the BarleyBin

FALL 2025 · VOL 9

Beyond Merit Badges

How Canada's Breeding System Works for Farmers

TABLE OF CONTENTS

theBarleyBin

Editor-in-Chief
Serra McSymytz

Creative Director
Garret Phenix

Contributing Writers
Liz Allen
Geoff Geddes
Mitchell Japp
Jill McDonald
Serra McSymytz
Delaney Seiferling

Publisher
SaskBarley

Printing & Distribution
JBeck Commercial Print

Cover Photo: Western Canada's publicly supported barley breeders (left to right): Dr. Aaron Beattie, Crop Development Centre in SK, Dr. Ana Badea, Agriculture & Agri-Food Canada in MB and Dr. Yadeta Kabeta from Western Crop Innovations in AB

SaskBarley DEVELOPMENT COMMISSION

Executive Director
Jillian McDonald
Tel. 306-370-7237
jmcdonald@saskbarley.com

General Inquiries
Tel.306-653-7232
info@saskbarley.com

225-415 Wellman Cres
Saskatoon, SK S7T 0J1

SaskBarley

Board of Directors

Looking for information on disease, pest and weed management?

Check out our library of barley production resources at BarleyBin.ca or subscribe to our monthly e-newsletter!

theBarleyBin

This year marks a time of transition for SaskBarley as we welcome a new board member.

In January 2026, one of our long-serving directors, Zenneth Faye of Foam Lake, is retiring from the board. The contribution Zenneth has made to SaskBarley and to Saskatchewan agriculture is immeasurable.

Zenneth has been a driving force in Saskatchewan agriculture for decades, and SaskBarley has been fortunate to benefit from his leadership, dedication, and vision. From his role on our inaugural board in 2013 to his most recent term, Zenneth has consistently worked to ensure that farmers' voices are heard and that our industry is set up for long-term success. On behalf of the board, I thank him for his service and wish him the very best as he continues to inspire the next generation on his family farm.

With Zenneth's retirement, SaskBarley is pleased to welcome Bernie McClean from Glaslyn, SK to the board (see page 4).

Saskatchewan barley producers continue to demonstrate resilience in the face of shifting markets, tight margins, and challenging growing conditions. Our role at SaskBarley is to make sure that your levy dollars are working hard on your behalf—through strategic investments in research, market development, and policy advocacy.

One of the highlights this year has been the expansion of our research portfolio. We are supporting new projects aimed at tackling key agronomic and production challenges, including disease management, grain quality, and yield improvement. These investments not only help farmers in the short term but also ensure barley remains a competitive and sustainable crop for decades to come.

Knowledge transfer remains a top priority for SaskBarley. Our work doesn't stop at funding research—we make sure results are shared in ways that are practical and actionable. Whether through field tours, the BarleyBin podcast and magazine, our suite of production resources at BarleyBin.ca, or the annual BarleyBin LIVE, we are building stronger connections between researchers and farmers.

Collaboration continues to be one of SaskBarley's strengths. This year, we were proud to launch a new graduate scholarship in partnership with Labatt Breweries of Canada, strengthening our commitment to developing future leaders in barley research. We are also working closely with national partners to advocate for policy that supports farm businesses (see page 6) and expand market opportunities for Canadian barley (see page 13).

As farmers, we know that every season comes with its own set of challenges and opportunities. The same is true for SaskBarley as we continue working to deliver value for Saskatchewan's barley growers – whether through research, market development, or advocacy.

Thank you for your continued trust and support.

Cody Glenn, *Chair*

SAVE THE DATE

SaskBarley AGM at the Sask Crops Forum

January 13th & 14th at the Western Development Museum, Saskatoon, SK

SaskBarley is now accepting resolutions for the upcoming Annual General Meeting (AGM) at the Sask Crops Forum in Saskatoon – January 14, 2026 at 2:15 PM. Resolutions provide a vital platform for registered barley producers to influence the future direction of our organization and the barley sector.

Submission Guidelines

- Resolutions must be submitted in writing to info@saskbarley.com

  OR MAILED TO

  The Saskatchewan Barley Development Commission
  225 – 415 Wellman Cres.
  Saskatoon, SK S7T 0J1
- **The deadline for submission is January 9, 2026.**

All proposed resolutions will be reviewed in advance of the AGM to ensure clarity and alignment with SaskBarley's mandate. Approved resolutions will be presented for discussion and voting during the AGM.

New and Returning Directors Join SaskBarley Board

SaskBarley's call for nominations for its Board of Directors closed September 5th at 12 pm. At the time of closing, there were three nominations for three available positions on the Board.

Returning to the Board are **Maurice Berry of Carievale, SK** and **Cody Glenn of Climax, SK**, joined by new director **Bernie McClean of Glaslyn, SK**. All directors will serve a four-year term on the Board commencing immediately following the Annual General Meeting (AGM) on January 14, 2026 in Saskatoon.

Maurice Berry farms with his family near Carievale in southeast Saskatchewan, where barley has long been an important and profitable part of their crop rotation. Berry has also served in leadership roles with the South East Research Farm, Saskatchewan Pulse Growers, and the Redvers and District Marketing Club. His experience and commitment to ensuring profitability and sustainability for barley growers continues to benefit Saskatchewan barley farmers through his efforts on the SaskBarley board.

Cody Glenn a fourth-generation farmer from Climax, Saskatchewan, has been a dedicated leader in the agricultural community. As Chair of SaskBarley since 2024 and a Board member since 2022, Cody has championed the growth and sustainability of the barley industry. He founded Southline Ag in 2016, a company specializing in custom farming and grain handling, which has expanded to serve both local and international markets. Cody's extensive experience and commitment to empowering growers make him a seasoned voice in agriculture.

Bernie McClean farms with his wife Cara, their children, and grandchildren near Glaslyn in northwest Saskatchewan. The operation also partners with a neighbor to raise bison. McClean has been active in agriculture for nearly three decades and has served on boards including SaskCanola, the Canadian Canola Growers Association, and the Canola Council of Canada. He is passionate about research and collaboration across the agriculture sector and is committed to supporting grower priorities and ensuring Saskatchewan farmers remain competitive and sustainable.

These directors join Matt Enns of Rosthern, Chad Ferguson of Naicam and Gordon Moellenbeck of Englefeld to complete the board of six.

Growers and industry members are encouraged to mark their calendars for the **SaskCrops Forum and SaskBarley AGM on January 13 - 14, 2026, in Saskatoon.**

Investing in the Future of Barley Breeding

SaskBarley's $850,000 investment in the University of Saskatchewan's Crop Development Centre expansion is helping secure world-class research facilities and stronger genetics for the next generation of farmers.

By Jill McDonald | *Executive Director, SaskBarley*

At SaskBarley, one of our most important responsibilities is ensuring Saskatchewan farmers continue to have access to the best barley varieties in the world.

That's why we are proud to be part of the University of Saskatchewan's $11.8 million infrastructure expansion at the College of Agriculture and Bioresources and its Crop Development Centre (CDC).

Aerial photo of CDC

SaskBarley committed $850,000 toward this project, which will deliver significant upgrades to research facilities, including the new Harrington Plant Growth Facility, the Soil Science Field Facility, and improvements to the Crop Science Field Lab. These new and expanded spaces will allow scientists to accelerate plant breeding cycles, conduct research year-round, and strengthen knowledge in areas like soil health, fertility, and climate change mitigation.

This work matters because barley farmers need continuous access to new and improved genetics. Better yields, stronger disease resistance, and malting quality that keeps Canada competitive on the world stage all start with the research capacity housed here in Saskatchewan. The CDC has been a world leader in barley breeding for decades, and today their varieties dominate Canadian barley acres.

But the future of breeding is not something we can take for granted. There are only three publicly supported barley breeding programs left in Canada. Without strong industry and farmer investment, we risk losing the very pipeline that delivers the tools farmers need to remain competitive.

This project represents a long-term commitment to our farmers and to the sustainability of barley production in Saskatchewan. SaskBarley is proud to work alongside producers, government, and industry partners to ensure public breeding continues to thrive – because investing in research today secures the future of our industry tomorrow.

Maurice Berry of Carievale, SK (front right) represented Saskatchewan barley growers at the Grain Growers of Canada Summer Meeting in Quebec City.

On the Hill and On the Farm: SaskBarley's Summer Advocacy in Action

How the Grain Growers of Canada and SaskBarley spent the summer pushing for rail reliability, farm-friendly tax policy, and stronger investment in research – on The Hill and in the field.

