

September 2017

canola DIGEST

The Source for Canada's
Canola Growers

50 YEARS

To celebrate the
CCC's milestone, our
panel talks to four
farmers connected
to canola history.

**INSIDE:****Strategies for canola aeration****STRAIGHT COMBINING:
A GROWER Q&A**

Canola seed advances for 2018



You might think that when nitrogen fertilizer is in the ground, it's safe.

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THE POWER TO MAKE THINGS GROW



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ON-OFF STRATEGIES FOR CANOLA AERATION

Aeration can sometimes add moisture to grain, not remove it as planned. On-off fan strategies can limit this rewetting, but they do have drawbacks. Which is why constant airflow can be safer and easier – even if the air isn't drying 100 per cent of the time.

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What attendees learned at canolaPALOOZA 2017

Farmers and agronomists share their highlights from the hands-on, expert-laden, wide-open and fun agronomyfest called canolaPALOOZA.

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What we know about straight combining canola

Western Canadian researchers and canola growers are building a body of evidence and experience that will reduce the risk for those who want to straight combine canola.

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Top 10 grain contract questions

From documenting verbal agreements to renegotiating contract terms, here are your most common grain contract questions answered.

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Canola seed advances for 2018

Stacking of popular traits, including pod-shatter tolerance and enhanced disease resistance, is an important agronomic theme for the 2018 class of canola seed.

40

Billions of benefits beyond the farm

Canola's impact on the Canadian economy has tripled to \$26.7 billion in just 10 years, creating jobs from coast to coast.



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Swede midge challenges Ontario canola

At an Ontario Canola Growers Association and Agronomy Advantage crop day, farmers learned about nitrogen application, seeding rates and various challenges – including swede midge – to profitable canola production in Ontario.

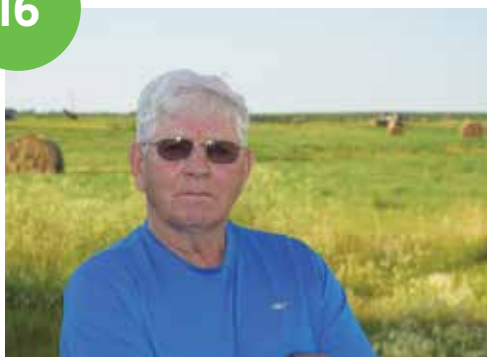
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Management options for heavy residue

Retaining crop residue benefits soil health, erosion management and crop health, but it must be managed to enable best seeding practices and crop establishment the following season.

16 Farmer panel 50 years of growing brassicas

To honour the 50th anniversary of the Canola Council of Canada and its predecessor, the Rapeseed Association of Canada (canolahistory.ca), we connect with four farmers with a deeper-than-average connection to the crop's history.



23 5 management steps To choose a variety

Growers have many excellent varieties and traits to choose from. Data from Canola Performance Trials is one good way to see which combination is best for your fields.

42 Canola Research Hub A Hub of activity at canolaPALOOZA

The Canola Research Hub, a user-interactive research database at canolaresearch.ca, was recently featured at canolaPALOOZA across the Prairies.

50 Business management Steps to find and keep skilled workers

Canadian Agricultural Human Resource Council provides nine steps to recruit, select and hire the right people for the job. This article is based on a webinar sponsored by Alberta Canola.

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CALENDAR

FARM AND FOOD AWARENESS WEEK

September 18-23
Various stops in Manitoba

CANADIAN AGRICULTURE AND FOOD MUSEUM TRAVELING CANOLA EXHIBIT

October 13-January 7
Regina Saskatchewan

AGRI-TRADE

November 8-11
Red Deer, Alberta
agri-trade.com

SASKATCHEWAN OILSEED PRODUCER MEETINGS

November 13-16
Four locations in Saskatchewan
saskcanola.com

POWERING YOUR PROFITS TOUR

November 14-23
12 locations in Alberta
albertacanola.com/ppp

MANITOBA FARM WOMEN'S CONFERENCE

November 19-21
Brandon, Manitoba
manitobafarmwomensconference.ca

CANADIAN WESTERN AGRIBITION GRAIN EXPO

November 21-22
Regina, Saskatchewan
agribition.com

AGRICULTURAL EXCELLENCE CONFERENCE

November 21-23
Ottawa, Ontario
fmc-gac.com/programs-services/agricultural-excellence-conference/

GRAIN GRADING WORKSHOPS

November 28, Rosetown, Saskatchewan
November 29, North Battleford, Saskatchewan
saskcanola.com

CANOLA WEEK

December 5-7
Saskatoon, Saskatchewan
Canola Meeting, Canola Innovation Day
and Canola Discovery Forum in one.

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Full Circle

When Garry Thiel's father grew rapeseed for the first time in the late 1940s, he straight combined the crop. Granted, this was Polish canola, which had better shatter tolerance than Argentine of the day, but I find it significant that the first inclination for early adopters like the Thiels was to cut and combine in one pass.

That didn't last though. Within two or three years, the Thiels of Shellbrook, Saskatchewan had switched to swathing because weeds growing among the ripe crop made straight-cutting difficult. Swathing allowed green weeds to cure.

Swathing was also the preferred harvest method for Argentine canola, which had a predilection for shattering that made farmers nervous about leaving it standing. Swathing became the norm. It still is.

But has its day come? It seems the stubbornly entrenched justifications for swathing – “That’s the way we’ve always done it!” – are themselves shattering. I make my case in four parts:

One, weed control in canola is much better now than it was in the '40s and '50s. Big green weeds slowing up the harvest process are not so much an issue. Green canola stems are a bigger factor, but where green stems or green weeds could frustrate straight combining, we have sprays to cure what ails if cool September days dupe the dry down.

Two, combine header technology has improved. Header studies have shown that while any header type could work for straight combining, extendable-cutter headers from Europe – where most *B. napus* oilseed rapeseed (OSR) is straight combined – catch more of those seeds that would have otherwise shattered out on contact and bounced to the ground. It works like a giant bib below the combine's mouth.

Three, the combination of recent research on straight combining canola and a rapidly increasing body of grower experience has led to fairly solid recommended practices. We're just that much smarter. (Read about these practices on page 30.)

Finally, and perhaps most importantly, new genetic technology to improve pod-shatter tolerance in Argentine canola, which accounts for almost all canola acres in Canada, is here and coming on stream rapidly. Bayer led the way with L140P a couple of years ago, and for the first time in 2018, the company will have a hybrid with both pod-shatter reduction and clubroot resistance. Most other seed companies have reduced-shatter traits on offer or at the end of the pipeline, and the technology will just get better.

As Monsanto's Dave Kelner says in Richard Kamchen's seed update article on page 36, the company plans to introduce canola in Canada with the same “premium shatter tolerance” it offers today in Europe. In reading the pod-shatter page at Monsanto's Dekalb-brand U.K. website, uk.dekalb.ag, the language suggests that even though most European OSR is straight combined, growers still want more protection from harvest weather delays and seed losses. According to Kelner, improved genetics that Dekalb offers to seasoned straight cutters in Europe will soon come here.

Garry Thiel had his eyes opened when, on a trip to Europe a few years ago, he realized the crop over there was pretty much all straight combined. So he and his son, Grant, started experimenting with straight combining – and they ramped up quickly. Two years ago, they swathed only 30 per cent of their canola. For this year, the Thiels ordered two extendable-knife headers. (Read more about the Thiels on page 17.)

Time saved is the ultimate motivator. If you can eliminate a job like swathing canola, those precious work hours can go toward more timely and grade-preserving combining of cereals, for example. Yield and grade for straight combined canola are about the same as late-swathed canola.

It has taken more than half a century, but with better weed control, better headers and advanced genetics, the circle back to straight combining canola on the Prairies has been drawn. Over the next few years, growers will start to fill it in. 🌻



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MAKE YOUR SOIL COME ALIVE

Growers and researchers have long observed that crops following canola in a rotation tend to demonstrate reduced yield, compared to results when seeded behind another crop. It can largely be explained by the relationship (or lack of relationship) between canola and certain fungal microorganisms in the soil. One of the major fungal groups negatively affected by canola are *Arbuscular Mycorrhizal Fungi*.

HOW CAN YOU IMPROVE CROP PERFORMANCE ON CANOLA STUBBLE?

BY MARC BELAND, Biol., M.Sc.



CANOLA

Arbuscular mycorrhizae form a mutual beneficial association with the roots of nearly all crops, except canola, a major crop grown in Western Canada. Because canola does not form an association with mycorrhizae, and exude certain toxic compounds in the soil¹, fungal populations in the soil naturally decline. Once the mycorrhizae are gone, they take a sustained period to re-establish. A study by Gavito and Miller² examined the presence of mycorrhizae in a corn crop following canola. They discovered it took 62 days for the mycorrhizae population to return to the same level it was before the canola crop.

STUBBLE

Mycorrhizae create an intricate network of filaments (called hyphae) inside and outside the roots. These hyphae will explore and expand soil area beyond the roots to access even more nutrients (P, Cu, Zn) and water, and transfer them to the plant. In our short growing season, with low mycorrhizal presence after canola or tillage, that means there is two-whole months where the plant is not getting the full benefits of phosphorus uptake, which is necessary for optimal growth and development.

FOLLOWING CROP

Adding an inoculant containing mycorrhizae at seeding following a canola crop, will add life to the soil and benefit the plant immediately after germination and will continue to benefit the plant for the whole season. Third party trials comparing AGTIV®'s dual inoculant (rhizobium and mycorrhizae) to different inoculants on the market showed a significant positive impact of the mycorrhizae component on yield for soybeans, lentils and peas. Detailed results can be found at www.ptagtiv.com/results.

1 Ryan, M. H. (2001). The effect of Brassica crops on the level of mycorrhizal inoculum in soil. Proceedings of the Australian Society of Agronomy, 6 p.
2 Gavito, M. E. and M. H. Miller, 1998. Changes in mycorrhizal development in maize induced by crop management practices. Plant Soil, 198: 185-192.



THE CANOLA ROTATION INOCULANT

Premier Tech, a Canadian company, has been working with Western Canadian producers since 2010 to increase their profitability with **AGTIV®**, the only brand on the market to offer the powerful combination of rhizobium & mycorrhizae in one application.

