in the spring, or placed with the seed. This study also highlights the importance of applying enough P fertilizer each year to meet the needs of the crop while replenishing the soil to avoid creating a deficit.

Next year these plots will be reseeded to canola without any additional P fertilizer inputs to allow ICDC to evaluate the effects on the following years crop and determine if there are any carryover effects of the different P fertilizer treatments.

More details of this project are available on our YouTube channel at: https://www.youtube.com/watch?v=7-KkfYdUUmo

Photo: 0 phosphorus middle, phosphorus fertilizer additions bordering

Outstanding Young Agrologist Award

Congratulations to Joel Peru award winner of the 2020 Outstanding Young Agrologist Award.

The Outstanding Young Agrologist Award is presented to a young Saskatchewan agrologist under the age of 40 who has provided outstanding service and made worthy contributions to agriculture, bioresources, food or the environment.

Irrigation Funding Opportunities Through the Canadian Agriculture Partnership

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I'm developing an irrigation system on new acres, what is included in the 67 per cent funding under the Irrigation Development Program?

The Irrigation Development Program is to develop infrastructure from the water supply to the edge of the irrigable parcel. Eligible items include pumps, pumping stations, pipelines, turnouts, power installation and hookups. Consulting services and fees for environmental assessments and project design are also eligible.

If environmental assessments are covered, are soils investigation fees also covered?

No. Under CAP, soils investigation fees are not covered. Other common expenses that are not covered include earth work, tree removal, power pole removal and any on-farm land parcel irrigation systems.

I'm switching from a combustion engine to an electric motor, but have no intention of putting up wind or solar. Would this still be covered under the Irrigation Environmental Efficiency Program?

Yes. Under the Environmental Efficiency Program, converting from a combustion engine to an electric power pump is covered. If you want to go one step further and convert from combustion or electric-powered pumps to solar or wind-powered pumps, this is also covered. Remember, this is all on a pre-approval basis at 30 per cent of eligible expenses to a maximum of $50,000.

For more information on the Irrigation Development Program or the Irrigation Environmental Efficiency program visit saskatchewan.ca/CAP or contact the Ministry of Agriculture Crops and Irrigation Branch in Outlook at (306) 867-5500.

ICDC Staff:

Garry Hnatowich, PAg, Research Director, (306) 867-5405, **Specialty Areas:** variety testing and agronomy

Theodore Nodge, Research Associate, (306) 867-9104

Damian Lee, Field Crop Technician, (306) 867-2101

Brenda Joyes, Executive Administrator, (306) 867-5669

Ministry of Agriculture Crops and Irrigation Branch Staff:

Kelly Farden PAg, Manager-Agronomy Services, Crops and Irrigation Branch, (306) 867 5528, Specialty Area: ICDC program and administration

Gary Kruger, PAg, CCA, Provincial Irrigation Agrologist, (306) 867-5524, Specialty Areas: SW Program, Forage Crops, Soil Fertility, Agronomy

Cara Drury, PAg, Provincial Irrigation Agrologist, (306) 867-5517, Specialty Areas: Horticulture Crops, Soils

Joel Peru, PAg, CCA, Provincial Irrigation Agrologist, (306) 860-7201, Specialty Areas: Specialty Crops, Field Crop Agronomy, Production Economics

Travis Peardon, PAg, Livestock and Feed Extension Specialist, (306) 867 5504, Specialty Area: Forage Crops

Directors of ICDC

Producer Board Members	Irrigation District	Development Area	Term Ends
Anthony Eliason, Chairperson	Non-District	LDDA	2021
Jeff Ewen, Vice-Chairperson	Riverhurst	SEDA	2022
Kaitlyn Gifford	SSRID	LDDA	2023
Nick Eliason	Non-district	LDDA	2022
Greg Oldhaver	Miry Creek	SWDA	2021
Paul Heglund	Consul-Nashlyn	SWDA	2021
Murray Purcell	Moonlake	NDA	2023

Appointed Board Members	Organization	Term Ends
Aaron Gray	Saskatchewan Irrigation Projects Association	December 2021
Larry Lee	Saskatchewan Irrigation Projects Association	December 2021
Kelly Farden	Manager, Agronomy Services, Crops & Irrigation Branch Saskatchewan Ministry of Agriculture	December 2021
Dianna Emperingham	Executive Director, Crops and Irrigation Branch, Saskatchewan Ministry of Agriculture	December 2021

THE IRRIGATOR

March 2021

In this Issue:

The Irrigator is a publication released bi-annually by ICDC. It provides Saskatchewan Irrigators with an update on ICDC's activities, project highlights and agronomic information. Providing this information help Saskatchewan Irrigators produce their crops using economical and sustainable practices. Copies are mailed out to our mailing list and are available on ICDC's website.

ICDC's focus is on the research and demonstration needs of Saskatchewan's irrigation farmers. ICDC works to ensure that these needs are met.

ICDC Vision

To be the leading research and development organization for maximizing the value of irrigation.

ICDC Mission

To research and provide leadership in irrigation production.

ICDC Objectives

- To research and demonstrate to producers and irrigation districts profitable agronomic practices for irrigated crops.
- To develop or assist in developing varieties of crops suitable for irrigated conditions.
- To provide land, facilities, and technical support to researchers to conduct research into irrigation technology, cropping systems, and soil and water conservation measures under irrigation and to provide information respecting that research to district consumers, irrigation districts and the public.
- To co-operate with the Saskatchewan Ministry of Agriculture to promote and develop sustainable irrigation in Saskatchewan.

ICDC
Irrigation Crop Diversification Corporation

Box 1460, 901 McKenzie Street South
Outlook, SK S0L 2N0