By Serra McSymytz | *Communications Manager, SaskBarley*

Agricultural policy is always evolving –but recent global and domestic challenges have made the need for a united farmer voice more urgent than ever.

That urgency helped make the decision for SaskBarley to join Grain Growers of Canada (GGC) not just strategic–but essential.

Officially joining on January 8, 2025, SaskBarley became GGC's 14th member, bringing Saskatchewan's influential barley sector into the fold of Canada's largest national grain advocacy group. The move aligns SaskBarley with more than 70,000 producers across the country and ensures barley farmers' priorities are front and centre in federal policy conversations.

From policy meetings in Ottawa to on-farm discussions across the Prairies, GGC is ensuring barley producers' voices are heard.

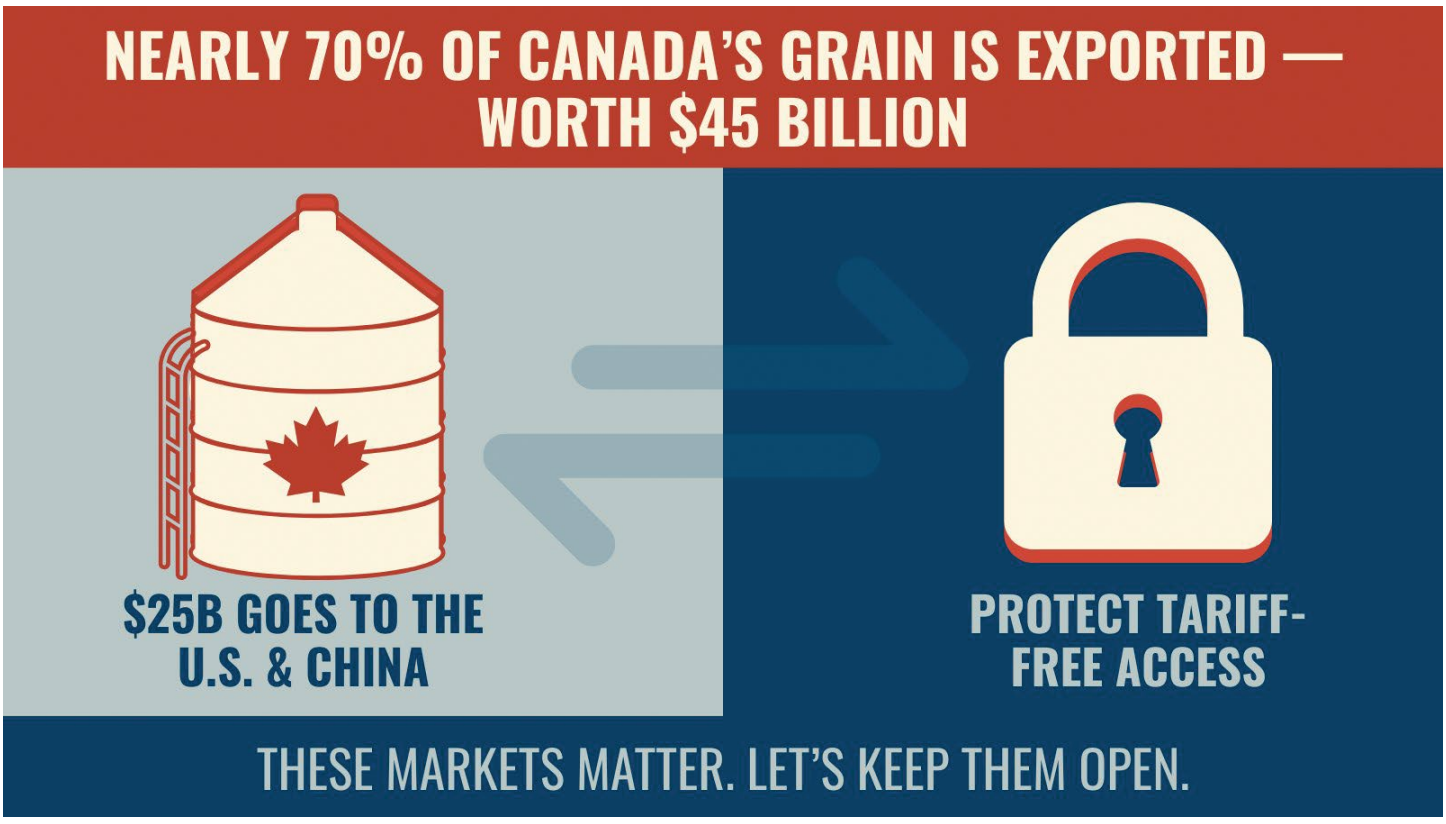
The season kicked off with GGC's Summer Meeting in Quebec City, where grain farmer Directors toured the provincial legislature, agri-food

SaskBarley board member Gord Moellenbeck (front right), along with board members from SaskOilseeds, Saskatchewan Pulse Growers, Sask Wheat and Western Canadian Wheat Growers, toured Secretary of State for Rural Development, Buckley Belanger, at a Saskatchewan grain farm in July.

facilities, and set policy priorities for the year ahead: investing in trade-enabling infrastructure and research and development, resetting Canada's trade relationships, providing competitive and fairer rail service and committing to tax policies that support – not hinder – intergenerational farm transfers and family farm operations.

But advocacy wasn't limited to boardrooms. GGC leaders hit the road for a Prairie farm tour, stopping at operations across Manitoba, Saskatchewan, and Alberta. Along the way, they welcomed MPs Colin Reynolds, Cathay Wagantall, and Fraser Tolmie for on-farm conversations about the realities of grain farming. SaskBarley also attended a farm tour organized by GGC with the Honourable Buckley Belanger, Secretary of State for Rural Development with SaskOilseeds, Saskatchewan Pulse Growers, Sask Wheat and Western Canadian Wheat Growers, pressing the case for tariff-free grain trade, extended interswitching and continued investment in plant breeding.

From shaping legislation to walking fields, this summer highlighted GGC's strength: uniting farmer organizations to ensure growers' concerns are heard – and acted on.



Beyond Merit Badges

How Canada's Breeding System Works for Farmers

As debates about funding and additional royalties continue, one thing is clear: Canada's plant breeding programs have delivered billion-dollar benefits to farmers and the Canadian economy.

By Delaney Seiferling | *Freelance Writer*

Barley research plots at the University of Saskatchewan's Kernen Crop Research Farm in Saskatoon, SK.

To build a strong crop export program, countries need several core elements working in concert.

These include some of the more visible, well-known parts: logistics infrastructure, market and trade agreements and innovative on-farm production.

But another critical element, perhaps less visible and appreciated, is a plant breeding program that produces a continuous stream of new and improved, resilient, competitive, high-yielding crops.

Such a program is also supported by regulatory structures -- including variety registration protocols and plant breeders' rights laws -- that promote innovation and long-term sustainability and growth, while also ensuring plant safety.

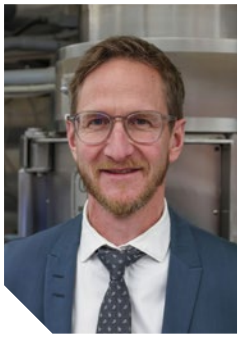
As it sounds like, facilitating such a program is no easy task.

Yet, Canada has a proven track record of success in this area.

Over the past 25 years, Canada's public plant breeding programs have delivered a return on investment of up to $20 for every $1 invested.

For barley alone, farmers have received returns of 26:1 in direct value on their plant breeding investments, through increased yields and enhanced variety performance, equating to over $1.36 billion in cumulative gains.

Improved barley varieties have also led to yield increases of 1–2% per year, enhanced disease resistance, and quality traits that have strengthened Canada's position as a leading global exporter of malting barley.



"Canada's strict process for new variety evaluation and registration ensures only the best malting barley varieties are approved,"

Peter Watts
Managing Director, CMBTC

These successes wouldn't have been possible without Canada's regulatory processes around plant breeding, says Peter Watts, Managing Director of the Canadian Malting Barley Technical Centre (CMBTC), which actively promotes the adoption and sale of Canadian malting barley varieties worldwide.

"Canada's strict process for new variety evaluation and registration ensures only the best malting barley varieties are approved," he says.

"This helps maintain Canada's position as the world's leading supplier of high-quality malting barley and malt, supporting exports and associated premiums with our products."

How does the variety selection program work in Canada?

Canada's variety registration system, overseen by the Canadian Food Inspection Agency (CFIA), is a core tenet of the broader plant breeding framework.