Leaders wanted to represent Alberta canola growers



Credit: iStock.com/ HAKINMHAN

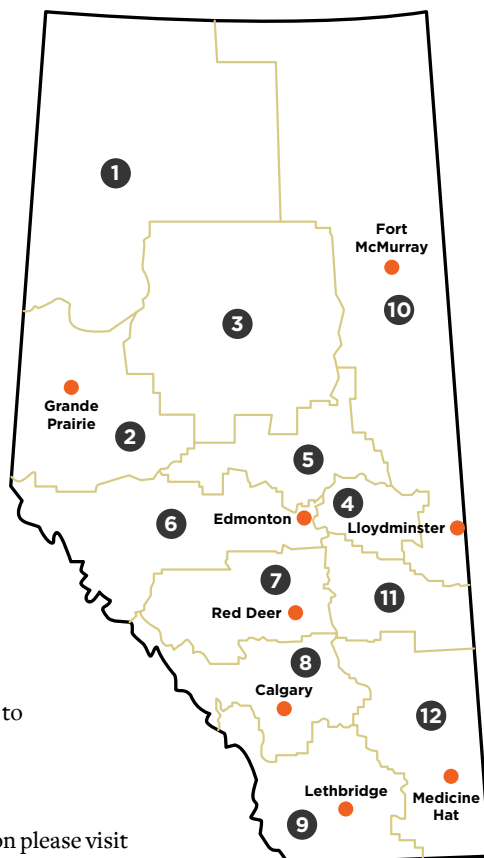
The Alberta Canola Producers Commission is seeking four canola growers to serve as directors on the board of directors for a three-year term. This year, directors are needed in regions 2, 5, 8 and 11.

Alberta Canola divides Alberta into 12 regions, with each region electing a producer director to represent the canola growers within that region. The Board of Directors meets quarterly and is guided in decision making by five committees comprised of board members: Research, Governance and Finance, Grower Relations and Extension, Government and Industry Affairs and Market Development.

WHO CAN BECOME A DIRECTOR?

Anyone who has paid a service charge on canola to Alberta Canola since August 1, 2015 is an eligible producer and can stand as a director. Eligible producers can be individuals or represent a corporation, partnership or organization. In order to be nominated, eligible producers must grow canola within the defined region but do not have to reside within it.

For detailed descriptions of the regions, more information or to make a nomination please visit albertacanola.com/elections or call the office at 780-454-0844.



Powering Your Profits tour

Get the knowledge you need to be more profitable at one of our 12 Powering Your Profits Tour stops across Alberta this November. Topics will include agronomy, marketing, and business management.

FIND AN EVENT CLOSEST TO YOU AND SAVE THE DATE.

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Vermilion

NOVEMBER 21

Fairview
Lethbridge

NOVEMBER 15

Calmar
Vegreville

NOVEMBER 22

Falher
Medicine Hat

NOVEMBER 16

Westlock
Camrose

NOVEMBER 23

Strathmore
Grande Prairie

Powering Your Profits 
AGRONOMY - MARKETING - MANAGEMENT





Farewell and thank you to Simone Demers-Collins

After nearly 30 years of working for canola growers in Alberta and Canada, Simone Demers-Collins has retired. In promoting the canola industry, Simone is an educator at heart and worked from small towns in Alberta to global stages around the world. From schoolchildren to red seal chefs, Simone has worked with thousands spreading information about our agricultural industry and her passion for it.

Thank you, Simone, for your love of our industry and all you have done for it. Best wishes for your future.



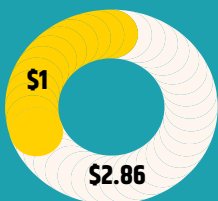
Send Simone your wishes at albertacanola.com/simone.



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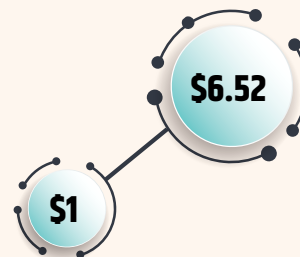
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Pros and cons of wider row spacing

Chris Holzapfel, Indian Head Agricultural Research Foundation, and William May, Agriculture and Agri-Food Canada, Indian Head, just completed a SaskCanola-funded study called “Investigating wider row spacing in no-till canola: Implications for weed competition, response to nitrogen fertilizer, and seeding rate recommendations.”

Project Summary: A multi-year study was initiated in 2013 at Indian Head to evaluate the impacts of wider row spacing on canola (*Brassica napus*) performance and investigate implications for seeding rate, N fertilizer and weed management recommendations. The results indicated that canola is relatively insensitive to increasing row spacing and there are many factors to consider in determining the optimal row spacing for individual farms. Pros and cons exist for both narrow and wide row spacing – this is a complex issue that can affect entire production systems and, therefore, there is no likely single optimal row spacing for all farm operations.

To read the short or full report on this research project, visit saskcanola.com/research/projectreports.php.

*Above:
Researcher
Chris Holzapfel
presents his
findings to a
captive audience
of farmers at the
IHARF Field Day.*

Save the Date

SASKATCHEWAN OILSEED PRODUCER MEETINGS

Plan to attend an oilseeds producer meeting to get the latest crop production information for canola, flax and mustard.

Moose Jaw – November 14

Swift Current – November 15

Rosetown – November 16

North Battleford – November 17

CANADIAN WESTERN AGRIBITION GRAIN EXPO

Grain Expo is a two-day speaker conference and trade show aimed at grain producers and their related industry.

November 21 & 22, 2017

Evraz Place, Regina

GRAIN GRADING WORKSHOPS

Join SaskBarley, Sask Wheat, SaskCanola, CIGI and the CGC for an informative workshop on grain grading.

Rosetown – November 28

North Battleford – November 29

For the latest event details and pre-registration information, please visit saskcanola.com or call 1-877-241-7044.

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Above: Tom Wolf, Agri-Metrix, led a station on sprayer technology.

Left: A canola quiz hosted during the lunch hour was both entertaining and educational.

canolaPALOOZA 2017

Saskatchewan's inaugural canolaPALOOZA was held on June 20 at the Saskatoon Research and Development Centre. We had over 200 people come through plots, with topics ranging from the history of canola to insect management to sprayer technology to on-farm trials and everything in between! But this was no ordinary

field tour – each station featured an interactive component to ensure that the learnings were memorable. From disc golf to dunk tanks to food trucks, it was the premiere agronomy event of the summer! These photos show some of what you missed. Find full details at saskcanola.com/news/blog.php.



Keith Downey, one of the 'fathers of canola', led a station on the history of canola.



SaskCanola Director Keith Fournier was a good sport during his shift at the dunk tank station.



Chef Anthony McCarthy, Executive Chef of the Saskatoon Club, hosted a snack station with barbecue demos showcasing the versatility and health benefits of canola oil.



Nick Larken, Armatus Genetics, talks with producer Anthony Eliason about identifying blackleg in field and the importance of R-gene rotation.



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Welcome Delaney

Manitoba Canola Growers (MCGA) are pleased to welcome Delaney Ross Burtneck to the canola team. She has taken over the leadership role from retiring executive director, Bill Ross.

Delaney comes to the organization with a strong background rooted in agriculture. Growing up in Winnipeg, Delaney spent many hours during the summer months on the family farm in Swan River, Manitoba, which inspired her to pursue an education in agriculture and science from the University of Manitoba focusing on crop protection and agronomy. Her career has focused on agricultural communications, applying her education to research, innovation

"I couldn't be more thrilled to join the MCGA. From my first meeting with each of the staff and directors, it was easy to see the talent and commitment that this great group of people bring to Manitoba canola farmers. It's an impressive team, and I look forward to joining the canola family and continuing the great work that Bill Ross, the staff and board have established."

—Delaney Ross Burtneck.



"It has been a pleasure to serve Manitoba canola farmers over the past 15 years. I am excited to watch the organization continue to thrive and I know that MCGA will be in good hands with Delaney as executive director."

—Bill Ross, outgoing executive director

and agronomy publications with Cargill, Lester Group of Companies and Issues Ink. She has spent the last 10 years working for the Canadian Association of Agri-Retailers, the last six of those years as President and CEO.

Delaney brings a broad and extensive network including industry, researchers and both provincial and national government connections. Her leadership experience combined with a strong passion for agriculture and desire to work on behalf of farmers should assure MCGA members that the future of canola is in good hands.

Help shape the future of the canola industry

Manitoba Canola Growers are seeking members to stand for election to fill four positions on its board of directors.

The canola and agriculture industries need direct farmer representation to ensure that the farm voice is heard on key issues affecting farmers both in the field and beyond the farm gate.

Nomination forms will be accepted no sooner than October 13 and no later than October 31 at 4:30 p.m.

For more information on election procedures, board duties or how to become a director, visit canolagrowers.com



Credit: iStock.com/BrianAJackson



MCGA recognizes five students with scholarships

Manitoba Canola Growers are proud to announce their 2017 scholarship winners. Five \$1,000 scholarships have been awarded to these deserving high school students from across Manitoba.

This year's recipients are:



NAOMI BEST

Harding

Planning to attend the University of Saskatchewan to take animal bioscience.



KATE LETEXIER

Fisher Branch

Planning to attend the University of Manitoba to take agriculture and food science.



CARRIE LIVINGSTON

Starbuck

Planning to attend the University of Manitoba to take part in the Asper School of Business.



ASHLYN PIZZEY

Binscarth

Planning to attend the University of Saskatchewan to take agriculture and bioresources.



COLE THOMAS

Hartney

Planning to attend the University of Manitoba to take arts.

The \$1,000 scholarships are available to students who are from an MCGA-member farm and are planning to attend post-secondary education in any field within two years of graduating. Students submitted their applications. An independent panel judged the applications based on academic standing, canola connection, references, essay submission and school and community involvement.

Congratulations to this year's winners! We wish you the best of luck as you pursue your chosen careers.

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Conference

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FARM AND FOOD AWARENESS WEEK

September 18-23, 2017

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Airs September 9 and October 28

FARM WOMEN'S CONFERENCE

November 19-21, 2017
Brandon, Manitoba

FARM MANAGEMENT CANADA

November 21-23, 2017
Ottawa, Ontario

GRAIN GRADING 101

December 7, 2017
Brandon, Manitoba

MANITOBA AG DAYS

January 16-18, 2018
Brandon, Manitoba



50 YEARS of growing brassicas



These four farmers and their families have been involved in canola and rapeseed production for many years. They also have a deeper-than-average connection to the crop's history in Canada. For more on the 50th anniversary of the Canola Council of Canada and its predecessor, the Rapeseed Association of Canada, visit canolahistory.ca.

