#BarleyBin

FALL/WINTER 2022 MAGAZINE VOL. 3

A glance at regenerative agriculture in the barley industry



GRAIN TO GLASS 🕂 BARLEY MARKET UPDATE ... and much more





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CELEBRATING A YEAR OF RESEARCH SUCCESS STORIES

reetings,
Saskatchewan barley
farmers. I hope
you had a safe and
successful harvest this year!

At SaskBarley, we are committed to ensuring the long-term profitability and sustainability of barley for Saskatchewan producers through research, market development and extension initiatives. The Barley Bin magazine allows us to highlight the summer activities full of research and advocacy work.

We strive to put your check-off dollars to good use. I'm proud to report that this summer, we conducted new research into how barley is best managed and how it responds to intensive management practices. We know that there is a range of agricultural conditions in Saskatchewan. Through our partnership with several Agri-ARM sites, we evaluated barley's response to additional inputs and how it related to environmental conditions.

We looked at six varieties, three malt and three feed, which included: AAC Synergy, AAC Connect, CDC Fraser,



"I am proud of the work we have accomplished to date ... in the Canadian barley industry.

CDC Austenson, Claymore and Oreana. This research breaks down into three projects examining variety response to nitrogen fertilizer rates, fungicide and plant growth regulator application. Learn more about this research and other new initiatives funded by SaskBarley this past year in this magazine's "Exciting New Research" feature.

Concerns surrounding grain

contracts have been top of mind. In July, we released the results of a report commissioned with the SaskCrops group and the Agricultural Producers Association of Saskatchewan (APAS) as a wide-scale response to rising concerns amongst Saskatchewan farmers. The report found that grain purchase contracts are heavily tilted in favour of the grain buyer, leaving Saskatchewan farmers at a disadvantage, with only 46% of Prairie grain farmers feeling that they receive fair contracts. You can read the full report on our website.

Our work with SaskCrops and APAS has not stopped there. As part of our collective advocacy work, we published a submission to the federal government on the Fertilizer Emission Reduction Target. SaskBarley also made its own submission to the consultation; we will continue to keep this critical consultation top of mind as we head into the new year. In the meantime, read both submissions on our website.

It was great to get back to in-person events this summer, viewing the new barley varieties in action, and connecting with

Canadian and international members of the barley industry at the Western Canada 2022 Barley Crop Tour. It was a welcome return to in-person market development work.

In July, we were lucky to spend a great few days at Ag in Motion, talking and connecting with many farmers who stopped by our booth, as well as hosting excellent presentations on topics related to growing barley. Thank you to those who stopped by to learn more about the commission and check out our barley demonstration.

I am proud of the work we have accomplished to date and the leadership SaskBarley provides in the Canadian barley industry. Saskatchewan farmers have persevered through some challenging events in the last year, but barley demand and pricing remain strong as we look ahead to 2023.

Keith RueveChair, SaskBarley



REGENIERA

Agriculture

What is it and what could it mean for the barley industry?

by Delaney Seiferling

n the past couple decades, we have heard the term "sustainability" used a lot in relation to agriculture.

But more recently, another term is slowly creeping into our conversations around on-farm practices — and one that has potential to become more and more relevant within the barley industry.

The concept of "regenerative agriculture" was first widely introduced in the organic agriculture world in the mid 1980s, based on the idea that rebuilding soil health through increasing soil organic matter content will provide environmental, economic and social benefits to the entire food system.

Since then, the idea has slowly creeped into the conventional agriculture world, most notably in 2019 when General Mills announced a multi-million dollar initiative to advance regenerative agriculture practices on 1 million acres of farmland by 2030. This program has a heavy focus on Saskatchewan and Manitoba, where the majority of oats are grown.

With the exception of the ban on the use of synthetic fertilizers and pesticides in the organic cropping systems, the main components of the term regenerative agriculture remain the same between the conventional and organic agriculture worlds, says Dunling Wang, Provincial Specialist, Alternative Cropping Systems with the Saskatchewan Ministry of Agriculture.

Although the actual definition of the term varies slightly between users, he says generally it refers to five key principles to build soil health: minimizing soil disturbance (through reduced or no-tillage); keeping soil surfaces covered year-long (through stubble retention, cover crops and pastures); maximizing plant diversity (through crop rotations and intercropping); maintaining live roots in the soil year-round (cover crops and pastures); and integrating livestock into crop production.

All of these practices theoretically promote increased soil organic matter, put carbon back into the soil, increase biodiversity, purify water, and more, Wang says.

"All things that are good for the environment and our industry."

The General Mills program is still



Continuous cover is a widespread practice on Saskatchewan farms and one of the five principles of regenerative agriculture.

slowly rolling out, says Prairie Oat Growers Association Executive Director Shawna Mathieson, and she believes it will still take some time for farmers to come on board.

"A major challenge POGA sees in this, and other initiatives like it, is showing a return on investment back to producers," she says. "General Mills and ALUS [a program partner] will need to show producers that putting in extra time, and possible expense, will consistently pay off on their farm."

But she also says that if there are proven benefits to it — and it's realistic for farmers — she could see value in such a program.

"Farmers are risk takers by nature and inquisitive, so if it makes sense General Mills will likely have lots of participants."

Which is good news for the barley industry, as there have been recent indications that the malting/brewing industry could move in the same direction in the near future.

TIVE



Several leading global beer companies including Anheuser-Busch, Molson Coors and AB InBev have made commitments to lower their carbon footprints and nitrogen emissions and embrace sustainability. In the United States, there are rumblings of regenerative agriculture integration in the wine and beer production sector. One craft brewery in California has already branded itself as a sustainable brewery, specializing in regenerative agriculture.

All this indicates that the barley

world is moving towards some kind of system to certify its responsible practices, says Peter Watts, Managing Director, CMBTC.

"The craft brewing industry is pushing for change on many levels," he says.

He believes the industry will start to see more and more regenerative agriculture initiatives on a small scale in coming years, but like with the oats industry, it will take a while to roll out.

"It will take a long time to grow to any significant scale."

HOW WILL IT BE **MEASURED?**

The big challenges for the regenerative agriculture movement will be the same ones we see with the term "sustainability" - it lacks a formal definition, as well as a framework for measurement and documentation, says Mitchell Japp, Research and Extension Manager for SaskBarley.

"Unlike the organic certification, which is federally regulated, there's nothing for regenerative ag," he says. "It could very much mean different things to different people."