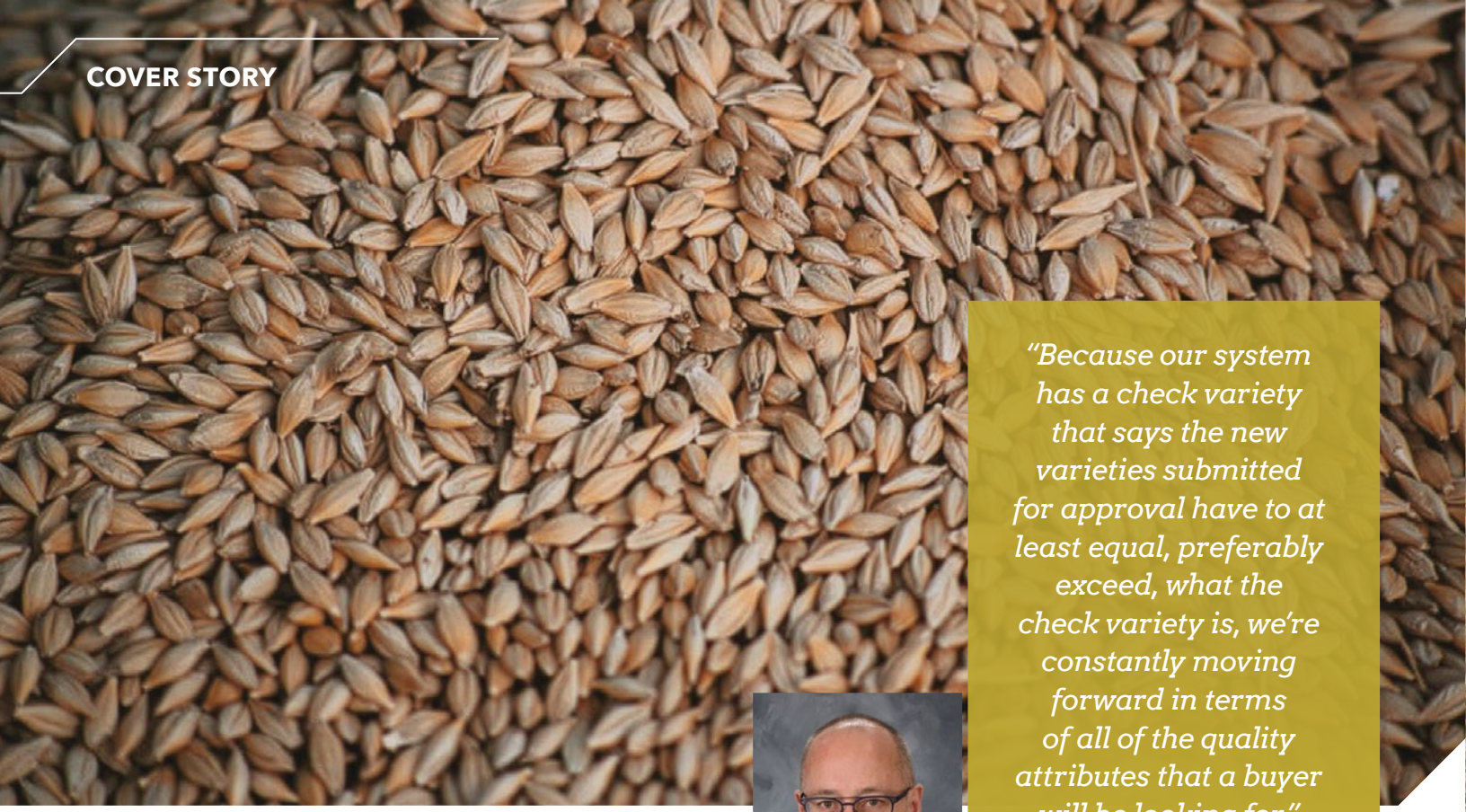
Before a crop variety can be commercially sold in Canada, it must undergo independent testing through cooperative variety trials, which are guided by a Recommending Committee made up of plant breeders, agronomists, processors, farmers and end-users.

The variety is assessed by the committee for its 'merit,' meaning agronomic performance, disease resistance, and end-use quality, all measured against established check varieties.

The 'merit based' aspect of our system is one of the elements that make Canadian production strong and our export program competitive, according to many experts, as it ensures new varieties will meet the needs of the entire value chain before being approved to move on to commercialization.

"Because our system has a check variety that says the new varieties submitted for approval have to at least equal, preferably exceed, what the check variety is, we're constantly moving forward in terms of all of the quality attributes that a buyer will be looking for," says Stuart Smyth, a professor and researcher at the University of Saskatchewan's College of Agriculture and Bioresources.

Our merit-based system also sets us apart from other countries' systems, such as the United States and Australia, where breeders can release and commercialize new varieties without proving their merit and where variety release systems are market driven.



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Stuart Smyth
University of Saskatchewan

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How Canada's *Plant Breeders' Rights Act* impacts innovation

In Canada, plant breeders' rights (PBR) are governed by federal legislation under the *Plant Breeders Rights Act*, which serves to provide intellectual property protection for new plant varieties in Canada.

One of the benefits of our PBR system is that it allows for something called "breeders' privilege," which allows the use of protected varieties to develop new ones, without needing permission from the original rights holder.

"What that means is that just because I have this variety and I've put PBR protection on it, it doesn't prevent another breeder from being able to use the variety in their breeding program to make further improvements in that crop," says Aaron Beattie, a barley breeder at the University of Saskatchewan Crop Development Centre.

"So PBR actually protects the ability of other people to use that variety for further benefits – you can't kind of just squirrel it away to yourself forever."

There are also similar privileges in place for researchers, Beattie says.

"We can't create synthetic germplasm – it's all based off of lines that have come before. So PBR is a system that does acknowledge that science builds on previous science. It is a system designed specifically for plant varieties, and that acknowledges how historical plant breeding has been carried out."

The future of Canada's plant breeding programs

Rules and regulations around plant breeding in Canada are constantly being reviewed and updated.

For example, in 2015 the Canadian *PBR Act* was updated to be compliant with the 1991 framework established by the International Union for the Protection of New Varieties of Plants (UPOV), an intergovernmental organization based in Switzerland that sets international standards for plant variety protection.

One of the biggest outcomes of that change was the expansion of breeders' rights to cover not only seed, but also harvested material. This gave breeders stronger legal tools to protect their innovations and paved the way for broader use of royalty collection systems – which could translate into higher costs for farmers when adopting new protected varieties.

"So, if the breeder didn't have an opportunity to collect fair remuneration on their intellectual property at the seed level, UPOV 1991 allows them to collect at the

Dr. Aaron Beattie, Barley Breeder at the University of Saskatchewan's Crop Development Centre.

"We can't create synthetic germplasm – it's all based off of lines that have come before. ***So PBR is a system that does acknowledge that science builds on previous science.*** *It is a system designed specifically for plant varieties, and that acknowledges how historical plant breeding has been carried out."*

Dr. Aaron Beattie
Crop Development Centre

grain level," says Lauren Comin, Director of Policy at Seeds Canada.

The change also opens up the door for additional farmer royalties, either at a farm-saved, harvested or end-point level, she says.

Farmers and farm organizations have expressed concern about these changes, as well as the fact that, in recent years, the federal government has signalled interest in decreasing public funding for plant breeding programs.

"There's a lot of pushback from farmers, because they see that what's happening is the expectation to fund a lot of the research is being pushed onto them, and that's becoming more evident the further we go," says Smyth.

Smyth says that part of the move to UPOV '91 was likely to drive more private investment in plant breeding in Canada and this has been mildly successful: a study he facilitated in 2021/22 of Canadian plant breeders and research funders found that 52% of breeders agreed the 2015 changes to the Canadian *PBR Act* provided incentives to increase investment in plant breeding.

However, he does not believe this is a sustainable solution for funding these programs in the future.

"The federal government is misguided into thinking that all of the cost, or a significant portion of the development costs, can be pushed further down the innovation pipeline to farmers."

At the CDC, all royalties generated from PBR are all invested back into the breeding program, Beattie says.

"That's something unique about the CDC is that we can definitely make that claim," he says.

When it comes to royalties generated from private industry, statistics show that approximately 30% of plant variety royalty money is reinvested back into plant breeding programs, Comin says.

"While that seems low, you also have to consider that most companies are for profit, and they have to pay all of their overhead and other activities … beyond just research and development," she says, adding they are also uniquely incentivized to re-invest the money into R&D.