BY JAY WHETTER



**KEITH MARSHALL
NINGA, MANITOBA**

Keith Marshall's father, Douglas S. Marshall, was on the first board of the Rapeseed Association of Canada. That was 1967. Douglas was born in England and lost his parents at a young age. Keith says his dad might have come to Canada as a Barnardo Boy. The Barnardo charity in the U.K. sent thousands of orphaned boys to

Canada as labourers from the 1860s to 1930s. Douglas trained to be a mechanic and ran a garage in Lenore, Manitoba. During World War II, his father-in-law invited him down to Ninga to manage the farm while his brother-in-law was overseas. When the brother-in-law came back, the two worked together for a year or so until Douglas bought the neighbouring farm in 1946. Keith says his mother lived on the same section of land for 90 of her 97 years.

Keith doesn't recall how his dad came to be on the Rapeseed Association's first board. "I was the boy who stayed home to work," he says. Besides crops, the farm had milk cows and registered hogs. Keith credits his mother for keeping things going while his dad was involved in various organizations, including Manitoba Pork, Manitoba Farm Bureau and the school board.

The Marshalls grew rapeseed for the first time in 1963. Keith was around 20 at the time. "We were open to trying something new and there was no hesitation in terms of finding a market for it," he says. Demand was there. "I remember hauling that first harvest to the UGG elevator. The elderly man who ran Northstar Oil was there and was quite excited to see it."

The fear with Argentine rapeseed at that time, Keith says, was that if it got

The Marshalls grew rapeseed for the first time in 1963. Keith was around 20 at the time. "We were open to trying something new and there was no hesitation in terms of finding a market for it," he says.

too ripe in the fall it would shatter like mad. Because the plants were knitted together, the story was that as soon as the swather started at one end, it would send waves of shattering across the whole field. Based on that concern, the Marshalls swathed in the rain if they could. They used an Oliver ground-driven swather at that time — so if they slowed down, the cutter bar and reel also slowed down. It was better to swath in the rain so they could swath faster.

Yields were 15 to 20 bu./ac., Keith says.

To seed the crop, which they did with box drills and then press drills in the early years, they added fertilizer to the seed to bulk it up so it would flow consistently.

The primary problem weed in that part of Manitoba at the time was wild millet. They used herbicides TCA and Dowpon to target the weed. Later on, sow thistle became a problem and they spot-sprayed with Lontrel.

Over the years, the Marshalls put a quarter to a third of their acres into rapeseed and then canola.

Keith retired from farming about 10 years ago, but he and his wife, Maureen, stayed in the tiny community of Ninga where lots are cheap and he has space for a shop and his collection of vintage tractors — including a 1928 Allis Chalmers that has been in the family its whole life.



**GARRY THIEL
SHELLBROOK,
SASKATCHEWAN**



Garry Thiel's farmyard is three miles north of the original farm of Fred and Olga Solovonuk, the first known producers of rapeseed in Western Canada. The

Solovonuks brought rapeseed from their native Poland and in the 1930s they grew the first field crop of rapeseed in Western Canada.

Thiel's father started growing rapeseed in 1948 or '49.

Thiel remembers watching the combine, a Model 21 Massey with a straight-cut header. The combine had a platform where two men worked on the fly to bag and stitch harvested rapeseed into 100-pound jute bags. Bags went to the buyer at Moose Jaw.

Within two or three years, harvest practices shifted dramatically as local buyers came along who would take bulk — no more bagging — and straight combining gave way to swathing.

Weeds motivated the switch to swathing, Thiel says. Because chemical weed control was not an option in rapeseed at that time, big green weeds growing among the ripe crop made straight cutting difficult. Growers would often wait for a frost to soften the weeds before combining. By switching to swathing, they could cut earlier and cure weeds in the windrow.

Weed challenges also influenced the seeding operation. The Thiels used a three-step tool back then — a plow for weed control, a packer to smooth the seedbed and a press drill to seed rapeseed at about half an inch deep. When Treffan came along "it was a godsend for rapeseed growers," Thiel says.

Through those early years, Polish rapeseed remained the more popular option in the area. Argentine rapeseed was available, but Thiel says it was much later maturing and didn't suit the shorter season around Shellbrook.

Thiel's son Grant now runs the farm, which put in about 3,000 acres of canola this year. They target a variety of markets, growing high erucic acid rapeseed (HEAR) for Bunge's industrial market, Nexera speciality oil canola for the human food market, 1,500 acres or so of classic canola and about 1,000 acres of non-GE Clearfield canola for a processor in Saskatoon. Thiel is a shareholder in the start-up business.

The Thiels are also trying soybeans — mostly because they need more rotation crops.



In Thiel's experience, straight-combined canola yields more and has heavier bushel weight.

"Canola has been a very lucrative crop for our area," Thiel says. But for that reason, canola rotations are so tight that he feels the risk for diseases like clubroot and blackleg is getting too high. "We need an economical rotation crop that can help break that cycle, and soybeans might be it."

Another change on the Thiel farm is the return of straight cutting for canola. A few years ago, Thiel was in Europe and noticed that growers there straight combined the crop. So he started to experiment. Two years ago, they swathed only 30 per cent of their canola. This year, the Thiels ordered two new Vario straight-cut headers for their Claas combines to reduce their swathed acres even more. Vario headers have the knife that extends beyond the reel, keeping any seed that shatters on contact to stay on the platform and move into the combine. In his experience, straight combined canola yields more and has heavier bushel weight. And with new pod-shatter resistance available through a few seed sources, he doesn't worry much about wind.

To seal the deal, last fall his standing canola was flattened by snow in October. But he combined it dry soon after the snow melted. By using lifters on the header and cutting perpendicular to the lay of the crop, it combined smoothly. As for the swathed canola, he says it took a lot longer for snow to melt from the windrows and a lot of it was harvested tough.



**WALTER PASZKOWSKI
SEXSMITH, ALBERTA**



Walter Paszkowski's parents emigrated to Canada from Poland and they knew rapeseed well. It was a popular crop in Poland for vegetable oil and animal feed. When Paszkowski

started growing rapeseed on the family's Sexsmith farm, his father was afraid it would become a significant new weed in the area. But by then farmers had herbicides that could control the "weed" in cereal crops.

Rapeseed was well suited to the growing conditions in the Peace region, but growers soon discovered that varieties were not strong against a disease called brown girdling root rot. Part of the problem was rotation, Paszkowski says. The rotation on their farm and many others in the area included fescue, and fescue was also a host crop for the pathogen.

The challenge of properly placing seed at a consistent shallow depth in loose tilled soil made the disease situation worse, he says. Tiny Polish seeds placed a couple of inches deep were less vigorous and more subject to disease. The shift to no-till kept the seedbed firm and

solved the seed depth issue “quite nicely,” he says. The combination of rapeseed and no-till was an economic win for farmers in the Peace region and it caught on quickly.

The Peace River Rapeseed Growers Association formed in the 1960s. Three years later, the association expanded to include all of Alberta and was renamed the Alberta Rapeseed Growers Association. (That association later became the first levy-funded commission in Alberta, changing its name to Alberta Canola Producers Commission.)

Paszkowski got involved with Alberta Rapeseed Growers in the early 1970s and stayed involved through the transition from rapeseed to canola. The transition was forced, he recalls, by global market competition. Major competitors were using a rat study to bad-mouth the erucic acid in rapeseed oil, he says, and because rapeseed was really the only vegetable oil that had any potential in Canada at the time, the country needed to act fast to stay in the market. “Rapeseed was further advanced in Canada than sunflowers or soybeans and it could be grown across all farming regions,” he says. “I have to give the researchers a tremendous medal of honour for what they did to create canola in such a short period of time.”

As ARGA president at the time, Paszkowski was the association’s rep on the Rapeseed Association of Canada board when it voted to change its name to the Canola Council of Canada.

“The Canola Council of Canada, which brought together all the players including crushers, exporters, provincial grower organizations, government, universities and food and feed manufacturers, became and still is the best and most complete commodity organization in Canadian agriculture,” Paszkowski says. “That has been a major reason for the canola industry’s growth to become the major crop in Canada. And it’s still growing.”

Paszkowski left ACPC in 1989 when he was elected MLA in the Alberta legislature. He still lives in Sexsmith and his son, Dwayne, runs the farm.

MURRAY MCCONNELL PETERSFIELD, MANITOBA



Murray McConnell’s father started the family seed business in 1938.

“My father received seed barley in 1938 through his sister Edna McConnell, who was attending the University of Saskatoon to obtain her ag degree,” he says. (Edna eventually became the first female agricultural representative in Canada.) That barley propelled the family into the seed business, which Murray McConnell carried on into the early 2000s.

Somewhere in the middle of all those years, the McConnells were one of the first families to grow a breeder’s seed plot of canola.

They were near-neighbours to Baldur Stefansson, one of the fathers of canola, who lived 14 miles down the road at Gimli. Stefansson knew them from the seed business. “We received canola breeder seed from Stefansson to grow in a seed plot,” says McConnell. “I still have the letter he had sent with the seed and for that reason, I believe that we were one of the earliest seed producers to grow it.”

He doesn’t remember canola being that big a deal at first. “It had a different name, but as a grower, it was similar to regular rapeseed.”

Though not in the seed business anymore, McConnell, at 84, still farms in the Petersfield area. ✨

—Jay Whetter is the editor of *Canola Digest*.



Explore **CanolaHistory.ca** for videos, an interactive timeline and the opportunity to share your canola story.

The Solovonuks: Oilseed pioneers



Fred and Olga Solovonuk are believed to be the first farmers to grow rapeseed in Western Canada. They came to Canada from Turysyk, Poland in 1928 and settled near Shellbrook, Saskatchewan.

According to the Solovonuk history displayed at the Shellbrook Museum, they brought with them a “handful” of *Brassica rapa*, which they grew to crush for cooking oil — as they had done in Poland.

Fred designed and built the press he used to crush the seed. As described at the museum, “he steam-heated the seed, folded it into a cloth gathered at each end and tied, then placed it between two thick 12” by 12” planks. The bottom plank had a slight lip on two edges, and the apparatus was elevated at one end to direct the flow of oil. ... The planks were squeezed together by tightening wooden nuts and bolts. The

oil was a darker yellow than it is today. The old-timers liked the original taste.”