Wang says he has received many calls from producers wondering if their farm would qualify to be labelled regenerative agriculture because they practiced one or two of the principles associated with the term. And he never had a firm answer for them. This drove Wang to develop and launch a research project to help putt some frameworks and measurements around the concept.

Led by University of Saskatchewan researchers Drs. Bobby Helgason and Tristan Skolrud, the project will determine the overall soil health benefits and economic impact of some of the common regenerative agriculture practices for Saskatchewan farmers. (The Saskatchewan Agriculture-funded project will be wrapped up by 2025.)

Another ongoing trial hosted by Lana Shaw at the South East Research Farm in Redvers, SK, is aiming to help move the regenerative agriculture conversation forward as well, by quantifying the benefits of cover crops in Saskatchewan rotations for the soils. (The project is led by Dr. Yvonne Lawley at the

University of Manitoba.)

Now in the fifth year, the trial is comparing rotations with and without cover crops to determine potential benefits.

Shaw says so far they've had some success getting cover crops established.

"I see barley having a pretty practical fit with some of these cover crop ideas," she says, adding there have been residual herbicide and functional challenges with other crops such as peas, wheat and canola.

However, she says there are many more challenges ahead if we are aiming to help farmers reap economic benefits for these practices.

"The food industry is quite keyed into some of these cover crop and intercrop ideas, but the challenge comes when they want to contract grain grown using these practices," she says.

The main challenge, in her mind, is that there is no official documentation process or guidelines in place for farmers to showcase and verify what they've

"It involves a whole cycle of practices - it's not just what's happening from mid-April until the end of September. It's longer term than that"

However, other members of the industry feel that cover crops are not a realistic option for Saskatchewan farmers.

"You want to add another crop in that the farmer does not make money off of?" says Cory Willness, an agronomist based in Naicam, SK. "Anything that uses moisture, even if it's a half inch or an inch, that's basically water coming right off their yield and bottom line."

Continued on next page

Cont. from previous page

He adds that adding a second crop could require farmers to make a second pass seeding, which takes extra time and resources, and will affect tillage.

"I just do not see how that's going to get adopted," he says.

IS REGENERATIVE AGRICULTURE REALISTIC FOR SASKATCHEWAN BARLEY FARMERS?

When we consider the five core practices of regenerative agriculture, Saskatchewan farmers are already pretty far ahead, Japp says.

"Through that conservation tillage lens, Saskatchewan farmers are already achieving 60-80% of those goals, in my opinion," he says.

Disturbance is minimized, there is year-round cover and there is lots of diversity in the basket of crops grown in Saskatchewan, he says.

However, it's tough to measure the benefits of the "continual live plant" component in our climate.

"We don't have a good handle on that in our environment, especially when we're as dry as we are right now," Japp says. "That's not necessarily a good thing, with the use of so much moisture."

He also says livestock integration just isn't a realistic option for many Saskatchewan farms, with the limited availability of animals in our province to integrate onto grain farmland, as well as the additional costs and resources required to have animals on farms. The integration may also require farmers to move to a six- or eight-year rotation instead of the three-or four-year cycles being used now.

"That seems fairly unrealistic to ask of grain farmers," he says.

One of the main problems is

that the concept of regenerative agriculture is too broad, Willness says.

"Most of these concepts [of regenerative agriculture], they're for Ontario or the United States mid-west, which gets 35 inches of rain a year. It's not for us."

"In some ways, it's a branding thing — a rebranding of soil conservation, of sustainable agriculture."

And that's not necessarily a bad thing, she says.

"We're always reinventing the words and styles of things.

Soil organic matter is pretty stubborn, as a parameter, he says.

"They don't change that much."

For example, it would take at least 10 years or more to improve soil organic matter by 1%, if the right practices are in place, he says.

THE GOOD NEWS

The good news is that there's a lot of potential for the concept of regenerative agriculture to help farmers come together to showcase their responsible farming practices to the world, Wang says.

"If we want to change our behavior, we've got to get more conventional producers to engage in the regenerative agriculture movement, which could create meaningful impact to change the climate," he says. "But they need to be patient and consistent."

Mathieson also believes RA programs, such as the General Mills one, could be valuable for farmers — as long as they are getting a financial reward for it.

"As the world requests more information about from where their food comes from and the desire to know that the land is being cared for, there may be opportunities for farmers to get a premium when they participate in initiatives like this," she says.

"Ultimately, consumers will have to determine the value of this information.

Watts agrees that the RA movement could benefit the barley industry specifically.

"The malting/brewing industry has evolved rapidly in recent years and is definitely more adaptable," he says.

"I think that change is usually good for farmers and the industry as it creates new opportunities. It's not for everyone, but allows people to differentiate themselves."

It's important to know what regenerative agriculture means and be able to speak to buyers about how much current practices align with regenerative agriculture principles.

WHAT FARMERS NEED TO KNOW

For now, it's important for farmers to know what the term regenerative agriculture means, and that it's something that they could be asked more and more frequently in the future.

"If they're presented with questions from a buyer, it's worthwhile for them to have some knowledge about what it is," says Mitchell Japp.

They should also be prepared to discuss the benefits of their current practices, many of which happen to align with regenerative agriculture, he says.

Another consideration is that regenerative agriculture is not a completely new concept, but rather an extension of a larger conversation we're already having about farmers and sustainability, Shaw says.

The previous generation's "soil conservation" might be very much similar to this generation's "regenerative ag" – just with a bit of a different spin."

And one final and important consideration is that regenerative agriculture should be viewed by farmers as a longer-term goal, Wang says, rather than a quick way to potentially check boxes to increase profits.

And that's not only because there's lots of work to be done still on putting a firm definition around the concept and realistic, effective programs in place.

It's also because improving soil health itself, through soil organic matter, will take time.

"I've heard some farmers say, 'I started growing cover crops and I see about 0.5 to 1 percent increase of organic matter in my soil.' No way," he laughs.

Welcome back

International buyers return for Western Canada **Barley Crop Tour**

by Peter Watts Managing Director, CMBTC

rom Aug. 10-12, the Canadian Malting Barley Technical Centre (CMBTC) and its members held the 2022 Western Canadian Barley Crop Tour, the first time in three years the event has been held in person.

Approximately 50 representatives from across the barley value chain gathered in central Saskatchewan. The group included maltsters and brewers, Canadian farmers and grain companies, as well as

buyers of Canadian barley and malt from around the world. The tour included several beer industry representatives from Japan, one of Canada's largest malt markets. Among them were technical and purchasing staff from Asahi and Sapporo Breweries.