"If you don't invest back into your programs, you're not going to have anything to sell in the future. So, breeding programs have an incentive to reinvest their royalties. That drives future innovation."

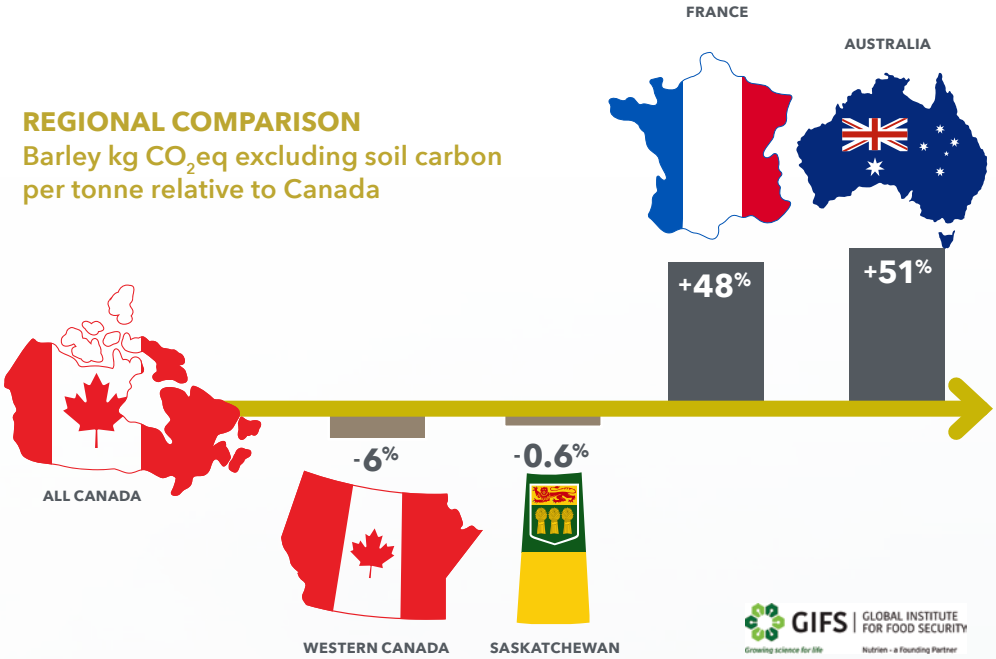
CONT. FROM PREVIOUS PAGE

Canada's success in plant breeding

Despite the challenges that come with plant breeding funding, one thing remains true, according to the data: Canada's plant breeding programs, under the current regulatory system, have been critically important to the success of the industry.

Our ROI stats speak for themselves, but on top of that, in recent years we have also become known as a leader in terms of sustainable agricultural production. Recent research published by the Global Institute for Food Security (GIFS) showed that barley produced in Saskatchewan and Western Canada has the lowest carbon intensity in the world, surpassing regions like Australia and France (charted right).

This type of achievement is possible because our farmers have access to plant varieties developed and commercialized under our rigorous regulatory system – and that is something that barley farmers like Chad Ferguson takes pride in.



"I think it [Canada's system] is superior to the rest of the world, really, and that's why we need to maintain the system that we have in place," says Ferguson, who is also on the board of SaskBarley and sits on the Quality Committee for the Prairie Recommending Committee for Oats and Barley (PRCOB) that assesses merit for new varieties.

"We're definitely the leader when it comes to the testing, the disease ratings, the amount of research that goes into it, the whole nine yards."

After being involved in the R&D and breeding world through his work with SaskBarley, he says the one thing he wished is that more farmers – and policy makers -- appreciated was the value everyone receives from Canada's breeding programs.

"I don't think many farmers realize how tough it is to fund breeding programs. PBR is part of the reason we can keep them going, particularly public breeding, which is the hardest to sustain."

Cody Glenn (centre) on CMBTC trade mission to China.

Cultivating Connections Building Barley's Global Reach

Inside the trade missions connecting Saskatchewan farmers with brewing giants in Mexico, China, and beyond.

By Delaney Seiferling | *Freelance Writer*

When Cody Glenn, who farms in Climax, SK, took part in a trade mission last year with the Canadian Malting Barley Technical Centre (CMBTC) to promote Canadian barley in China, it was an eye-opening experience.

"Your average businessperson in China has never met a farmer, especially a farmer from North America," says Glenn, who is also Chair of SaskBarley.

"I hate to use the word 'celebrity,' but I was basically a celebrity. I could still be there a year later, answering basic questions."

Making these types of connections – between the people who grow and market Saskatchewan barley and buyers, processors and consumers in destination markets – is one of the most important parts of trade missions, says Peter Watts, Managing Director of the CMBTC.

"Making those personal connections is really important for people in our customer countries."

"In North American culture, personal relationships are important, but they're extremely important in countries like China, Japan and Mexico, where people place big value on personal relationships and contacts."

Watts has facilitated several of these types of missions since he joined the CMBTC more than a decade ago, as one of the ways in which the organization carries out its strategic focus on developing new markets for the Canadian barley industry.

This fall, he will lead another one, to Mexico City – a region of critical importance to the future of Canadian barley exports, Watts says.

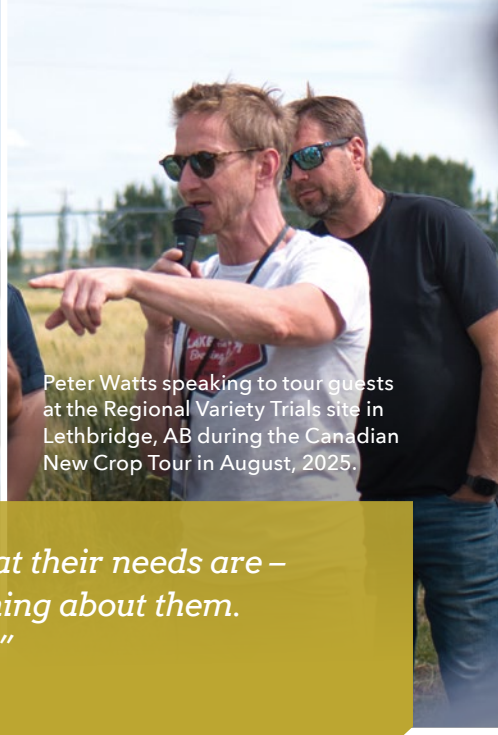
Although Mexico is already a large market for Canadian processed malt (the United States and Japan are the only ones bigger), it has been sourcing its raw malting barley from other origins than Canada.

The vast majority of Canada's barley grain exports, about 85%, currently go to China, while the United States and Japan both take smaller amounts.

Watts and the CMBTC Board believes this signals a significant opportunity to diversify markets for Canadian barley grain.

"We've always been really heavily reliant on China for our malting barley exports, and then the United States," Watts says. "So, the strategic plan from the Board is to try to diversify markets so we're not so reliant on China."

Peter Watts (right) with with representatives from Constellation Brands on the Canadian New Crop Tour in Lethbridge, AB in August, 2025.



Peter Watts speaking to tour guests at the Regional Variety Trials site in Lethbridge, AB during the Canadian New Crop Tour in August, 2025.

"It's really just understanding how each company operates and what their needs are – their quality requirements, their total requirements, just everything about them. That's what you're trying to do on these missions."

Peter Watts | Managing Director, CMBTC

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Mexico is an ideal target for a couple reasons, Watts says.

They are already a strong trade partner when it comes to malt, and they already have a strong malting barley import program, taking in about 400,000 tonnes a year currently, primarily from Australia, Europe and the U.S.

"Mexico has been a focus for us for the last couple years already and it will be a big part of our market development program going forward," Watts says.

When the CMBTC delegation travels to Mexico City this fall, it will attend a global beer conference and intends to meet with representatives from the three main brewing companies for the region: AB InBev, Heineken México and Constellation Brands, which together represent the Corona, Dos Equis, Pacifico, and Modelo brands, amongst others.

Watts says there are existing relationships in place with these companies already, but trade missions are a great opportunity to make new connections, including with buyers and procurement and technical specialists.

"These are big companies," he says, adding that AB InBev alone employs more than 30,000 people in Mexico. "If you can meet with both the technical and procurement groups within the company, then you get both sides of the story."

"It's really just understanding how each company operates and what their needs are -- their quality requirements, their total requirements, just everything about them. That's what you're trying to do on these missions."