The Solovonuks crushed some seeds and kept some for planting, slowly building up enough to grow a half-acre crop beside the family garden. When they had enough to spare, they gave out small samples — a “tobacco can full” — of their “Polish” rapeseed to neighbours.

Brassica napus was introduced to Western Canada (via Argentina) in the 1940s to produce engine oil for the war effort. As reported at the museum, “Polish rapeseed lacked the desired adhesive qualities for marine lubricants because of its high iodine content. It was however much lower in erucic acid, making it more desirable for human consumption.”

As we know from our canola history, in the 1960s and 1970s, Western Canadian researchers developed both *B. rapa* and *B. napus* with very low levels of erucic acid and gluconinolates, giving the oil broad appeal in the food market and improving uptake of the meal for animal feed.

The Solovonuks sold the farm in 1955 and moved to the nearby centre of Prince Albert, Saskatchewan. Fred died in 1968. ✨

—Thanks to Al Dion of Shellbrook for his help with this short Solovonuk history.





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Aeration can sometimes add moisture to grain, not remove it as planned. On-off fan strategies can limit this rewetting, but they do have drawbacks. Constant airflow can be safer and easier – even if the air isn't drying 100 per cent of the time.

ON-OFF STRATEGIES FOR CANOLA AERATION

BY ANGELA BRACKENREED

For years, the only topics that created much buzz in the commodity storage world was either the unfortunate situation of a large bin going up in smoke or a cool new technology that allowed monitoring stored grain to become a more seamless task.

Neither is insignificant, but the point is, while crop pest and genetic research can grab the headlines, storage research rarely does. That was until we heard the theory of night-time drying. Something new after all these years of managing our bins the same.

The research, started by the late Guy Lafond at the Indian Head Agricultural Research Foundation and carried on by Ron Palmer, professor of engineering at the University of Regina, monitored moisture movement in and out of the bin and showed that with continuous fan operation, the largest amount of moist air was expelled at night. It also found that we are often accomplishing warming of the bulk during the day and cooling at night.

Perhaps from a slight oversimplification of these findings came the “yard-light” rule: Switch the fans on at dark and off again in the morning. This method and the prospect of reducing energy costs has intrigued a lot of producers.

Clearly, we can accomplish cooling with the yard-light rule, but the big question is, can cool, dry air successfully get our canola to the safe storage target of eight per cent moisture content (MC)?

COOL AIR HAS LOW CAPACITY TO DRY

To try to get a handle on that question, the author spoke with Fuji Jian, an assistant professor in biosystems engineering at the University of Manitoba, and the lead or co-investigator of many storage research projects.

First off, relative humidity (RH) is important to understand. RH is the per cent saturation of air with water vapour. RH does not tell you the air's moisture-holding capacity, which is greatly affected by temperature. At the same relative humidity, warm air will contain vastly more water vapour than cool air.

For instance, one kilogram (kg) of air at 35°C has a moisture-holding capacity of approximately 37 grams (g) whereas one kg of air at 10°C has a moisture-holding capacity of 8g. At 60 per cent RH, the 35°C air has the ability to “take in” 15g before saturation while the 10°C air can only take in 3g.

This seems relatively simple. If the air can take in a lot of moisture, it must be good to dry with. What complicates this greatly is that we cannot just think of ambient conditions in isolation; the grain condition itself has an effect on that incoming air.

Consider what happens when we blow warm air onto a cool bulk. Initially, the air will be cooled upon hitting the grain – potentially reaching dew point and causing condensation if the grain is wet enough. In this case, the drying ability may be lessened (as the cooled air has less water-holding capacity) until the fans have run long enough to consistently warm up the whole bulk.

If time or resources aren't available for close monitoring, or if there is concern with execution of fan control strategies, there is nothing wrong with continuous fan operation.





testing, Jian says grain can lose about 0.8 to 1.0 per cent moisture content (MC) if grain temperature drops 30°C, canola moisture is above 12 per cent and this process happens at above 0°C.

Temperature is important also for the rate of drying or rewetting, as it has a large influence on the diffusion of water across or through surfaces – an important process in lowering moisture within seeds. Lower temperatures mean much slower diffusion and eventual drying.

As we can see in Table 1, drying time increases fairly dramatically as the air temperature decreases. So, although drying can be done with cooler air, it requires a lot of patience.

In speaking with Jian, it became apparent that conditions for drying are too complex to give a definitive yes or no answer on the “yard-light” rule. The science shows obvious, although maybe somewhat limited, parameters where it will work.

EMC TABLES MIGHT HELP

Generally speaking, grain will absorb water if the air has a higher moisture content than the grain itself. And grain will lose water if the air has a lower moisture content than the grain itself. This is related to the theory of equilibrium moisture content (EMC), which asserts that the grain and the air will eventually equilibrate to a certain moisture content or relative humidity. EMC is specific to each commodity and air condition.

Jian encourages producers to use EMC charts (See Table 2) to understand when air can accomplish drying and when it cannot. This could then be used as a potential fan control strategy: fan on when EMC is less than the current MC of the grain, fan off when the EMC is greater

Jian explained that during drying, two processes occur that both require energy (which can be provided in the form of heat): water evaporation on the surface or inside of the grain kernels and water migration from the inside to the outside of the grain kernel. Required energy can come from the grain itself, such as grain with high temperature, or from high-temperature air. Without energy, grain cannot be dried.

Think of the scenario of a warm day of harvesting followed by a cool night. When blowing cool night air into warm grain, initially the grain provides energy for drying because the air is cool. In this case, “drying cannot last long because the grain will quickly be cooled down to the air temperature,” Jian says. Drying will likely occur, albeit temporarily, he adds, if air RH is less than 70 per cent and air temperature is less than the grain temperature.

How much moisture can we remove in the cooling process? Based on energy conservation calculations and

Table 1: Drying time in days required to dry 14 per cent (wet basis) canola to 8 per cent inside a 1,900-bushel bin under different air conditions

(Assumptions: density of the canola = 52 lb./bu., 1.0 cfm/bu air flow rate, the canola temperature is 20°C)

| Air RH (%) | Air temperature (°C) | | | |
|------------|----------------------|------|------|-------|
| | 35 | 30 | 25 | 21 |
| 70 | 13.5 | 19.3 | 38.2 | 187.5 |
| 60 | 13.4 | 19.3 | 38.1 | 187.0 |
| 50 | 13.3 | 19.2 | 38.0 | 186.6 |
| 40 | 13.2 | 19.2 | 37.9 | 186.1 |
| 30 | 13.2 | 19.1 | 37.8 | 185.7 |
| 20 | 13.1 | 19.1 | 37.7 | 185.2 |

Note: the accuracy of the drying time ranges from 50 to 80 per cent. The trend remains correct.

Table 2. Equilibrium Moisture Content for Canola/Rapeseed

The information regarding the canola EMC chart was found in the following paper: *Equilibrium Relative Humidity-Moisture Content of Rapeseed (Canola) from 5°C to 25°C*. S. Sokhansanj, W. Zhijie, D. Jayas, T. Kameoka (1986)

| °C | Relative Humidity (%) | | | | | | | | | | | |
|----|-----------------------|-----|-----|-----|-----|------|------|------|------|------|------|--|
| | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | |
| -2 | 6.7 | 7.5 | 8.2 | 8.9 | 9.7 | 10.5 | 11.3 | 12.2 | 13.2 | 14.3 | 15.7 | |
| 2 | 6.4 | 7.0 | 7.7 | 8.4 | 9.1 | 9.9 | 10.7 | 11.6 | 12.5 | 13.6 | 14.9 | |
| 5 | 6.1 | 6.8 | 7.4 | 8.1 | 8.8 | 9.5 | 10.3 | 11.1 | 12.0 | 13.1 | 14.3 | |
| 8 | 5.9 | 6.5 | 7.1 | 7.8 | 8.5 | 9.2 | 9.9 | 10.7 | 11.6 | 12.6 | 13.8 | |
| 10 | 5.7 | 6.3 | 7.0 | 7.6 | 8.3 | 8.9 | 9.7 | 10.5 | 11.3 | 12.3 | 13.5 | |
| 13 | 5.5 | 6.1 | 6.7 | 7.3 | 8.0 | 8.6 | 9.4 | 10.1 | 11.0 | 11.9 | 13.1 | |
| 15 | 5.4 | 6.0 | 6.6 | 7.2 | 7.8 | 8.5 | 9.2 | 9.9 | 10.7 | 11.7 | 12.8 | |
| 18 | 5.2 | 5.8 | 6.4 | 7.0 | 7.6 | 8.2 | 8.9 | 9.6 | 10.4 | 11.3 | 12.4 | |
| 22 | 5.0 | 5.6 | 6.1 | 6.7 | 7.3 | 7.9 | 8.5 | 9.3 | 10.0 | 10.9 | 12.0 | |
| 26 | 4.8 | 5.4 | 5.9 | 6.5 | 7.0 | 7.6 | 8.2 | 8.9 | 9.7 | 10.5 | 11.6 | |
| 28 | 4.8 | 5.3 | 5.8 | 6.3 | 6.9 | 7.5 | 8.1 | 8.8 | 9.5 | 10.4 | 11.4 | |

than the MC of the grain. Some technologies already use this theory in fan control systems.

There are limitations to these charts though. Joy Agnew, researcher with the Prairie Agricultural Research Institute, says they were developed many years ago using varieties that likely had very different oil content and seed size than current varieties. “It’s unclear how much these changes would affect the EMC values.”

Agnew mentions another limitation: the EMC charts do not account for grain’s effect on the incoming air. “If a farmer was to turn on a fan only for a few hours when the air is warm and the grain is cold, that’s a problem.”

To be successful with manual fan control using the EMC charts, the user needs to understand this relationship, as well as the fact that temperature has a large role to play in the rate of drying or rewetting – as demonstrated in Table 1.

Another possible concern with using EMC charts is the fear of “crusting” in the bin. This is the idea that if fans are shut off before the drying front goes all the way through the bulk, a crusted layer will form that would impede airflow once the fans were turned on again. Jian says the amount



For more on canola storage, read the chapter at canolaencyclopedia.ca and the articles at canolawatch.org.

of crusting, or whether it occurs at all, will depend on the canola condition, weather condition and fan run time.