The objective of the 2022 Barley Crop Tour was to show the yield and quality of the 2022 Canadian crop ahead of harvest. Participants learned about new Canadian malting barley varieties now entering the commercial stream, such as AAC Connect and CDC Fraser. as well as additional varieties in development.

The day-and-a-half tour included visits to two Saskatchewan farms: Wylie Seeds near Biggar and the Enns family farm near Rosthern. Demonstration plots on the farms consisted of new

and established commercial malt varieties. Participants visually observed and compared plant qualities such as height, straw strength, maturity, and, in certain cases, disease resistance.

Everyone interacted with staff at the Prairie Malt plant in Biggar, which is owned by Boortmalt, one of the world's largest malting companies. The facility is located in one of Saskatchewan's major barley growing regions.

Day two of the tour included a visit to the Crop Development Centre (CDC) at the University of Saskatchewan in Saskatoon, SK. It was led by barley and oat breeder Dr. Aaron Beattie. The CDC has carried out the development of several world recognized malting varieties such as Harrington, CDC Copeland and, more recently, has registered varieties such as Copper and CDC GoldStar, all

of commercialization.

Ultimately, these tours serve to reinforce the quality proposition of Canadian barley and are important in promoting new variety acceptance. All this benefits Canadian farmers and the industry.

As one of the world's largest exporters of barley and malt, Canada must work to ensure new barley varieties with better agronomics and disease resistance gain acceptance in the international market. This will guarantee farmers benefit from improved genetics and barley remains a competitive crop on western Canadian farms.

The tours also facilitate longterm business relationships between Canada's barley and malt value chain and its customers. This is key to maintaining Canada's position as



Maltsters, brewers and buyers attended the Western Canada Barley Crop Tour — held in person in Central Saskatchewan for the first time in 3 years. Photos courtesy of CMBTC

SaskBarley 2023 **Annual General** Meeting

Tuesday, January 10, 2023, Prairieland Park, Saskatoon

SaskBarley's Annual General Meeting (AGM) will be an opportunity for us to review the past year and look forward to 2023. The AGM will be held in conjunction with other crop commissions in the province and will also be available in a virtual format for your convenience.

Agenda

- 1. Call to Order
- 2. Approval of Agenda
- Review and Approve Minutes of the Last Annual General Meeting
- 4. Business Arising from the
- 5. Report from Organization
- 6. Auditor's Report
- Appointment of Auditor for 2022/2023
- 8. Call for Resolutions
- 9. New Business
- 10. Adjournment

Motions to be presented

- 1. That the Agenda for the 2023 AGM be approved as presented.
- 2. That the minutes of the 2022 Annual General Meeting be approved as presented.
- 3. That the report from the organization be approved as presented.
- 4. That the audited statements for the year ended July 31, 2022 be approved as presented.
- 5. That SaskBarley appoint Lingard + Dreger as auditor for the year ending July 31, 2023.
- 6. Resolutions
- 7. To adjourn the 2023 AGM.

Call for resolutions

To submit a resolution in advance of the meeting, please email info@saskbarley.com by Tuesday, January 3, 2022.

Visit **saskcrops.com** for more information and to register.

BarleyBin Live 2023

Coming in March!

SaskBarley is excited to host a BarleyBin Live event in March 2023! Come and enjoy some beer samples and appetizers while learning about barley with the industry's leading experts.

Stay tuned to our communications for more details on location, speakers and registration.

Top Notch Farming

SaskCanola is hosting Top Notch Farming meetings during winter 2023 in partnership with Saskatchewan Agriculture, SaskBarley and other organizations. There is no fee to attend, and lunch will be provided.

- Jan. 31 North Battleford, Western Development Museum
- **Feb. 1** Saskatoon, Saskatoon Inn
- **Feb. 7** Regina, Queensbury Convention Centre
- **Feb. 8** Swift Current, Living Sky Casino
- **Feb. 15** Melfort, Kerry Vickar Centre

Agendas, pre-registration and other details are available on the SaskBarley and SaskCanola websites.

Learn to Lead

March 22 - 24, 2023, Delta Bessborough Hotel, Saskatoon

Do you have a passion for

2023 AGM AGENDA

10:00 AM



Sask Wheat AGM 11:30 AM **BREAK** Winter Wheat AGM **MONDAY, JANUARY** 11:45 AM 12:30 PM Luncheon Hosted by Sask Wheat **Market Outlook:** 1:00 PM **Wheat & Pulses Presented by: Chuck Penner** 2:15 PM 2:30 PM **Industry Topic and Q&A** 3:45 PM Saskatchewan Pulse Growers 4:00 PM

UESDAY, JANUARY 10

8:00 AM **Special Announcements**

Pulse Growers

Networking Reception

Hosted by Saskatchewan

Market Outlook: 9:00 AM Flax, Canola, Barley **Presented by: Chuck Penner**

10:00 AM **Break**

5:30 PM

10:15 AM SaskFlax AGM

Luncheon 11:30 AM Hosted by SaskCanola

SaskCanola AGM 12:00 PM

> 1:15 PM **Break** 1:30 PM **Keynote**

Presented by: Dave Meslin

Barley Beer Tasting 2:45 PM

3:00 PM SaskBarley AGM

farming and want to better understand the role you can play in shaping the industry's path? Then this event is for you.

Learn to Lead, hosted by SaskCanola, is a personal and professional development program to build leadership capacity among farmers and create future leaders in Saskatchewan's agriculture industry.