Watts says one frustrating aspect of trade missions like this one is that it's very difficult to measure a direct return on investment from each trip, as trade partnerships take time to grow and are qualitative in nature.

However, longer-term history has proven these activities pay off for farmers and industry, he says.

"Obviously, sales equal success," he says.

"We actually did export barley to Mexico for the first time this year since 2020, so there's been a little success already."

He says similar success stories can be traced through other regions where the CMBTC has done more extensive work, such as China.

On top of that, sales are not the only goal of these trips, he says.

"New variety acceptance is always a big thing too. If we can get a new variety accepted that's always a big deal, and that's one of the things that we work on constantly."

He says this mission to Mexico will see the delegation promoting newer Canadian malting barley varieties such as AAC Connect, CDC Fraser and CDC Churchill, alongside the malting companies that will also be in attendance.

"We support them where we can."

Overall, Watts believes the personal connections built on these types of visits pay off in the longer run and are a sound investment into growth and sustainability for the Canadian barley industry.

And after experiencing it himself, Glenn agrees with this sentiment.

"You can't explain it until you actually go there and experience it," he says. "The value of it is huge, it's just so hard to measure."

Fill 'er Up – What it Takes to Grow Plump Kernels

Malt specs are tight and striving to achieve them is no easy task. There are many quality targets for malt, but each one can be managed for.

By Mitchell Japp
Research & Extension Manager, SaskBarley

Plump kernels are always in demand from malt buyers. Generally, they are looking for at least 85% of the kernels to be plump, which means they don't fit through a 6/64" sieve. Along with plump kernels, they are looking for uniformity in kernel size.

Malt buyers have a reason for every specification they are asking for. Plump kernels tend to have more starch, which leads to higher malt extract. More extract means more beer from the same amount of malt. Uniformity in kernel size is important because kernels that are the same size will tend to absorb water and germinate at the same rate. This uniformity in the malting process leads to higher quality malt.

As a grower, you have some control over kernel plumpness. So, if this is a factor that has led to rejection or discussions with your malt buyer, or you want to make sure it is not an issue, read on.

Like many quality traits, plumpness is influenced by many factors, including the growing environment, genetics (variety) and management practices.

CONT. FROM PREVIOUS PAGE

Most barley in Saskatchewan is under rainfed production, so there are virtually no options to exert influence over the environment. But, the ideal conditions that will lead to plumper kernels, are when the growing conditions provide moderate temperatures, adequate rainfall, and sufficient sunlight.

Selecting a variety

Fortunately, kernel plumpness, or at least malt extract, is evaluated in new varieties, ensuring all new varieties meet at least minimum standards. Malt buyers are generally buying only a handful of varieties on any given year (Find CMBTC's annual Recommended Malt Variety List at CMBTC.com). Within those selected varieties there is some variation in kernel shape and size. While all varieties tend to produce plump kernels, discussion with other growers in your region, including seed growers, will give a good indication of any varieties that may be less likely to meet minimum plumpness specifications in your growing area. The annual harvest report from Canadian Grain Commission also gives a good overview of the top varieties' performance each year.

Managing for plumper kernels

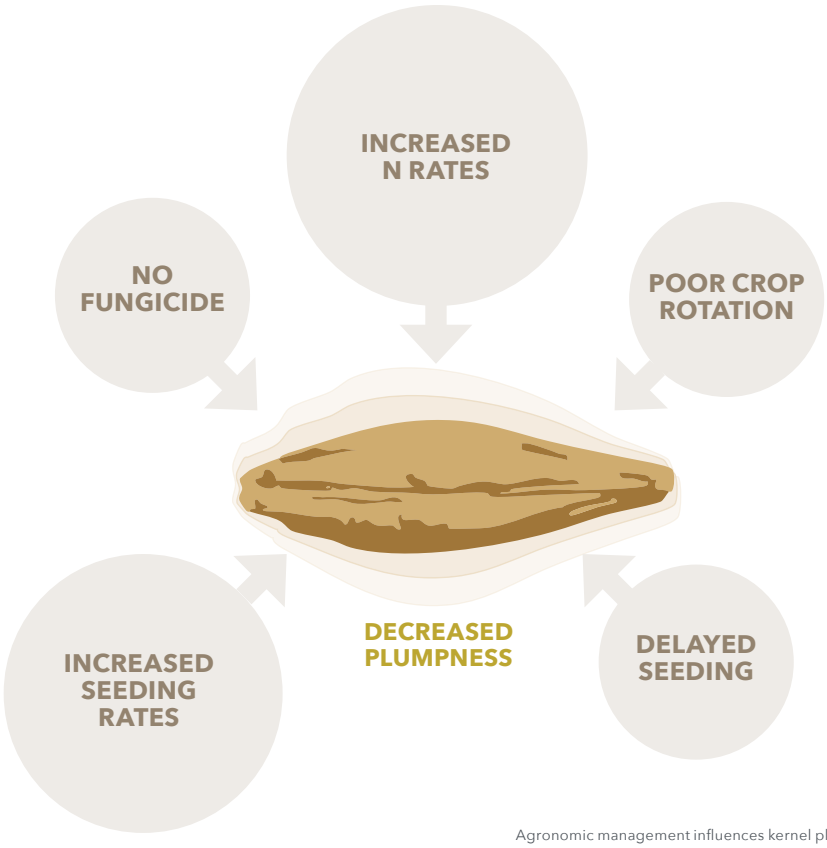
While there are limited opportunities to affect plumpness with environment and variety, agronomic management offers a more direct 'way to influence' kernel plumpness. Seeding rate, N rate, seeding date, fungicide application, crop rotation, and plant growth regulator use can all influence kernel plumpness.

Plump tends to decrease with both increasing N rate and seeding rate.

But, with increased seeding rates, there is an increase in seed uniformity, which is desirable. This increase in uniformity has not been observed with increasing N rates. There is a trade-off to increased yields, so the goal should be to find the balance between yield and quality. Notably, while research has showed clear trends to decreased plumpness as either seeding rate or N rate increased, they did not find that the plumpness was decreased below acceptable thresholds. Some older research found that potash application increased kernel plumpness, but it is not known
if the potassium or chloride was the source of the improvement, and the limited follow-up research did not show any response.

Crop rotation can have an influence on plumpness.

Research has found that following legumes crops like lentil and faba bean may lead to decreased kernel plumpness. This was the exception though, as in most instances in the research, legumes had limited negative impacts. In general, a good crop rotation will result in more plump kernels. Barley grown on barley stubble tended to have lower plumpness than barley grown on canola or pea stubble.



Agronomic management influences kernel plumpness

Plumpness tends to decrease with later seeding dates, but this effect is somewhat variable.

In one study, that included the 2001 drought, delayed seeding increased plumpness in that year. Northern locations tend to have an improved response to delayed seeding, while southern locations tend to respond better to early seeding. This difference is likely due to whether there is a location advantage to avoiding grain fill during hot and dry periods.

Fungicide application has had a positive response on kernel plumpness.

This is likely due to maintaining the barley plant's ability to effectively carry out photosynthesis and continue grain filling. Other research has shown that barley leaf diseases, such as net blotch, result in decreased kernel plumpness.