“Generally speaking, if the canola has high temperature (>30°C) and higher MC (>14 per cent) at the top of the drying front, crusting might occur if the fan is stopped for more than three days,” Jian says.

Although he has no lab data to back it up at this point, he suggests from experience that if canola’s moisture content is less than 12 per cent and the temperature less than 25°C at the top of the drying front, and the fan is stopped for less than a week, crusting will not happen. (Note: As air moves through stored grain, it picks up expelled moisture and concentrates it above the front. Therefore, grain above the drying front will have much higher MC than what the grain had when originally binned. Air above the front will also be warmer.)

KEEP THE FAN RUNNING

Agnew summarized the idea of intermittent fan control to say, “As long as grain isn’t hot or really tough, it makes more sense to only run the fan when the air has capacity to dry. But if grain is hot and tough (or freshly harvested), run the fan regardless.”

Jian seems to agree. “From the view of safe storage, the fan should not be stopped if the initial MC and temperature of the canola are high,” he says.

REWETTING RISK

One issue with constant fan operation is the fear of “rewetting” the grain, which is counterproductive and potentially wasteful. Continuous fan operation, which has long been advocated for by storage researchers and extension specialists, runs the risk of some degree of rewetting on days when the air’s EMC is greater than the grain’s MC.

How readily does grain take on moisture? If air has a very high EMC and grain has low moisture content, rewetting can happen faster than drying, Jian says. In most scenarios, it is a much quicker process to re-dry grain that has once been dried throughout the kernel already, as the rewetting event is usually just surface moisture that accumulates through condensation. However, the more time that elapses after the initial rewetting event, the less true this statement becomes.

In conclusion, it is apparent that straying from the traditional way of drying comes with challenges. But so long as careful and regular monitoring is done, particularly shortly after binning, strategies such as manual fan control or night time drying when conditions allow can be successful.

If time or resources aren’t available for close monitoring, or if there is concern with execution of fan control strategies, there is nothing wrong with continuous fan operation. Air blowing will serve to break up any hot spots and prevent moisture migration, even if the air is not necessarily accomplishing drying 100 per cent of the time. ✿

—Angela Brackenreed is an agronomy specialist with the Canola Council of Canada. She lives in Minnedosa, Manitoba.



To choose a variety

Growers have many excellent varieties and traits to choose from. So which combination is best for your fields?

BY NICOLE PHILP

1. WHERE DOES ONE START WHEN CHOOSING A CANOLA VARIETY?

A logical place to start is what herbicide system to put on a specific field. It may be worthwhile rotating herbicide-tolerance systems if some weeds have become difficult to control.

If disease management is top of mind, you may want to consider looking at the disease package each variety offers. If sclerotinia stem rot is an ongoing concern, a sclerotinia-tolerant variety might be a good choice. If blackleg is a concern, take a look at the new blackleg labels implemented by some seed companies for this growing season. A number of clubroot resistant varieties are also available.

Increased pod-shatter tolerance has become a more desired trait. This trait isn't just about straight cutting; it can help you manage your acres at swathing or harvest timing as well.

Agronomic traits are also worth comparing. Days to flower and maturity, height and lodging for each variety can help you decide planting dates to manage harvest timing.

Finally, you want to know about yield potential. How does a variety perform each year compared to other varieties? How consistently does a variety yield under different conditions?

2. LOOK AT A RANGE OF INFORMATION

You have a plethora of data from many sources, including advertisements, plot tours, neighbours, retailers, social media and your own experiences. Seed companies publish their variety performance data every year. Many retailers do trials as well so their customers can see how the genetics perform

in their local area. Taking the time to look at the data available from different sources can help narrow down your choices.

3. DIG INTO THE CPTs

The Canola Performance Trials (CPTs) are an independent, third-party variety testing program with sites throughout Western Canada.

The program, in its current form, has been in place since 2011. New for 2017 is the introduction of a pod-shatter component. Traditionally, varieties in the small-plot trials were not straight cut. With new pod-shatter varieties available to farmers, the CPTs created a second protocol (which can be viewed on the CPT website) to test these straight cut varieties and harvest them at the appropriate time.

The CPTs are looking at 25 varieties in 2017 between the standard and straight cut protocols, which are being tested at 25 small plots locations in Western Canada.

4. HOW TO GET THE MOST OUT OF CPTs

Although 2017 data will not be available until after harvest, six years of historical data are available at canolaperformancetrials.ca. Data by individual site and by season zone are available in the annual booklets. While looking at how a variety performs in your area is important, you'll also see value in how it performs in other areas with different conditions. Data can be searched using the online tool, which has interactive maps, and the ability to refine searches by specific trial location, season zone, herbicide tolerance (HT) type, yield, days to maturity, lodging and height.

CPT results are also provided in each of the provincial seed guides each year.



Manitoba Canola Growers, SaskCanola and Alberta Canola fund the CPT program, providing another strong return on grower levy dollars.

5. CPTs ARE GROWER-FUNDED

Manitoba Canola Growers, SaskCanola and Alberta Canola fund the CPT program, providing another strong return on grower levy dollars. Grower group representatives sit on the CPT Governance Committee, and chose the varieties in the program this year. The decision to move ahead with the CPT came as a result of a survey that showed growers and industry value the independent testing nature of the CPT program.

The CPT is committed to providing quality data to farmers in Western Canada to help them make the right variety decision. Each site is inspected each season to make certain the site established well, and to ensure no seeding or herbicide issues occurred. The data from each site is analyzed (by a CPT Technical Committee, which includes all three Provincial Oilseed Specialists, in addition to other members) before publishing on the website and in the booklet. ✖

—Nicole Philp is an agronomy specialist with the Canola Council of Canada and helps to co-ordinate the CPT program.



Use the filter tool to sort through six years of historical CPT data at canolaperformancetrials.ca.



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Find out what farmers and agronomists who attended canolaPALOOZA 2017 in Saskatoon, Portage la Prairie and Lacombe say were the highlights from this hands-on, expert-laden, wide-open and fun agronomyfest.

WHAT ATTENDEES LEARNED AT canolaPALOOZA 2017

BY JAY WHETTER

ADVICE FROM THE PIT BOSS

“**W**hen I go to an event, I try to find three things I can take home,” says Brian Tischler, who farms at Mannville, Alberta. His number one “by far” from canolaPALOOZA 2017 at Lacombe, Alberta, came from Ross McKenzie and his soil pit. McKenzie is a retired agronomy research scientist who worked 38 years with Alberta Agriculture.

To demonstrate the value of low disturbance farming for good soil quality, structure and water-holding

capacity and for erosion prevention, McKenzie had two cylinders of clear water. In one he put a clump of top-soil from a no-till field and in the other a clump from a heavily-tilled field. The no-till soil stayed as a clump, soaking up water like a sponge. The clump from the tilled field “melted and disintegrated like a sugar cube”, Tischler says.

Besides the clear improvement in soil structure for no-till soil, this demo also showed Tischler how tilled soil crusts after a rain. Increased organic matter in no-till soil acts like



For more agronomy tips from canolaPALOOZA, read “Top 10 canolaPALOOZA 2017 highlights” at canolawatch.org.

a glue to bind particles into a good structure to resist erosion and soil crusting. “With rain, worked soil melts and then turns into rock again when it dries,” he says. This helped to reinforce for Tischler the low-disturbance, high-residue management practices he uses on his own farm.

From the pit, McKenzie explained the value in knowing how soils on a farm were deposited, formed and developed. “This can help a farmer understand how and why soils are variable and what types of soil and crop management are best,” McKenzie says. For example, soils in areas



Luke Jantzen on phosphorus:

After talking with Ken Panchuk, provincial soil specialist with Saskatchewan Agriculture, Luke Jantzen and his father Fred, who farm at Rosthern, Saskatchewan, will strive to keep phosphorus levels in their soils at 15 ppm or higher. This is the threshold for deficiency, Panchuk says, and 80 per cent of Saskatchewan soils have dropped below this critical level.

that were once old glacial lake beds are often higher in clay, have few stones, have much less soil variability and much more uniform topography. Glacial-deposited soils often have more variable soil texture with more rolling topography.

“Knowing the parent material of your soils is very useful to determine if and when variable rate fertilizer management is economically beneficial,” McKenzie says. “That’s why, when working with a company to develop soil and crop management zones, make sure the agronomist you are working with is well trained in soil fertility and has taken soil mapping and classification to ensure you are getting the best advice.”

Tischler’s other two highlights from canolaPALOOZA were the pest updates, especially descriptions of the new midge, and Tom Wolf’s continuous rinse idea for sprayers. (For more on Wolf’s station, read the spray cleanout section on page 29.) For more about Brian Tischler and how he farms, search for his “farmer-briantee” videos on YouTube and follow @efarmerdot on Twitter. 🌻



Clark Brenzil (left) and Kregan Warrington talk weed management.

station is that heavy reliance on herbicides as the primary weed management tool will mean continued increases in herbicide-resistant weeds by herbicide group, weed species and overall abundance. Higher plant populations, timely early herbicide applications and narrower row spacing are three steps to improve crop competition, cut down on the need for a second in-crop herbicide spray and help to reverse the trend of herbicide-resistant weeds.

“It was a good opportunity to learn these natural ways to deal with weeds instead of just applying more herbicide,” Warrington says. 🌻

HELP THE HERBICIDES

Kregan Warrington farms and works in an area of Western Saskatchewan fairly new to canola. In fact, the Warrington farm at Hoosier grew canola for the first time this year.

Warrington is in the crop technology program at Lakeland College in Vermilion, Alberta and is a summer agronomy specialist with G-Macs in Marengo, Saskatchewan. He attended canolaPALOOZA for one-stop access to various experts and a crash course in canola agronomy.

At the weeds station, Saskatchewan Agriculture weed control specialist Clark Brenzil gave him a personal tour of the plots, showing how spray timing improves the return on a herbicide investment (the “critical period of weed control” in canola is at or before the 4-leaf stage of the crop) and how canola plant population can improve crop competition.

A key point Brenzil wanted to get across in his



BY BAILEY OGILVIE

MY CANOLAPALOOZA HIGHLIGHTS

I don’t think many growers are aware of how little herbicide residue it can take to damage their crops. Looking at the canolaPALOOZA plots, I was surprised to see there was still leaf cupping in canola at 1/128th rate of herbicide!

There’s always so much going on in a crop, it can be difficult to pinpoint where an issue stems from. Because of this, making sure I take proper measures (i.e. triple rinsing the sprayer tank) to keep potentially damaging herbicide residue off my crops and the crops of my growers is vital.