For more information and registration details visit saskcanola.ca. 🥏

WORLD BARLEY PRODUCTION

('000 METRIC TONNES) **USDA**

	2018-19	2019-20	2020-21	2021-22	2022-23	2022 vs 2021
E.U.	49,470	55,180	54,324	52,046	51,300	(746)
Russia	16,737	19,939	20,629	17,505	21,000	3,495
Australia	8,819	10,127	14,649	13,906	12,700	(1,206)
Canada	8,380	10,383	10,741	6,959	9,900	2,952
UK	6,510	8,048	8,117	6,961	7,100	139
Ukraine	7,604	9,528	7,947	9,923	6,400	(3,523)
Argentina	5,060	3,615	4,035	5,300	4,500	(800)
U.S.	3,343	3,756	3,719	2,562	3,796	1,181
Sub-total	105,498	120,576	122,612	115,215	116,696	1,481
Others	34,125	37,793	38,299	30,303	32,306	2,003
WORLD	146,623	158,369	160,911	145,518	149,022	3,465

Source: USDA, updated November 2022

Barley Market Update

by Peter Watts Managing Director, CMBTC

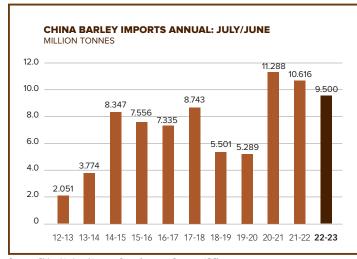
2022-2023 HIGHLIGHTS

- Global barley production is projected to increase 3.5 mln tonnes (mln T) or 2.4% this year to 149 mln **T** according to the USDA's November report. Larger barley crops in Russia, Turkey and North America, and good production prospects again in Australia, have boosted production and offset smaller crops in Ukraine and Argentina.
- Canada's 2022 barley crop is estimated by StatCan at **9.428 mln T**, up 35.5% over the drought-stricken 2021 crop and 6.3% above the previous 5-year average. A dry fall allowed Canadian farmers to harvest a good quality malt barley crop. Barley yields averaged 68.4 bu/acre (3.68 t/ha), a little below trend with the south western Prairies having had another dry growing season.
- Smaller than average U.S. and EU corn crops, and dry conditions in

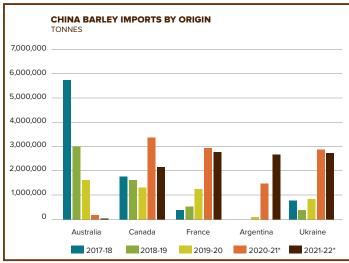
- **Argentina** in recent months which have cut the wheat and barley crops, and slowed corn plantings, are keeping global grain prices strong, supported by the on-going conflict in Ukraine.
- · China's barley purchases have slowed this year with imports of 8.3 mln T between October 2021 and September 2022 compared with 12.1 mln tonnes the previous 12 months. The USDA is projecting a small increase this year to 9.0
- Australia is projected to have another large grain harvest with barley production projected by the ag ministry ABARES at 12.3 mln T, though down from the bumper crops of the past two years (13.9 mln T in 2021 and 14.6 mln T in 2020). Heavy rain in eastern Australia the past two months has downgraded the barley crop, reducing potential malt barley supplies for a second consecutive year.

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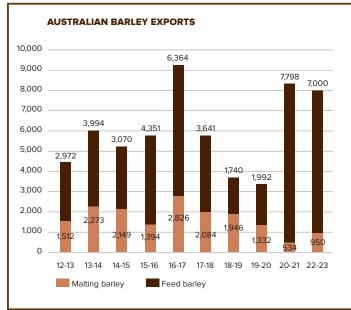
MARKET REPORT



Source: China National Import Stats (2022-23 forecast IGC)



Source: China National Import Stats



Source: ARARES

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CHINA

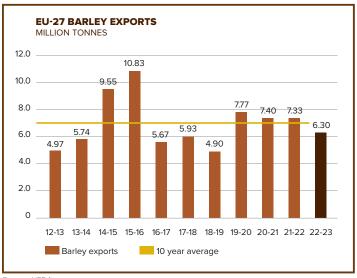
- In 2020-21, China emerged as the world's largest barley importer, overtaking Saudi Arabia, with purchases of feed and malting barley exceeding 10 mln tonnes in both of the past two years. About two-thirds of imports since 2020-21 have been feed barley, while the balance is malting barley.
- Imports have slowed significantly in the 2022 calendar year, just 4.4 mln T from January-September, as China attempts to reduce its purchases of feed grains in general, and with corn more competitive than barley. However barley imports are projected to pick up in coming months to keep the 2022-23 demand figure historically strong at 9.5 mln tonnes.
- With Australia essentially excluded from the Chinese market since the spring of 2020 with prohibitive import duties that were applied based on an anti-dumping claim against Australia, China has shifted imports to other origins including Canada, Argentina, France and Ukraine.
- While China attempts to reduce feed imports, China's brewing industry still requires 3-3.5 mln T of malting barley annually. With current high barley prices. China's importers are looking for the most economical options, but malt barley supplies are tight with prices high in all available origins, and as a result options are limited.

EUROPE

- According to the European Commission, the EU-27 produced 52.0 mln T of barley in 2022, almost identical in size to the 2021 crop. However the EU corn crop suffered from extreme dry conditions this summer with output estimated at 55.7 mln T compared with 73.1 mln T in 2021, reducing feed supplies and supporting barley values. As a result, EU corn imports have been strong this year, and barley exports are projected to be lower in 2022-23.
- A particularly dry spring in France this year impacted spring malting barley yields and quality, resulting in high protein content, while the 6-row winter barley ended up with overall very good quality, helping to offset the losses in spring barley. Meanwhile Scandinavia harvested a relatively good quality malt barley crop, as did the UK. Overall the EU exportable malting barley surplus is estimated at a little over 1 mln T in 2022-23, which is below average but up from the 2021 marketing year surplus of about 750,000 T.

AUSTRALIA

Australia is poised to harvest another big barley crop projected by ABARES at 12.2 mln T in 2022 compared with 13.9 mln T last year and the 10-year average of 10.5 mln T. Australia has had good barley crops the past 3 years, recording its



Source: USDA

largest output on record in 2020 at 14.6 mln T.

- In the 2021-22 marketing year just concluding (Nov-Oct), Australia is projected to export around 8 million tonnes of barley, making it the world's largest barley exporter, in spite of being out of the Chinese market. Exports are forecast to be strong again in 2022-23 at 7.5 mln tonnes.
- In 2020-21, malting barley exports were the smallest in many years with no outlet in China, however they recovered somewhat in 2021-22 with good sales to Mexico, Peru and Ecuador. Meanwhile, feed barley exports have been booming. After a couple of years of very little in the way of exports to Saudi Araba, Australia has shipped over 2,5 mln tonnes in each of the last two marketing years.