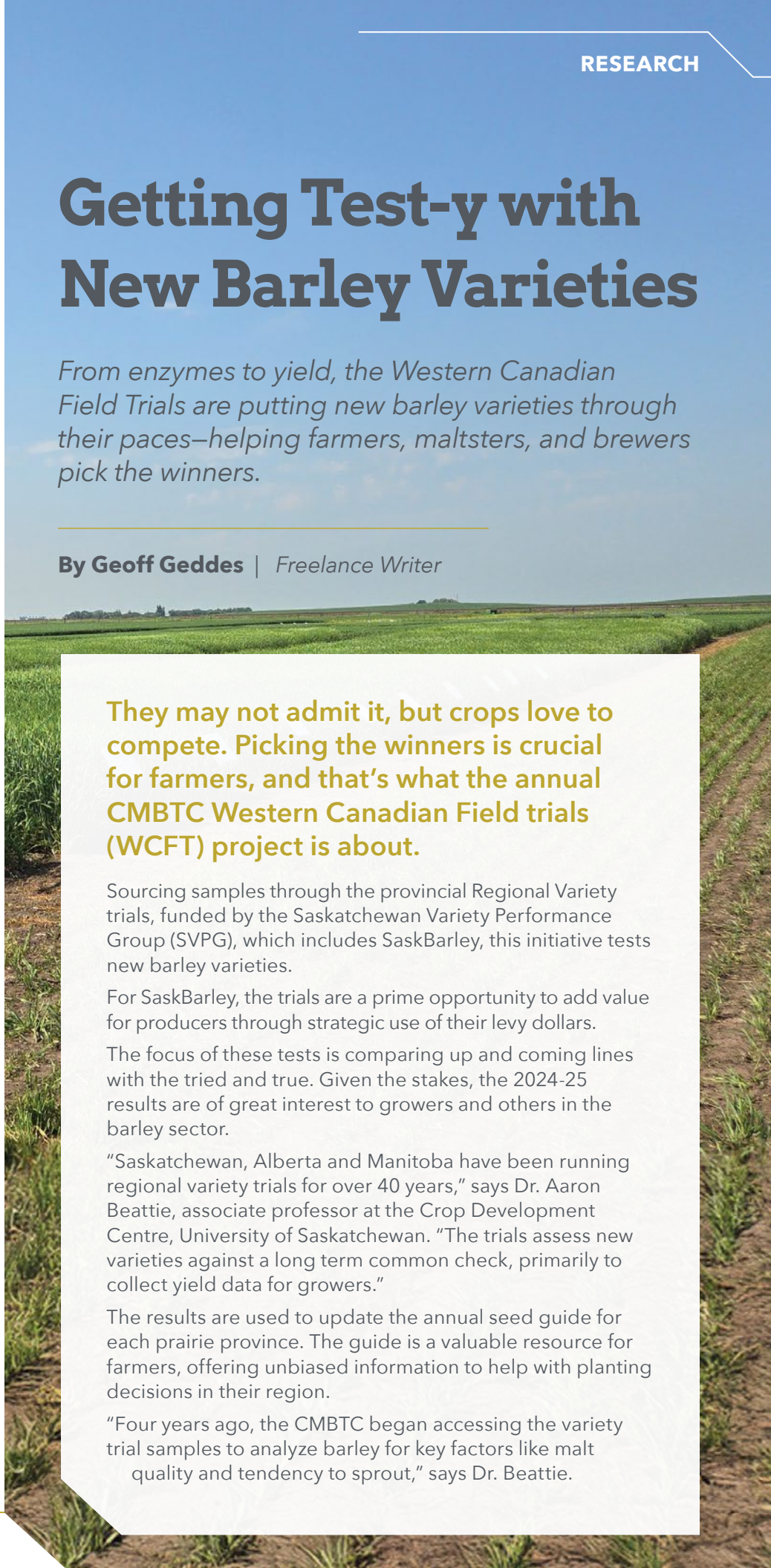
Plant growth regulators may have an effect on barley kernel plumpness.

A research project that evaluated a selection of plant growth regulators in barley found that trinexepac-ethyl (Moddus – the recommended PGR

Getting Test-y with New Barley Varieties

From enzymes to yield, the Western Canadian Field Trials are putting new barley varieties through their paces–helping farmers, maltsters, and brewers pick the winners.

By Geoff Geddes | *Freelance Writer*



They may not admit it, but crops love to compete. Picking the winners is crucial for farmers, and that's what the annual CMBTC Western Canadian Field trials (WCFT) project is about.

Sourcing samples through the provincial Regional Variety trials, funded by the Saskatchewan Variety Performance Group (SVPG), which includes SaskBarley, this initiative tests new barley varieties.

For SaskBarley, the trials are a prime opportunity to add value for producers through strategic use of their levy dollars.

The focus of these tests is comparing up and coming lines with the tried and true. Given the stakes, the 2024-25 results are of great interest to growers and others in the barley sector.

"Saskatchewan, Alberta and Manitoba have been running regional variety trials for over 40 years," says Dr. Aaron Beattie, associate professor at the Crop Development Centre, University of Saskatchewan. "The trials assess new varieties against a long term common check, primarily to collect yield data for growers."

The results are used to update the annual seed guide for each prairie province. The guide is a valuable resource for farmers, offering unbiased information to help with planting decisions in their region.

"Four years ago, the CMBTC began accessing the variety trial samples to analyze barley for key factors like malt quality and tendency to sprout," says Dr. Beattie.

While the environment sets the stage, agronomic management clearly has an influence on kernel plumpness. Managing seeding date, seeding rate, fertility, crop rotation, as well as fungicide and PGR applications all offer opportunities to increase kernel plumpness and malt selection.

in barley) had no effect on kernel plumpness. Research on barley inputs through the more recent drought found that trinexepac-ethyl led to reduced kernel plumpness when used in dry conditions. However, the product label indicates it should not be used when the crop is stressed, as in a drought. In the same experiment, trinexepac-ethyl had no effect on plumpness at high-yielding locations. Learn more about Plant Growth Regulator use in barley at BarleyBin.ca

While the environment sets the stage, agronomic management clearly has an influence on kernel plumpness. Managing seeding date, seeding rate, fertility, crop rotation, as well as fungicide and PGR applications all offer opportunities to increase kernel plumpness and malt selection. Pay attention to your kernel plumpness this year and see if any of these inputs need to be optimized to strike a balance between yield and quality, to keep growing high performance malt barley.

CONT. FROM PREVIOUS PAGE

The metrics system

By piggybacking on the regional trials, the WCFT initiative samples lines from sites across western Canada, gauging recently registered barley lines for performance metrics such as lodging, disease resistance and yield.

"The samples are coming from a wide range of growing environments, so it gives zone-specific data," says Mitchell Japp, research and extension manager with SaskBarley.

Though these trials are relatively new, they've already become a valued resource for industry.

"Since 2021, our results have steadily improved as growing conditions improved across the province," says Matthew Struthers, provincial specialist, cereal crops, at the Government of Saskatchewan. "For barley this year, we have 13 stations throughout the prairies, providing a robust data set for stakeholders."

On the malting barley side, stakeholders include growers, maltsters, brewers and seed companies.

"The trials convey various quality and performance characteristics of these varieties and how suitable they are for a certain facility or product," says Peter Watts, managing director of the Canadian Malting Barley Technical Centre (CMBTC) in Winnipeg, MB.

The CMBTC created the WCFT project to help facilitate adoption of new malt barley lines.

To that end, the most recent malt barley trials have provided food for thought. The checks were AC Metcalfe, CDC Copeland and AAC Synergy, while new varieties included CDC Churchill, AB Dram, AB Foothills and SY Stanza.

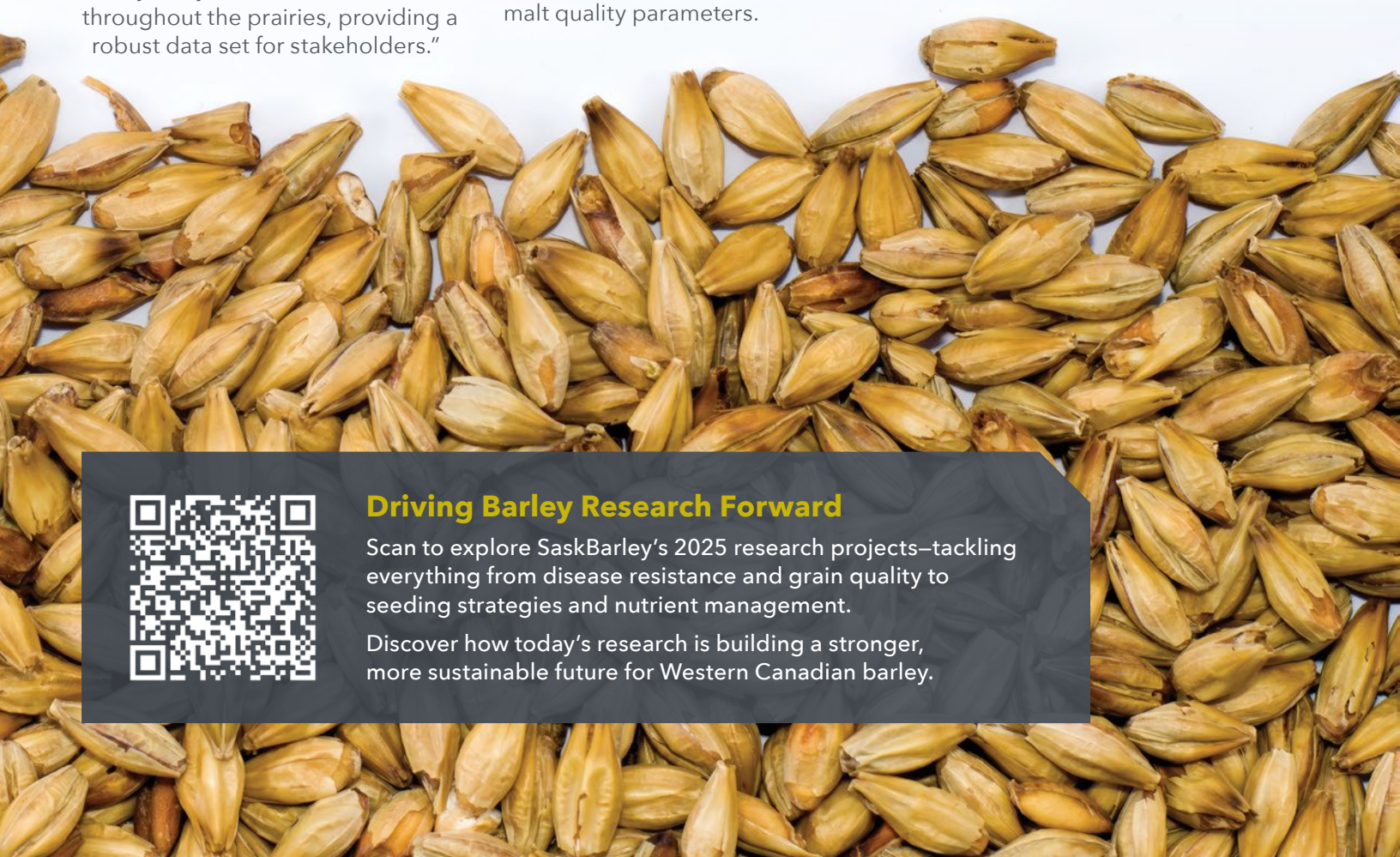
Although the varieties showed little difference during malting, there were some notable distinctions in malt quality parameters.