I took away so much from canolaPALOOZA, it’s hard to narrow down what the “best” thing would be. I was fascinated by the beneficial insect station. I loved the setup where you could stick magnetic insects to parts of a canola plant to learn where each species does the most damage. The insect traps they set up were interesting as well. I also always enjoy the fertilizer plots to see what combinations and rates of different elements can be put down to benefit a crop, and seeing at what rate they start to become detrimental to canola growth.

One of the biggest takeaways that I had from canolaPALOOZA was seeing just how many different factors



Insect stations, with live pest and beneficial species, were popular conversation centres at all three canolaPALOOZAs.

contribute to the success of a canola crop – for example, fertilizer rates, harmful versus beneficial insect populations, seed varieties, spray residue and timing and soil conditions – among other things. We’ve learned so much about all these different aspects of a crop and can use them to our advantage to see increasingly higher yields, yet we still have so much to still explore and work with. 🌻

—Bailey Ogilvie is a University of Saskatchewan student and sales and agronomy assistant with Dekalb in Southwest Saskatchewan. Her family farm is at Ardath. Follow @bailey_ogilvie on Twitter.

ARE YOU 'SCHER' ABOUT HARVEST LOSSES?

Louise Carduner, customer service rep with Parrish & Heimbecker at Quill Lake, Saskatchewan, was most impressed with Pat and Trevor Scherman. The father and son, who farm together at Battleford, Saskatchewan, demonstrated their drop-pan system to measure harvest losses.

"I love meeting farmers who are so passionate about what they do," Carduner says.

The Schermans' ScherGain heavy plastic drop pan connects to the underside of almost any combine make or model by magnets. With the chopper and chaff spreaders disengaged and the combine moving at the desired speed and settings, the combine operator uses a small remote key fob to release the magnets and drop the pan.

After removing the chaff and straw by hand and with screens, collected seed goes into a "grain gauge" for ScherGain's simple evaluation method. The reading on the gauge cross-referenced to the cut width (swather or straight-cut header) will tell you the losses in bu./ac.

For example, in canola if the gauge reads 70 and the header width is 35 feet, the loss is 2 bu./ac.

Their pamphlet says: "The most money per hour you will ever make farming is setting your combine and knowing your losses." Whether it's the "most" money is subject

Pat (left) and Trevor Scherman display their drop pan with remote release system.



For more on the pan and the system, including how-to videos, go to schergain.ca.

for debate, but the CCC expects overall average canola yields across the Prairies could increase by at least 2 bu./ac. with improved harvest management. Reducing losses is a big part of the message.

"Harvesting at 2.8 mph seems too slow for a 500-horsepower combine, but you never know the right speed and settings until you measure losses," Trevor says. ✖

—Carduner recorded and tweeted a short video about the pan while she was at canolaPALOOZA. It generated an immediate bump in sales for ScherGain and, as Carduner says, "demonstrated again the power of social media." Follow her on Twitter at @LouiseCarduner.



Louise Carduner on blackleg clipping:

"I have always scouted for blackleg in the past by checking the swaths in the field. I learned that you have to clip the stem below the ground level. Such a simple thing – but once again – it is a reminder that we all need to recheck our techniques to get the most accurate results from scouting!"



BY PAM BAILEY

MY CANOLAPALOOZA HIGHLIGHTS

I picked up the following canola-related knowledge at canolaPALOOZA 2017 in Portage la Prairie, Manitoba.

THE IMPORTANCE OF GOOD SPRAYER

NOZZLES. While a tiny percentage of variance in nozzles might seem insignificant over a field or two, that tiny percentage can really add up and turn out to be several thousands of dollars worth of incorrectly sprayed chemical, additional time spraying, and high machinery usage. To prevent this, periodically inspecting and maybe even replacing clogged or worn nozzles can save lots of money – and time. Making sure you are using the right nozzles for the right job and the right chemical can also help your bottom line.

WHY RESISTANCE PACKAGES NEED TO

BE SWITCHED UP EVERY YEAR. As farmers, sometimes we hear "resistance" so much we can overlook it – like we as humans know we need to eat nutritious fruits and veggies more often, but we still don't do it as much as we

should, or we cut corners to save time or go with what we know and like. The same can be said for planting a variety we know will do well because we used it before.

USING CLAY IN CANOLA

PROCESSING. It was interesting to learn how our product is brought to store shelves. There sometimes are stages in the production chain that are not viewed positively by the public, due to misconceptions or even the language or terms used to describe a step or process. The canola that we see on store shelves is not lightened or bleached, it's filtered with Montmorillonite clay (which is also used in cosmetics, pet foods and fish ponds) that captures microscopic impurities and separates them from the oil, providing the very clean oil used in the kitchen. ✖

—Pam Bailey farms at Dacotah, Manitoba and is a farm safety instructor at the University of Manitoba. Follow @PamHeatherton and @UMfarmsafety on Twitter.

TIPS FOR FAST, EFFECTIVE SPRAYER CLEAN-OUT

A highlight for Luke and Fred Jantzen, son and father who farm together at Rosthern, Saskatchewan, was how to do a better job of washing out the sprayer. “The most important point is to do it right away after spraying,” Luke says. “And a number of smaller washes is better than one big one with lots of water.”

This small-batch triple rinse is one sprayer-cleanout improvement Tom Wolf presented at canolaPALOOZA. Wolf is a long-time sprayer researcher and runs AgriMetrix and sprayers101.com.

Wolf’s goal is to make sprayer cleanout more effective, faster, convenient and environmentally friendly.

Wolf’s second method is continuous rinsing. With both triple rinse and continuous rinse, the first step is to start with the right amount of spray volume for the field size so the operator can spray the tank empty in the field. Both steps also require an auxiliary tank of clean water — ideally 150 to 200 gallons.

TRIPLE RINSE. “Three small rinses of 50 gallons each are about ten times more effective than one rinse of 150 gallons,” Wolf says. The key is to have as small a remainder volume in the tank as possible. After spraying out the product tank to empty, use the sprayer solution pump to draw 50 gallons into the tank via the wash down nozzle. Agitate and spray it out. Repeat this two more times, all in the field.



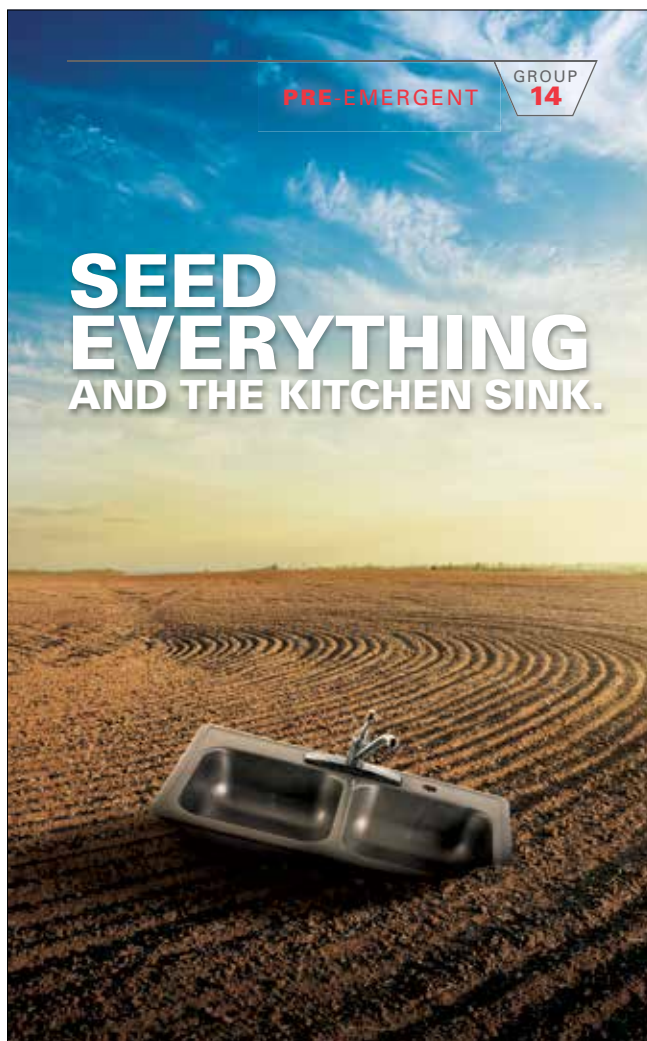
Tom Wolf talks sprayer clean-out.

CONTINUOUS RINSE.

After the product is sprayed out, leave the main solution pump on and keep driving. Engage a second clean-water pump that draws water from the clean-water tank and runs it through the tank wash-down nozzle. While the two pumps run simultaneously, one pumping clean water into the rinse system and the other sucking rinse-sate through the booms and nozzle, the operator goes back over the field until the process is done. “This will

probably take just a few minutes,” Wolf says. Rinse water will start off with some pesticide in the mix and rapidly dilute down until clean water comes out the nozzles.

One challenge with continuous rinse, Wolf says, is that in-flow has to match out-flow to maximize the benefit – and clean-water pumps that match the flow rate of the main pump can be hard to find. (But they are out there.) Another challenge is that some sprayer manufacturers don’t allow additional pumps tapped into the hydraulic system, meaning that air- or electric-drive pumps need to be used. ✖



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FMC

Western Canadian researchers and canola growers are building a body of evidence and experience that will help those who want to try straight combining canola. This article describes practices that can reduce the risk.

WHAT WE KNOW ABOUT STRAIGHT COMBINING CANOLA

BY JAY WHETTER

The key argument in favour of straight combining canola is the savings in time, labour and possibly machinery. On a farm with limited labour available at harvest, not having to swath canola can free up a lot of time and labour for combining. If farms decide to straight combine all canola, selling the swather may be an option.

The major benefit for swathing over straight combining, and this is a big one for many growers, is harvest timing. Standing canola can take longer to be harvest-ready. When it is ready, growers historically had a fairly narrow window to get the job done before shattering losses become excessive. Shatter-tolerant varieties have greatly reduced this risk, but harvest-readiness can still take longer for standing crop.

Another potential downside to straight combining is that when seeds and pods are ready, stems may be somewhat tough, making the combine work harder. Uneven crop and green weeds can also slow the harvest process. Pre-harvest sprays will dry down biomass to reduce or eliminate this factor.