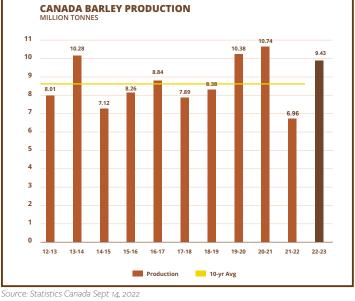
ARGENTINA

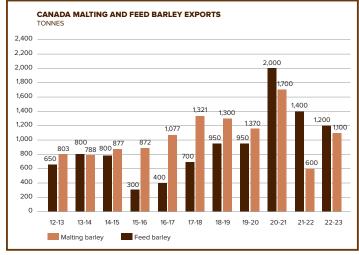
- In the crop year just finishing (Nov/ Oct), Argentina is estimated to have exported a record 3.8 mln tonnes of barley, of which 1.2 mln T of malting barley. China stats show 2.3 mln T of barley imports from Argentina between February and September 2022, which would be the largest program ever.
- With respect to 2022 production, Argentine crops suffered through an extremely dry spring from August through October, impacting wheat and barley crops. Rains in November provided relief to the dry conditions,

however the barley crop had already lost yield potential, and coupled with a is estimated at a little over 1 mln T in 2022-23, which is below average but up from the 2021 marketing year surplus of about 750,000 T.

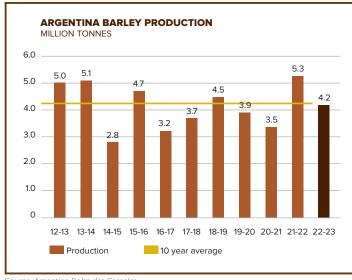
CANADA

- On September 14, Statistics Canada released their 2nd model-based crop production estimates for 2022 using satellite imagery to estimate yields, projecting production of cereals, oilseed and pulses up 36% compared with last year when western Canada suffered a major drought.
- According to Statistics Canada, farmers chose to seed more wheat in particular this year with an area up 2.1 mln acres (838,000 hectares) or 12.8%, as well as more oats, which was reflected in lower seeded and harvested areas of other crops, with barley down 15% from 2021.
- But with significantly improved yields of 68.4 bu/acre (3.68 T/ha), barley production in Canada is projected at 9.428 mln T, an increase of 35.5% from 2021 and above the 5-year average of 8.871 mln tonnes.
- In spite of last year's drought, Canada managed a relatively large barley export program of 2 mln T, primarily feed but still a significant quantity of malt barley, much of it sold early before the drought conditions had set in. With a significantly improved crop in 2022, Canadian malting barley exports are forecast to recover in 2022-23. 🧖

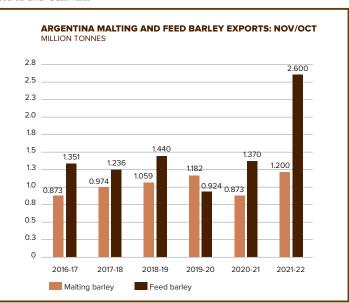




Source: CMBTC Estimates



Source: Argentine Bolsa des Cereales



Source: Argentine Ministry of Agriculture

Making progress

A summary of all the new research projects that SaskBarley funded in the 2021-22 fiscal year

e have been making strategic investments in research projects that advance SaskBarley's goals this year! Funding new research that helps barley producers grow barley more efficiently across the province is a major goal of ours. This year we were very excited to fund 9 new research projects across Canada with an overall commitment of \$516,826. We have provided you with brief overviews of the projects so that you can catch a glimpse of the exciting new research we are proud to be supporting.

THE NEXT GENERATION OF BARLEY TRACEABILITY

Rory O'Sullivan, *Grain Discovery* **SB commitment:** \$90,000

The Next Generation of Barley traceability consortium will build an end-to-end digital system that uses distributed ledger technology to trace Canadian grown malt barley through every stage of the value chain — from field to glass. This is critical work to support the transition to digital and automated technologies in the agrifood industry.

Collaborating with a wide range of industry stakeholders: seed companies, farmers, malt houses, breweries, and certifiers amongst others, this secure system will connect previously isolated data systems and create a new and valuable digital feedback loop between partners. This standardized data can be used in multiple innovative ways, for example: brewers can create a digital passport highlighting the origin story to differentiate their product. This will meet requirements for food traceability and transparency, but will also increase public awareness, trust, and education on the agricultural supply chain.

Blockchain is the ideal technology for this system, as a digital platform that provides consensus and gives the supply chain a single version of the truth. Using blockchain will also enable the consortium to gain critical insight into how the wider agriculture industry can capitalize on and commercialize this burgeoning technology for



SaskBarley's Research & Extension Manager, Mitchell Japp and the Grain Discovery team in SaskBarley's barley plots at AG in Motion 2022. Photo supplied by Rory O'Sullivan

other traceability attributes like regenerative ag, low carbon, etc.

In summary, this project will allow the Canadian barley industry to differentiate their product, add value, create global brand recognition, and proactively address consumer questions on the origin of their food.

ENHANCING CAPACITY OF BARLEY BREEDING PROGRAMS IN WESTERN CANADA: ESTABLISHING DISEASE NURSERIES AND A PRE-BREEDING PLATFORM

Dr. Gurcharn Singh Brar, UBC **SB Commitment:** \$70,000

Crop Pathology and Genetics (CPG) Lab at the University of British Columbia (UBC),

Vancouver, led by Dr. Gurcharn Singh Brar, is relatively new research group in Canada studying wheat and barley genetics, pathology, and doing pre-breeding work for disease resistance. This particular project will support CPG Lab for their efforts to establish an inoculated Fusarium head blight (FHB) and stripe rust screening nursery where three public barley breeders (CDC-Saskatoon; AAFC-Brandon; FCDC-Lacombe) will be able to screen their breeding material for these two diseases. Further, this project will develop some pre-breeding genetic stocks carrying multiple-disease resistance genes and these pre-breeding lines will be made available to the breeders for use in cultivar development. Long-term goal of the CPG Lab is to make barley breeding and cultivar development more efficient by providing research support to the breeding programs and working hand-in-hand with the public barley breeders.

CAN WINTER BARLEY BE GROWN IN CENTRAL SASKATCHEWAN?

Garry Hnatowich, ICDC SB Commitment: \$2,995

Can winter barley survive a Saskatchewan winter? Living in a place where we regularly experience -40 C, polar vortexes and blizzards, sometimes it seems amazing anything survives the long winters here. Farmers familiar with winter wheat, fall rye and winter triticale, will have heard of winter survival and cold hardiness, but how does winter barley compare? It is a question we have heard growers ask, so SaskBarley developed an ADOPT project with Irrigation Crop Diversification Centre (ICDC) in Outlook to find out. Our goal was to take the hardiest material available in Canada and give it the best chance to survive in Saskatchewan. The treatments, in addition to the four varieties, include combinations of high and low seeding rates, with and without seed treatment. The high seeding rate with seed treatment will be the very best management for winter barley in Saskatchewan.