Something for everyone

"Larger breweries are looking for key malt parameters such as high enzyme and amino acid content, as they help with starch conversion and yeast fermentation, respectively," says Aaron Onio, malting & brewing technical specialist with the CMBTC. "Craft and all-malt brewers, meanwhile, seek more moderate enzyme levels."

Compared to AC Metcalfe, CDC Churchill displayed moderate enzyme content and moderate FAN. Free Amino Nitrogen (FAN) is the sum of the individual amino acids, ammonium ions and small peptides in wort (the liquid extracted from the mashing process during brewing).

"Though AC Metcalfe has always been the gold standard for high enzyme levels, AB Foothills had similar enzyme levels," says Onio. "That's good news for macro brewers seeking a high enzyme profile."



Driving Barley Research Forward

Scan to explore SaskBarley's 2025 research projects—tackling everything from disease resistance and grain quality to seeding strategies and nutrient management.

Discover how today's research is building a stronger, more sustainable future for Western Canadian barley.

Two other newbies – AB Dram and SY Stanza – are similar to CDC Copeland and AAC Synergy when it comes to overall malt quality, but they stood out for another reason.

"Unlike some malt barley varieties, AB Dram and SY Stanza do not produce glycosidic nitriles (GNs), which can create a known carcinogen during the distilling process," says Onio. "With the emergence of barley malt distilled products like malt whiskey, this is an important trait for distillers."

As for the new hulless barley varieties tested, CDC Armstrong and CDC Pristine displayed high extract levels compared to the checks and two-row lines. This means a cost saving for brewers and distillers, especially with CDC Pristine which also has high enzyme content.

"The industry is slow to accept new varieties, so even if they yield better and have greater disease resistance, growers are reluctant to plant them if end-users are not accepting new lines," says Onio. "It's kind of a 'chicken and egg' dilemma. These trials, and the data they generate, can help maltsters and brewers adopt some new lines with confidence, while farmers may grow these emerging varieties, enjoying better performance in the field and more revenue."

For the CMBTC, the trial results enhance their marketing of new varieties.

> *"It's not just a couple of trials; it's a comprehensive study … Based on the results, we can hold presentations, develop fact sheets and run webinars. By promoting these new lines early on, we make industry more inclined to bring them to market in the years ahead."*
>
> **Peter Watts** | Managing Director CMBTC

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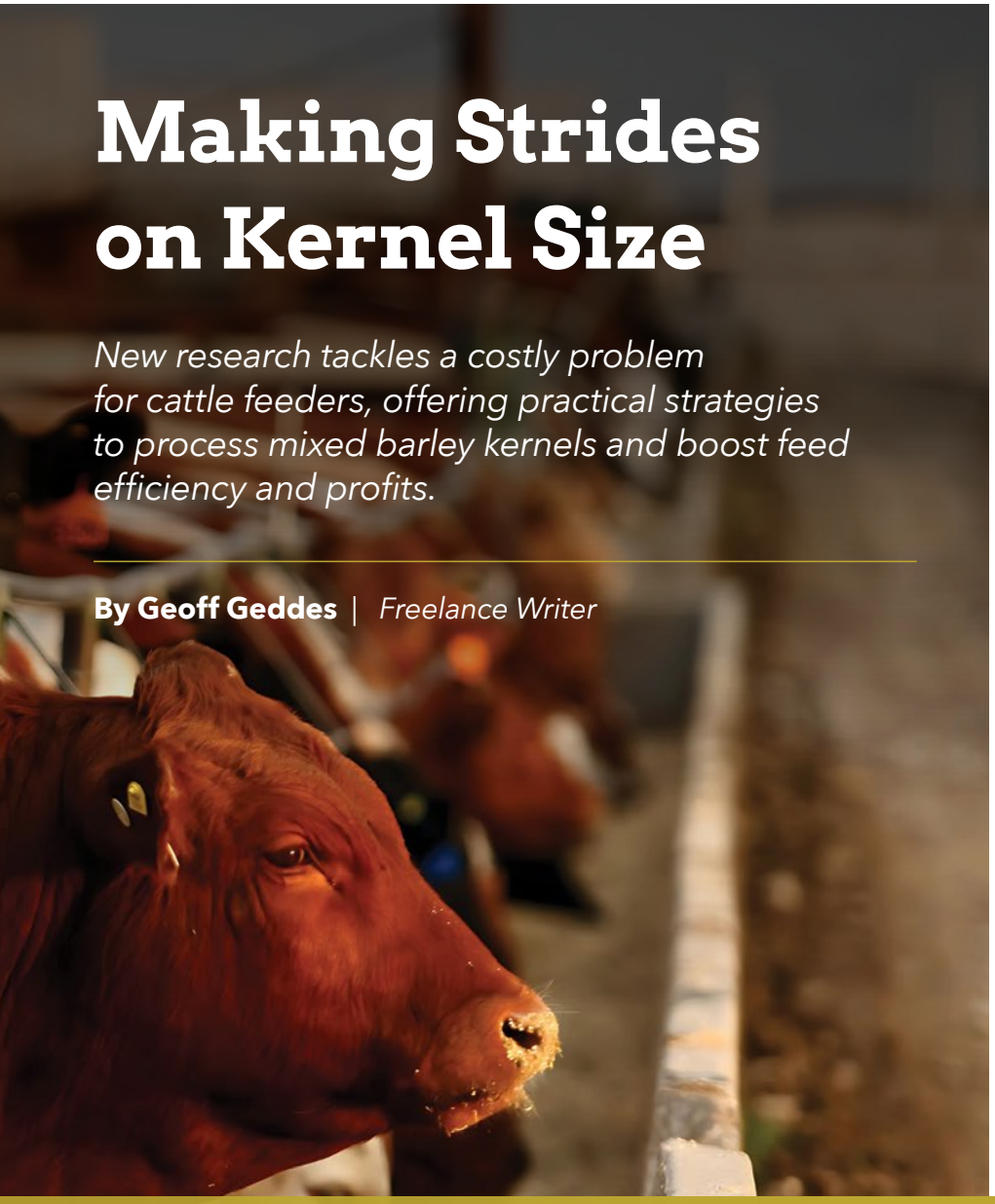
Making Strides on Kernel Size

New research tackles a costly problem for cattle feeders, offering practical strategies to process mixed barley kernels and boost feed efficiency and profits.

By Geoff Geddes | *Freelance Writer*



Variety may be the spice of life, but for barley growers and cattle producers, varying kernel size can spell trouble.