Even with improvements in genetics and the option to use a dry-down spray, growers may still experience more flexibility with harvest timing when they swath canola.

Studies suggest that, on average, late-swathed and straight combined canola will yield about the same. The key

Studies suggest that, on average, late-swathed and straight combined canola will yield about the same.

is swath timing. An early-swathed canola crop has shown to be the lowest yielding of all treatments. Seed quality seems to be the same for both.

RISK FACTORS FOR STRAIGHT COMBINED CANOLA

VARIETY. Studies at Indian Head Agricultural Research Farm (IHARF) found that any variety can be straight combined successfully under low risk conditions. A well-knit crop with good pod integrity, low winds and timely harvest make for lower risk. However, when IHARF added varieties with pod-shatter tolerance in later years of the study, these varieties maintained their yield in a broader range of circumstances, especially if harvest is delayed.

FIELD CHOICE. Flatter fields tend to have more even maturity. On rolling hills, hill tops may be prone to shatter losses and pod drop while waiting for the rest of the field to reach harvest readiness.

STAND ESTABLISHMENT. An early-established and uniform crop with sufficient plants to narrow the range of seed maturity at harvest and to provide knitting together of mature plants will help improve harvest timing and harvestability of a standing canola crop.





Want to share your experiences – good and bad – with straight combining canola? Email the editor, Jay Whetter, at whetterj@canolacouncil.org

DISEASE. Diseased plants dry down earlier and can make for uneven maturity. They also tend to lodge more. Diseased pods are more likely to shatter or drop prematurely. Limiting disease can improve harvest results for straight combining and swathing.

WEEDS. Fields with a lot of late-season weeds should get a pre-harvest herbicide or be swathed.

PRE-HARVEST SPRAY. Canola fields that mature early in the harvest window, are weed-free and have a good uniform stand may not need a pre-harvest spray to help with straight combining. The Prairie Agricultural Machinery Institute (PAMI) ran a trial of pre-harvest aids in 2016, comparing three treatments – Reglone, a Heat/glyphosate tank mix and natural ripening – against swathed checks. The study showed no statistical difference in yield for the four treatments, but treatments did influence harvest timing and combine efficiency. Reglone-treated plots were ready the same day as swathed treatments. Heat/glyphosate treated plots were harvested three weeks after application (partly due to a rain delay). Naturally ripened plots were ready at the same time as the Heat/glyphosate treatments. For the naturally-ripened canola, high green matter in the stand made harvest difficult. The PAMI report concluded: “Straight cut treatments with harvest aids had a higher cost of production, but the benefits of timeliness or ease of harvest may provide sufficient benefit to warrant this cost for certain operations.”

COMBINE HEADER. Various studies have looked at headers. PAMI just finished a three-year study comparing rigid auger, draper and extended-knife headers. It concluded that all headers did the job within acceptable limits, but the extendable knife (PAMI used New Holland’s Varifeed in its study) did have lower losses, in general. Other studies came to similar conclusions about extendable-knife headers.

HARVEST TIMING. The general recommendation is to straight combine canola as soon as possible after the seed falls below two per cent green content and is dry enough to store. Delays can increase shattering losses for varieties without shatter tolerance.

LODGING. Some lodging can be beneficial for straight combining canola. A slight lean tends to knit together plants so they don’t move as freely in the wind. Heavily lodged crop, especially if lodged in all directions, might be a better candidate for swathing.

WEATHER. Weather factors that influence the harvest decision include:

- **Wind.** Mature crop whipping in the wind can increase shatter losses. While swaths can also roll in the wind, the risk is probably higher with standing crop.
- **Hail.** Hailed canola fields often grow back at various stages. While straight combining works best for an even-maturity crop, leaving a hailed crop standing for straight combining may allow more of the later pods to mature and contribute to yield. Desiccation may be required.
- **Fall rain or snow.** Standing crop is often ready to combine sooner after these events, but heavy snow can push down standing crop, making it difficult to pick up.
- **Frost.** Frost provides some natural desiccation that may help soften weeds and green stems for straight combining. Harvest may need to occur shortly after a frost.

STORAGE. In cases where straight combining results in higher levels of green dockage (either from crop material or weeds), this would increase the storage risk — as high moisture dockage could be a start-point for spoilage. ✖

—Jay Whetter is the editor of *Canola Digest*.

Straight combining canola: A farmer Q&A

Kevin Serfas | Turin, Alberta



→ **Do you straight combine canola?** No, not yet. With the winds we get in southern Alberta, straight combining canola was not an option for us before the evolution of pod-shatter resistant (P) varieties. Last year, we grew an InVigor pod-shatter resistant variety on two fields but didn’t straight cut it. It allowed me to see what the trait is like. We switched half of our acres

to pod-shatter resistant varieties this year, and we might try straight cutting a bit of it. Even if we swath it, timing isn’t as critical. Agronomically, the P varieties are lower performing than non-P varieties, but our P fields last year yielded about 7 bu./ac. higher than non-P. I think it was because they didn’t have any top-of-swath shattering.

→ **Describe your land. Does this make a difference to straight combining success?** We have a little bit of everything. In fields with a lot of variability in topography, I don’t think there’d be a situation where we could straight cut without some desiccation or Roundup. We notice the differences when straight cutting barley and wheat, so they could be worse with canola.

Straight combining canola: A farmer Q&A CONTINUED...

→ **What do you think would be the most important steps for success with straight combining canola?** I expect steps for success, besides the pod-shatter resistant varieties, would be an evenly dried-down crop and a decent header. I think we have one in our John Deere drapers.

→ **What is the biggest risk?** After seeing pod-shatter resistance, I'm not sure wind would be the biggest issue anymore. I'm not

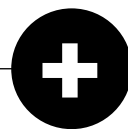
sure what the biggest risk will be now that I have faith in the technology.

→ **Would you expect a difference in overall profitability between straight combining and swathing?** Seed with the pod-shatter resistance trait is about \$10 per acre more. Whether you swath or straight combine the variety, you're going to get at least a one-bushel benefit from reduced harvest losses. We have a sprayer already and

I'm not going to sell the swather, so whether we spray or swath canola, it will not change our equipment investment.

→ **Anything else you'd like to add?** At the end of the day, a big part of the decision is personal preference, geography and how your farm is set up. We have lots of tools available to us as farmers. We use the ones that fit best with our operations.

Dennis Reimer | Hudson Bay, Saskatchewan



→ **Do you straight combine canola?** Yes. It saves us the extra pass of swathing. We suspected that swathing was causing us yield loss because we had a lot of late, immature seeds in the swath. Waiting to straight combine gave them time to mature. In the earlier years, we confirmed a 3 bu./ac. advantage with weigh wagon comparisons. It has been as low as 1 bu./ac., but in that case the swather had GPS guidance but the combine didn't. So the combine was running fuller with the swaths, which may have meant lower harvest losses.

→ **What percentage of your canola do you straight combine?** 100 per cent

→ **How many years have you been doing it?** We started in 1997. My son Darryl encouraged us to try 40 acres.

→ **Describe your land. Does this make a difference to straight combining success?** Our land is reasonably flat with peaty pockets. Flat land does provide an advantage. Knolls are often riper and more subject to wind loss.

→ **What are the most important steps for success with straight combining?** In our experience, not seeding canola too early is important. We want the crop to mature in September so we are not combining in hot weather. In cooler conditions, the risk of shelling diminishes.

→ **Under what circumstances would you decide to swath a crop instead of straight combine?** If the cereals were all combined and the canola wasn't ready, I'd probably wish we had some swathed canola to combine.

→ **What varieties have you straight cut?** We have used InVigor varieties from the beginning. When the pod-shatter P varieties came along, that's when we finally decided to sell the swather.

→ **What type of combine header do you use?** MacDon draper headers with pea augers.

→ **Do you use a pre-harvest spray?** Not usually. We tried it once.

→ **What is the biggest risk?** Last year we had 350 acres that got snowed on and never got harvested. We decided to just harrow it and burn it this spring. As a result, we got 95 per cent of this year's crop seeded. A lot of swathed crop was left out all winter as well, and while the swaths could be salvaged, some of those farmers fiddling to harvest that canola only got 50 per cent of this year's crop seeded.

In 2011, the year of wind, we had one field that was 50 per cent shelled out across about half the field. Pods were actually knocked off the stem intact – that's how windy it was. But over the rest of our 1,200 acres of canola, I got out of the combine a lot to check on shattering, and it seemed to be no more than 10 per cent loss. Swathed crops were also blown around badly that year. Some guys were lucky to harvest 50 per cent of the yield with swathed crops. So both were at risk.

That was the year that really told me straight combining was not as risky as people thought. However, if the wind had come a week later, it would have made the situation a lot worse for standing canola. The swathed crop would

have been harvested and the standing crop would have been that much riper and at even greater risk. Swathed canola can usually be harvested earlier – that's true – but for us, by the time our cereals are harvested, the standing canola is ready. And if swathed crop is still out by late September, it can take a lot longer than standing canola to dry down and be harvest-ready.

→ **What difference in overall profitability is there between straight combining and swathing?** We don't have to own a \$100,000 swather or need to hire a man to run the swather while cereals are ready to be combined. The extra yield from straight combining is always profit.

→ **Describe the biggest mistake/disaster you've had with straight combining?** I can't say we've made any major mistakes. The year of wind was bad but it was no worse than with swathed canola. Last year, my son-in-law tried straight combining canola for the first time. It was a specialty variety and he had excessive shelling in the standing crop, but his swathed crops were fine. He had an immediate disaster. We never had that negative first experience.

→ **Anything else you'd like to add?** You will always combine standing canola slower than picking up a swath. We combine at two to 3.5 mph whereas a combine can go four mph with swaths. But for a \$30 per acre difference in yield, we feel it's worth the time. ✖

DON'T PUT \$#!& IN YOUR BINS

Clean bins thoroughly prior to storing canola, ensuring bins are free of treated seed and animal protein. Never use malathion to prepare canola for storage or to treat bins used to store canola.

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This important message brought to you by:



From documenting verbal agreements to renegotiating contract terms, here are your most common grain contract questions answered.

TOP 10 GRAIN CONTRACT QUESTIONS

BY JANELLE WHITLEY



Forward contracts are now commonplace for farmers wanting to market their canola. While grain contracts have similar core attributes, the specific clauses and terms can differ significantly from one grain buyer to another. Here we share the 10 most common questions farmers have about grain contracts.