ENHANCED AGRONOMY TRIALS - N FERTILITY, FUNGICIDE, PGR

Mike Hall and Brianne McInnes, ECRF & NARF

SB Commitment: \$123,075

Recent research in wheat production in Alberta identified some varieties are quite responsive to intensive management, while others are more suited to a standard management regime. In one of the projects, yield responses ranged from 6-17%. Similar research on variety specific management in barley is limited, so SaskBarley is working with ADOPT and several AgriARM applied research sites across Saskatchewan to find out more. Three new projects will increase our knowledge about how barley varieties can be managed in different environments and how they respond to more intensive management. Barley response to additional inputs will be evaluated across a range of environments. The varieties include three malt and three feed varieties — AAC Synergy, AAC Connect, CDC Fraser, CDC Austenson, Claymore and Oreana. The first project includes treatments comparing nitrogen fertility under a standard versus enhanced rates, varied depending on the yield potential of the area. The second project compares the same varieties with and without a fungicide applied. The third project evaluates the variety response to a Plant Growth Regulator.

TRACING C AND N DURING CROP RESIDUE DECOMPOSITION TO **OPTIMIZE C SEQUESTRATION** AND PREDICT N TRANSFER CREDIT

Dr. Bobbi Helgason, U of S SB Commitment: \$48,302

Crop residues are the main source of new carbon in soil and release nitrogen for use by subsequent crops. We know that residue quality affects how soil microorganism's breakdown and redirect this carbon and nitrogen, but predicting how much is retained in the soil is analytically challenging because we are essentially tracking these important "drops" in a large bucket. Stable isotopes (e.g., 13C and 15N) are atoms that have an extra neutron. They can be added to soil-plant systems as 13CO2 and 15N-urea making them extremely useful as environmental tracers allowing us to precisely measure drops in a bucket. In this project, we will grow barley, wheat, canola, lentil, field pea and soybean in the greenhouse that have these isotopes (13C and 15N) built into their residues. We will then place the residues at three different field sites in small plots to track the fate of the residue carbon and nitrogen in the subsequent cropping year. Our focus with carbon will be to relate residue quality characteristics with the amount and form of carbon stored in the soil. Residue nitrogen will be tracked into a wheat crop to determine how much of the nitrogen is transferred to the wheat, and how this relates to

residue type and quality characteristics. This work will allow us to better predict the fate of carbon and nitrogen in residues of important field crops and to quantify the N transfer credit we can expect from using them in crop rotations.

CEF-CPG: CONTROLLED-ENVIRONMENT FACILITY FOR CROP PATHOLOGY AND GENETICS RESEARCH AT UBC. **VANCOUVER**

Dr. Gurcharn Singh Brar, UBC SB Commitment: \$70,725

The Crop Pathology and Genetics (CPG) Lab at UBC, Vancouver is relatively a new research program with a focus on wheat and barley research. The Lab will study economically important diseases and other traits in wheat and barley with a long-term goal to establish a pre-breeding program, which will further support public wheat and barley breeding programs in Canada. Being a new research program, the Lab required some infrastructural set-up to operate more efficiently and deliver results from research projects. This project was originally funded by WGRF's under their 'Capacity 2' initiative and cofunded by SaskBarley along with other funders. The project will provide required infrastructure to the CPG Lab for study of wheat and barley crops and their pathogens.

Continued on next page



Barley research plots at the Crop Pathology and Genetics (CPG) Lab housed at the University of British Columbia in Vancouver. Photo supplied by Dr. Gurcharn Singh Brar.

Continued from previous page

ALTERNATE ANALYTICAL METHODS FOR EVALUATING ENVIRONMENT-SPECIFIC VARIETAL PERFORMANCE OF VARIOUS CROPS IN SASKATCHEWAN

Christiane Catellier, *IHARF* **SB Commitment:** \$5,104

Regional Variety Trial data will be re-analyzed to evaluate the relative performance of varieties across a gradient of environments. Genotype by environment (GxE) interactions occur when certain cultivars perform better only under some restricted set of conditions. Identifying GxE interactions becomes important when selecting varieties with specific adaptation to a particular environmental stressor (e.g. moisture deficit, short growing season, disease tolerance). In the SaskSeed Guide, there is a basic differentiation of environments — four areas based on agro-climatic conditions or soil zones — utilized to aggregate and present the results of the variety trials. However, there is potential to expand on this and provide further differentiation of varietal responses to specific environmental conditions, which could be more insightful for producers.

Continual investment in variety development, improvement, and evaluation is essential for the sustainability of barley production, especially in the context of the wide range of agroclimatic conditions throughout the production area, and of ongoing and future climate unpredictability. A supplemental analysis of varietal performance data will add value to this investment by amalgamating long-term data to provide greater statistical power and predictive capacity, and revealing the full potential of varieties adapted to specific conditions. Producers could improve profitability by choosing varieties specifically adapted to the conditions in their fields or operations.

MAXIMIZING FEED BARLEY YIELD WHILE MINIMIZING LODGING

Laurel Thompson, *Lakeland* **SB Commitment:** \$7,200

Lodging is one of the top issues for barley growers. It delays harvest, reduces quality and yield, and makes harvest operations more challenging. Feed barley is a good rotational option, but competes with other feeds like corn and wheat, so it is imperative to develop sound agronomic recommendations to manage issues like lodging. Plant growth regulators (PGRs) are relatively recently introduced technology to manage lodging in barley. PGRs are compounds applied to the growing crop that help to manage plant growth and development by reducing stem height and maintaining yield. This project will evaluate how different feed barley varieties respond to PGR applications, and explore application timing, including options for tank mixing to reduce the number of sprayer passes. Additionally, the project will assess the potential for including PGRs as part of an intensive management regime to strive for higher yielding feed barley.