Sourcing samples through the differing dimensions often wreak havoc when processing kernels, and that spells trouble for producer profits. Finding a better way is what research is all about, and that was the goal of the project "Processing Barley Grain of Variable Kernel Size". For SaskBarley, funders of the project, it's another chance to invest levy dollars to solve research problems affecting feed barley and maximize the benefits to ensure feed barley is well utilized.

"In Western Canada, producers are growing different cultivars on different lands under various environmental conditions," says Dr. Gregory Penner. Dr. Penner is a professor in the Department of Animal and Poultry Science, College of Agriculture and Bioresources at the University of Saskatchewan. "This results in a wide range of bushel weights and kernel dimensions, especially with feed grain barley."

"Using reconstituted, high moisture barley, we found that we can effectively swell the kernels and process that barley more consistently. To achieve that result, you must process the barley more severely than with dry rolling to attain the same level of digestibility."

Dr. Gregory Penner
Professor in the Department of Animal and Poultry Science, College of Agriculture and Bioresources
University of Saskatchewan.

So? Can't the kernels just be separated by size? In ag, it's never that simple.

"Feedlots are buying multiple Super Bs of barley on a daily basis, so there's just no capacity to segregate it based on source. As a consequence, barley with plump kernels and smaller kernels are blended together."

One size doesn't fit all

When barley is processed, producers adjust the roller gap and input speed based on kernel size. Faced with a variety of sizes, they must make a choice: Choose the setting for small kernels and overprocess the larger ones, or target bigger kernels and under process the tinier ones. The latter case means a costly loss of opportunity for farmers, as the poorly processed barley passes through cattle undigested. This is clearly detrimental to farmers who have paid for feed that will offer no nutritional benefit to their herd.

"With this study, we hope to address that commercial reality and examine different means to avoid over or under processing."

To that end, researchers produced barley grain with an array of kernel sizes, including both light and heavy weights. By blending the kernels, they created challenging samples to analyze and tested a number of approaches to processing them.

One such method was dry rolling, the simplest technique used by beef cattle producers. Scientists also employed tempering, where moisture was added to the barley in two different amounts: 10 per cent moisture and 35 per cent moisture. With both amounts, the barley was then left to sit for 12-24 hours before being processed.

"We also evaluated steam flaking, where steam is used to provide a bit of moisture. The grain is then passed through a flaker mill and cooled, creating a stable kernel for processing."

Outcomes and insights

The results of these tests offered insights for both barley growers and cattle producers.

"Using reconstituted, high moisture barley, we found that we can effectively swell the kernels and process that barley more consistently. To achieve that result, you must process the barley more severely than with dry rolling to attain the same level of digestibility."

That finding alters the standards for processing with this method. It also presents some logistical challenges, as the wet product doesn't flow as smoothly as dry kernels.

"For large producers, it would be hard to implement a reconstituted, high moisture processing system. This approach is geared more for small producers, ideally those that are harvesting high moisture barley."

Scientists also saw interesting results with tempering and steam flaking compared to dry rolling.

"When we temper or steam flake, we can reduce the production of fine particles during processing. As a result, we yield a more consistent product and reduce the risk of over processing."

Of note, steam flaking did not lower cattle feed intake, and there was evidence that it may even improve growth performance relative to dry rolling.

For producers who use dry rolling, the study addressed a common concern whereby cattle may sort fine kernels out of their diet.

"By adding water to the ration during mixing, it helped bind the small and large particles in the diet. In this way, we prevented cattle from segregating the smaller kernels and reduced variance in marbling percentage [a key factor in determining the quality grade of beef] for finishing cattle."

This suggests that cattle producers may be able to reduce the variation of cattle in a pen, as the animals will eat a more consistent diet.

"If you're at a dinner buffet where everyone loves steak, and your table goes last, you might not get the best cut by the time it's your turn. Similarly, when penned cattle only consume part of their diet, the cattle coming later won't have access to the same ingredients."

With any ag research project, success is measured by how it impacts producers, and this study checks that box.

"We have helped highlight that processing strategies may be applied to deal with small barley kernels mixed in with large kernels.

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Through tempering, steam flaking or adding water after processing, we can help manage the risks of under processing and overprocessing. By supporting the efficient use of barley grain, we avoid lost opportunities and the associated costs, leading to substantial savings for barley farmers and cattle producers."

To be an effective researcher, you have to embrace challenge, something Dr. Penner enjoys.

"For me, the allure of this study was trying to solve a problem that many people have attempted to tackle without success. In offering practical, cost-effective strategies for industry, we are aiding both growers and livestock producers to gain the maximum benefits from barley for their operations."

Research rules...pass it on

While those are the most tangible benefits of the project, there is another upside that will impact the next generation of farmers.

"My job also has a training component, and that's the part of research that is often overlooked. I have the privilege of training technicians and numerous grad students while they learn about barley and feeding management of beef or dairy cattle. Some of those people are now working in the industry and serving as a new set of researchers. I find it so rewarding to see them develop and contribute in a way that I can't. It's a lot of fun to watch their careers develop."

Horizon Pet Foods

Great for dogs, great for our community and great for the barley industry

By Liz Allen | *Freelance Writer*

Over 20 years ago, Jason Skotheim and his partners, Gary Bauer and Jeff English, noticed that the Canadian pet food market was largely reliant on US products.

"Barley is an ingredient that Horizon has been using since day one. From a processing side, it's fantastic. From an ingredient side, it packs a nutritional punch."

Jason Skotheim | Horizon Pet Foods

As Skotheim notes, "It was also the time of BSE (Bovine Spongiform Encephalopathy), which shut down the borders for pet food and left a void for high-end Canadian pet food."

In 2004, Horizon Pet Foods was founded to address the need for highly nutritious, Canadian pet food made from locally-sourced ingredients.

As a barley producer who has served growers as a director on the Saskatchewan Barley Development Commission and the Saskatchewan Food Industry Development Board, Skotheim is exceptionally knowledgeable about barley and its many applications. Furthermore, his commitment to agriculture, developing opportunities and supporting the community is demonstrated in Horizon Pet Foods.

"We analysed the manufacturing models from the US and knew they wouldn't work for Canada because a lot of medicated feeds come out of feed mills. So, we decided to do everything ourselves. That includes sourcing all the ingredients, doing all the formulations and being able to produce pet foods with high meat inclusion. We put a lot of fresh meat into our formulations, which moves us into that super-premium level."

Jake Davidson, an animal nutritionist with close to four decades of experience in animal health and pet food formulation, created the Legacy, Taiga and Pulsar lines that are high in animal protein and balanced to support immunity and digestive health.

The Horizon plant was built from the ground up in Rosthern because "it's nicely in that zone where north of us are really good cereals and south is more pulse-based. We truly are trying to make all our food speak to Western Canadian ethics and values."

Skotheim grows barley developed at the Crop Development Centre at the University of Saskatchewan on his family farm, north of Prince Albert, for the whole-grain dog food. "Barley is an ingredient that Horizon has been using since day one. From a processing side, it's fantastic. From an ingredient side, it packs a nutritional punch. Barley has a lower glycemic index than wheat, rice and other carbohydrates."

"Barley is one of my favourite ingredients. We use hulless barley, primarily because we want to get that nutritional density up. While dogs need fibre to keep their guts healthy, our formulations don't necessarily need as high fibre as provided by regular barley, because we get it from other sources."

Horizon donates a portion of the proceeds from the sale of Horizon's Taiga line towards the All in the Wild Land Fund, which helps purchase land for conservation. "Jason Bantle is a world-renowned photographer from Cudworth and an excellent ambassador for Saskatchewan. We know him personally and love what he's doing in spreading awareness of our environment and his endeavours to preserve these areas."

Horizon Pet Foods is further committed to giving back to the community through the generous donation of dog food to the SPCA (Society for the Prevention of Cruelty to Animals). Moreover, they have sent truckloads of their products north to address those displaced by the wildfires.

From advancing pet health to strengthening our province's economy, Horizon Pet Foods stands out as a leader with vision—and a true Saskatchewan success story.

The Saskatchewan Barley Development Commission (SaskBarley)

The Saskatchewan Barley Development Commission was established in 2013 under the *Agri-Food Act, 2004.*

Jillian McDonald, Executive Director
Tel: 306-370-7237
jmcdonald@saskbarley.com

Office Hours

Monday to Friday
8:30 a.m. - 4:30 p.m.

SaskBarley Office

225-415 Wellman Cres
Saskatoon, SK S7T 0J1
General Inquiries: 306-653-7232

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225-415 Wellman Cres
Saskatoon, SK S7T 0J1
General Inquiries: 306-653-7232

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