MITIGATING THE RISK OF PREHARVEST SPROUTING IN CANADIAN MALTING BARLEY

Dr. Belay Ayele, *U* of *M* **SB Commitment:** \$7,200

Malting barley is one of the major cereal crops of Western Canada. However, its production is negatively affected by preharvest sprouting (PHS), causing substantial grain yield, crop grade and quality losses. The need for rapid and uniform germination in malting barley has led to the development of commercial cultivars that have minimal dormancy and therefore are highly susceptible to PHS. This, along with the frequent occurrence of wet summer conditions near harvest in barley growing regions of the Prairies has made PHS a more serious concern in the production of high-quality malting barley. Thus, cultivars with optimum seed dormancy, which refers to the ability of seeds to remain dormant until harvest to reduce the risk of PHS but lose their dormancy quickly after harvest to allow rapid and uniform germination during the malting process, are highly sought by Canadian malting barley producers. The proposed research is aimed at identifying germplasm lines and novel candidate genes/molecular markers that provide a unique opportunity for efficient and directed breeding of malting barley cultivars with optimum dormancy. To achieve these objectives, the project involves collaboration among five barley researchers and breeders across the Prairie region.

CBRC

Barley cluster update

Gina Feist *Manager, CBRC*

esearch investment continues to provide significant benefit to the Canadian barley industry. The National Barley Cluster, led by the Barley Council of Canada, is valued at \$10 M over 5 years and is funded in part by the Government of Canada under the Canadian Agricultural Partnership's AgriScience Program, a federal, provincial, and territorial initiative, and by Canadian barley industry funders. This research investment has delivered new varieties with improved agronomics and end use quality, crop management practices to improve input efficiency and sustainability, and addressed issues related to end use applications of barley (see the BCC website for more details). The current Barley Cluster will conclude in 2023 and the Canadian Barley Research Coalition (CBRC) has taken on the role of leading the development of the next application to the program. To date CBRC has informed researchers of industry and government priorities and has received Letters of Intent for a wide range of research representing the complete barley value chain. CBRC has also been working closely with the Science Advisory Body and industry funders to review full proposals and budgets towards making final selections on the research activities that will make up the next Cluster.

The next round of funding under the Agriscience Cluster program is called the Sustainable Canadian Agriculture Partnership (SCAP) program and will start April 1, 2023, and run to March 31, 2028. The priorities for the SCAP program have been shared with funders and include Environment and Climate Change, Economic Growth and Sector Resilience. The SCAP program differs from previous rounds of funding in that it has a reduced ratio of Government funding contribution and a requirement for a minimum percentage of the research to fall under the Environment and Climate Change priority.

CBRC is leading the development of the application to the AgriScience program with an emphasis on the importance of barley within the cropping rotation, the environmental benefits of barley's relatively low input requirements and the contributions of barley to the Canadian economy for use in malting and brewing, livestock, and food. CBRC will submit the application to the SCAP program in the coming months with an expected start date of April 1, 2023.



Peter Watts, Managing Director CMBTC discussing new malt barley varieties at the 2022 Western Canada Barley Crop Tour. Photo courtesy SaskBarley.

Which one will be the next barley variety on your farm?

by Mitchell Japp, MSc, PAg Research and Extension Manager, SaskBarley

here are options galore for new malt barley varieties — AAC Connect, CDC Fraser, CDC Churchill, CDC Copper, AAC Prairie, AB BrewNet — take your pick. Each of these varieties has established demand, growing demand or is at least being evaluated by the malting and brewing industry for suitability.

CDC Copeland has been

around for over 20 years. It has dominated barley acres on the prairies since 2016 when it first surpassed AC Metcalfe in acreage. CDC Copeland has been in high demand for most of the 21st century. With so many options available with higher yield potential, lower protein, improved agronomics, better disease resistance and market acceptance, spring 2023 presents a great opportunity to get some more acres of these new varieties in the ground and potentially take the crown of most popular barley variety from CDC Copeland.

Even though CDC Copeland remains the top variety, its acreage has been in decline since 2017. It raises

What if malt barley had 3-4 malt varieties with 15-25% of barley acres each?

the question — are we past dominance? AC Barrie was thought to be the last dominant hard red spring wheat variety we would see. There have been so many wheat varieties released since

AC Barrie, that the thinking was that the acres would be divvied up more evenly among a selection of top varieties, rather than a single dominant one. As it turned out, AAC Brandon has proved that premise wrong.

Obviously, malt barley is considerably different from wheat. Malt barley is sold, stored, malted and blended or brewed as a single variety. The grain handling sector would not be able to efficiently segregate a plethora of barley varieties. The malt barley industry has been dominated by one variety or another for long periods of time (Harrington, AC Metcalfe, CDC Copeland).

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YOUR BARLEY CHECK-OFF DOLLARS

A Sound Investment!



OR



= SaskBarley check-off



Rate of return for producers (through improved varieties) for every \$1 of SaskBarley check-off invested in research



Percentage of SaskBarley expenses invested in research (2021/22)



Minimum percentage of
SaskBarley's budget to be invested in research annually



Number of research projects SaskBarley is currently funding

SASKATCHEWAN BARLEY FARMERS:

INVESTING IN THE FUTURE

AAC Connect, CDC Fraser, CDC Bow and CDC Churchill



New varieties developed with SaskBarley check-off dollars

AAC Connect, CDC Fraser, CDC Bow and CDC Churchill



Accepted by domestic maltsters in Canada, as a direct result of SaskBarley market development initiatives

AAC Connect, CDC Bow and CDC Fraser



New varieties currently being accepted by Chinese malting companies, due to international market development work supported by SaskBarley

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As recently as 2017, the top two varieties, CDC Copeland and AC Metcalfe, comprised about 80% of malting barley acres. Currently, CDC Copeland was still being grown on more than 30% of malting barley acres in 2021 (2022 data is not yet available). AAC Synergy was over 25%, AC Metcalfe and AAC Connect rounded out the top four with about 10% each. Other new varieties were around 3% each or less.

But what if malt barley had 3-4 malt varieties with 15-25% of barley acres each? That would be a reasonable number for the industry to handle on a large scale, and allow a much more natural transition between older varieties and newer ones.

Industry buy-in on popular

varieties like AC Metcalfe and CDC Copeland contributes to an abundant supply of malt barley from the top varieties and little incentive for buyers to change to newer, more agronomically and economically suitable varieties. Nonetheless, the barley industry is in a period of transition. Carefully selecting varieties for onfarm performance while the malting and brewing industry is reviewing options and currently selecting a relatively long list of varieties may help facilitate variety turnover in the future.

Here is an overview of the traits of the new varieties that may be suitable for your farm. Consider trying one or more of these varieties out in 2023.



The Saskatchewan Institute of Agrologists regulates the profession of agrology to ensure its safe, competent and ethical practice. To learn more about how a professional agrologist (PAg) or technical agrologist (TechAg) can support your business, visit www.sia.sk.ca

VARIETY (YEAR REGISTERED)	AGRONOMIC TRAITS	DISEASE RESISTANCE*	INTEREST FROM MALTING AND BREWING INDUSTRIES
AAC Connect (2016)	Short, strong straw, heavy, plump kernels	Moderately resistant to several diseases, including FHB.	Top variety by acreage in this list. Considered to have growing demand**. Moderate to high enzyme levels***.
CDC Fraser (2016)	High yielding, short, strong straw, high kernel weight, low grain protein.	Resistant to several diseases, including loose and other smuts. Intermediate resistance to FHB.	Second from top variety in this list by acreage. Considered to have growing demand. High enzyme levels.
CDC Copper (2018)	High yielding, good lodging resistance, low grain protein.	Moderately resistant to several diseases, including both net-form and spot-form net blotch. Moderately susceptible to FHB.	Preliminary stages of testing market suitability. Considered to be in development. Low enzyme levels.
CDC Churchill (2019)	Very high yielding low grain protein, good lodging resistance.	Moderately resistant to several diseases, including both net-form and spot-form net blotch. Moderately susceptible to FHB.	Preliminary stages of testing market suitability. Considered to be in development. Low to moderate enzyme levels.
AB BrewNet (2019)	High yielding, good lodging resistance, low grain protein.	Moderately resistant to several diseases, including FHB.	Preliminary stages of testing market suitability. Considered to be in development.
AAC Prairie (2021)	net-form net blotch. Intermediate		Most recently registered variety in this list – in very early stages of market assessment.

Review the 2022 SaskSeed Guide for more information. The 2023 guide will be available in late December 2022 or early January 2023.

Demand is established based on the 2022-2023 Recommended Malting Barley Varieties presented by the Canadian Malting Barley Technical Centre.

AC Metcalfe has high levels of starch degrading enzymes, desirable for adjunct brewing. CDC Copeland has lower enzyme levels, ideal for all malt brewing.



Co-owner Shawn Moen outside 9 Mile Legacy Brewing Company in downtown Saskatooon.

Grain to glass

9 Mile Legacy Brewing Company showcases Saskatchewan's finest

By Melanie Epp

rowing up in small farm communities in southwest Saskatchewan, Shawn Moen, 40, and Garrett Pederson, 40, have known each other for most of their lives. They played on rival hockey teams and moved through the same social circles. When

they opened 9 Mile Legacy Brewing Company in April 2015, they were in some ways doing what their two families had done for generations: bring together respect for tradition, companionship and small-town values

The Moens and Pedersons have been neighbours since they settled in Canada in 1907. The two farm families established homesteads just nine miles apart, and each generation of neighbours has found ways to work together for a century.

"Nine miles isn't that close in the horse and buggy days," said Shawn Moen, co-owner of 9 Mile Legacy. "You have to be pretty intentional to be partnering with a neighbour that's nine miles away."

The collaboration continued when Shawn and Garrett set aside the hockey rivalry and started cultivating a love of beer. In 2007, using a homebrewing kit inherited from Shawn's family, the two experimented with different brewing styles, eventually settling on all-grain brewing. And while their love of creating craft beer is what brought them together, shared values — integrity, respect and

the pursuit of excellence — is what keeps them together.

Farming and rural life have played a major role in shaping those values. Shawn had been raised on a farm near Cabri where his family still grows 3,000 acres of lentils, chickpeas, durum wheat and sometimes barley. Garrett grew up north of Abbey on a cattle farm.

Eventually, curiosity and passion gave way to obsession and it wasn't long before Shawn and Garrett quit prominent careers to pursue their love of brewing. Both worked as apprentices at a handful of breweries, and

What's on tap at 9 Mile Legacy



THE **TICKET**

4.7% abv

A welcoming Belgian-style blonde that is the perfect blank canvas to play with new barley varieties like CDC Fraser and CDC Churchill.



HYBRID VIGOUR

5.0% abv

A malt-forward amber that uses malt primarily from Maker's Malt and embraces the principle of "strength in diversity"



LONGVIEW PILSNER

5.0% abv

A classic Czech pilsner brewed with AAC Synergy barley and inspired by forward-looking partnerships.



NO. 1 DURUM WHEAT ALE

5.0% abv

One of the only beer brewed in the world using durum wheat, sourced from southwest Saskatchewan and farms near the 9 Mile Legacy Brewing Company homesteads.



EAGLES AND BULLDOGS

6.0% abv

A Hazy IPA named for our crosstown senior hockey team rivalry — Cabri Bulldogs v Abbey Eagles!



9 Mile Legacy co-owners Garrett Pederson and Shawn Moen are focused on

travelled to soak up as much brewing knowledge as they could. Talks about opening their own brewery began in 2014; the brewery doors opened in April of 2015. Shawn is CEO and in charge of business operations; Garrett is COO and head brewer.

While the pair was keen to brew different styles of beer, they were dedicated to the idea of brewing with locally produced ingredients.

"We've used Saskatchewan barley right from the start, including when we were brewing 100 litres at a time," said Shawn. "It wasn't always the most convenient or economically efficient option for us as a small brewery because you need to have larger relationships to really have those economies of scale. But it was important to us. It was important to us as farm kids from the southwest that we had short chains to the farm gate."

That dedication has led them to work exclusively with local maltsters, Prairie Malt and Maker's Malt, as well as to unique partnerships with seed companies like Syngenta Canada. For the latter, 9 Mile Legacy made an exclusive beer called Longview Pilsner, which

showcased AAC Synergy barley. The beer was served to growers at field events to give them a taste of what can be done with the barley they grow.

For the 50th anniversary of the University of Saskatchewan's Crop Development Centre, 9 Mile Legacy brewed The Ticket, a Belgian-style blonde beer using CDC Fraser barley.

"You know, this is an organisation that by its nature is so forward looking," said Shawn. "The fact that we're called upon to help celebrate these moments, I think is really meaningful. It means that people are truly understanding what the brewing industry means, especially the craft brewing industry."

The real reward, said Shawn, comes with building and retaining connection to community.

"I think that just the nature of having grown up on a farm means we have really deep roots in rural Saskatchewan," he said. "We make beer, but we're most passionate about levelling up our agricultural sector in a lot of ways. And beer is a great medium to do that."



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