1. Contracts seem to be written to protect the buyer.

What can farmers do to achieve balance?

Reading and understanding your grain contract is critical. Always obtain a complete copy of the contract's terms and conditions prior to agreeing to the sale and make sure to read and understand the conditions before signing.

Compare different terms. Some comprehensive contracts on the market contain protections for both the buyer and seller.

2. What happens if I deliver less than the contracted amount? Do tolerances exist (i.e. 5 per cent over and under)?

There isn't a magic number. If you think you will be short on your contract, talk to your grain elevator or processor. Buyers will consider several factors such as stocks position, the likelihood of sourcing the grain elsewhere and the size of your contract. Your grain buyer may be in the position to discuss alternate solutions, and the sooner you speak to them the better your options may be.

3. What recourses do farmers have if their grain is not accepted in the contracted delivery period?

All contracts allow for extended delivery periods. As written, you are obligated to deliver in both the initial and extended delivery period. If you are unable to deliver in the extended period, talk to your elevator or processor about making changes, look for contracts with shorter extensions or arrange for alternate delivery terms.



Want to learn more about grain contracts?

CCGA's "A Practical Guide to Navigate Grain Contracts" is available for download at ccga.ca/marketing.

You can also call 1-866-745-2256 to request a free copy be mailed to you.

Ask what storage fees are available. As of August 1, 2014, all grain marketing contracts must contain provisions to compensate farmers for grain not accepted within the stipulated delivery terms. The application and available compensation varies between companies (some more favourable than others), and by signing the contract you agree to the terms.

4. Does a verbal agreement form part of the contract?

Verbal agreements are legally enforceable if they contain the specific elements that constitute a deal, but they can be difficult to prove when the two parties disagree on what was said. Furthermore, make sure to add any verbally agreed upon terms to the Remarks or Special Terms section of your contract or amend them to the contract.

5. Have farmers been successful at negotiating changes to a contract?

Some farmers have successfully renegotiated terms within a contract, especially around price and delivery terms. Remember the more farmers that request changes, the greater the chance grain companies will consider it.

6. Is there a process for arbitrating contract disputes?

There is no one system for recourse. The best defense is to establish a positive business relationship with your grain buyer and to fully understand the buyer and seller obligations to avoid any dispute. Some contracts reference the arbitration rules established under the National Grain and Feed Association. If there is a dispute over the delivery penalty, farmers can raise the issue directly with the Canadian Grain Commission who may appoint an arbitrator. Legal recourse through a contract lawyer is also an option.

7. Has the Canadian Canola Growers Association considered pushing for a standardized contract?

CCGA is not currently advocating for a standardized grain contract. While we recognize that common language would streamline the process, it would also eliminate an element of competition in the market. Companies currently compete for grain based on their contract provisions, and farmers have the choice of selecting contract terms that work best for their farm and its marketing plans.

8. How are liquidated damages calculated?

Most grain contracts outline precisely how damages will be collected. The formula is normally an administration fee, plus the

difference between the contract prices and the replacement cost, plus any additional losses the company will incur. If your contract doesn't stipulate the process for collecting damages, ask your elevator or processor in advance how damage is assessed and consider including this in the notes to the contract.

9. Do contracts contain Acts of God clauses?

Act of God or Force Majeure provisions are rare in grain marketing contracts. A handful of companies do provide them, but they are generally offered at a premium or available on specialty or production contracts.

10. Can I get out of my contract?

Once signed, the terms and conditions are

binding, and most often the contract can't be broken without buying it out or paying the liquidated damages.

Grain contracts can differ significantly from one grain buyer to another so always remember to read and fully understand your grain contract before signing it. If you are unsure of anything in your contract, talk to your grain elevator or processor to ensure a common understanding of the obligations. Good communication is key to ensuring you maintain a good business relationship throughout the entirety of the contract. ✕

—Janelle Whitley is a Manager of Policy Development with the Canadian Canola Growers Association.





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Stacking of popular traits, including pod-shatter tolerance and enhanced disease resistance, is an important agronomic theme for the 2018 class of canola seed.

CANOLA SEED ADVANCES

FOR 2018

BY RICHARD KAMCHEN

Canola growers have numerous seed trait options to choose from now and in the near future.

DISEASE RESISTANCE

DuPont Pioneer introduced a new earlier-maturity Pioneer Protector HarvestMax canola hybrid, 45M38 RR, which has a significant improvement in blackleg resistance.

Commercially available in 2018 will be Pioneer brand canola hybrid 45CM36, a new canola hybrid with built-in Pioneer Protector HarvestMax and Pioneer Protector clubroot resistance traits. (See more on HarvestMax later in the article.)

“The new source of resistance to clubroot in Pioneer brand canola hybrid 45CM36 provides built-in resistance to new variants of races 2 and 3, along with our multi-race resistance package with protection against races 2, 3, 5, 6 and 8,” says company technical product manager, Ellis Clayton.

Pioneer 45H37, an earlier-maturity canola hybrid with that multi-race resistance, will also be available in 2018. The company’s 45CS40, Western Canada’s first canola hybrid with built-in disease protection from both sclerotinia and clubroot, will be available again.

Bayer is introducing InVigor L255PC, a new Evolution hybrid with clubroot-resistant traits that also contains pod-shatter reduction. It has the same genetic clubroot-resistant traits as InVigor L135C and InVigor L241C, and an R rating for blackleg.

DL Seeds will offer more hybrids that contain the 5x tolerance to clubroot, as well as improved tolerance to sclerotinia compared to what’s currently available in the market. “DL Seeds is also working hard to incorporate and stack major genes for blackleg to work with the current adult plant resistance for this disease,” says general manager Kevin McCallum.

Dow AgroSciences is researching how best to deploy various blackleg resistance sources in single gene or stacked combinations, with the addition of quantitative resistance (adult plant resistance) sources, says Nexera canola brand leader Mark Woloshyn.

The company also offers the only clubroot-resistant Clearfield hybrid on the market today, 2020 CL. Woloshyn says Dow’s goal is to deliver a multi-resistant hybrid, with field testing already underway.

Proven Seed offers multi-gene stacks for protection against both blackleg and clubroot, says Bruce Harrison, senior director of seed research and innovation for Crop Production Services.

“It has become apparent in recent years that durable disease resistance will not be achieved through the use of single R-genes,” Harrison says. “Proven Seed hybrids carry multiple disease-resistance genes – in the form of both solid quantitative resistance and effective major R-genes – which offer disease control and durability across a range of geographies.”

Strategically assembled R-genes deliver excellent disease control for growers today, and when used within a

Strategically assembled R-genes deliver excellent disease control for growers today, and when used within a sound disease management plan including responsible crop rotation, will remain effective for years to come.

—Bruce Harrison



sound disease-management plan including responsible crop rotation, will remain effective for years to come, Harrison says.

Canterra Seeds continues to offer CS2000, which delivers differential clubroot resistance to canola growers, including intermediate resistance to the new 5x pathotype, says director of marketing Sheena Pitura.

Dekalb has a strong focus on blackleg resistance, offering diversity in sources of major resistance within the current portfolio as well as future pipeline, says Dave Kelner, canola portfolio manager for Monsanto.

"Clubroot resistance is also a high priority," he adds. "The most recent clubroot-resistant addition to the portfolio is 75-42 CR, a hybrid that offers excellent yield potential along with early maturity, a natural fit for the key clubroot market of central Alberta."

HERBICIDE TOLERANCE TRAITS

All Cibus canola hybrids commercialized in the next several years will have sulfonylurea (SU) tolerance, says senior vice president of product development, Jim Radtke.

"Growers understand the SU chemistry, and it does an excellent job of controlling weeds in a canola production system with no carryover to the following crop," Radtke says. This system also works well in a rotation with Roundup Ready soybeans, which are becoming increasingly important in Manitoba, he adds.

Cibus is also working on developing tolerance to other classes of chemistry.

Dow AgroSciences will continue offering two herbicide systems, Roundup Ready and Clearfield. "To support sound agronomic practices and better serve our growers,

Dekalb has a strong focus on blackleg resistance, offering diversity in sources of major resistance within the current portfolio as well as future pipeline, says Dave Kelner, canola portfolio manager for Monsanto

Canola performance – driving yields with smart input choices

Too much early-season nitrogen (N) encourages lodging, depletes soil moisture and leaves less N for seed production. ESN technology controls N release, reducing N loss and increasing N efficiency. Additionally, it significantly reduces N loss to the environment.

ESN technology and increased yield

When compared with similar N treatments of urea or UAN, using 50-75% of N with ESN technology has shown an average of 8-10% increase in canola yield. This data is derived from a number of independent research studies conducted at various locations in Western Canada.

Unmatched seed safety

Applied at rates up to three times higher than conventional N fertilizers, ESN won't harm growing seedlings (following safe rate guidelines and recommended percentages of ESN).

Wider application window

ESN provides a wider application window in both the spring and the fall, allowing you to apply fertilizer on your schedule.

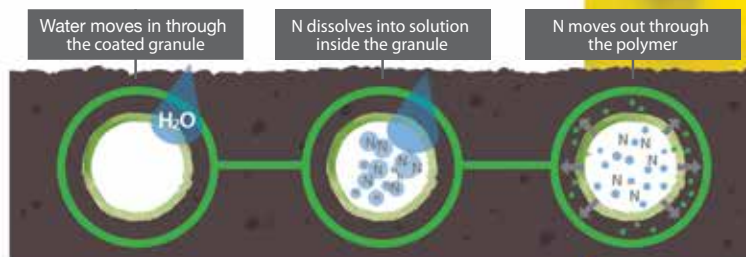
Convenient to use and apply

ESN is compatible with no-till operations and is easy to blend. It will not set-up in storage and therefore has a longer shelf life.

Environmentally responsible

ESN significantly reduces N loss, providing substantial benefits to the environment.

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ESN
SmartNitrogen

we offer options for enhanced weed control in both systems – Eclipse III in Roundup Ready and Salute in Clearfield,” says Woloshyn. “Both options provide multi-mode-of-action control of hard-to-kill weeds like Canada thistle and dandelion, and serve to delay the onset of weed resistance.”

CPS’s Harrison says two company varieties with second-generation herbicide tolerance have already been recommended for registration in 2017, and several more are in the pipeline for registration in 2018.

Monsanto plans to launch the TruFlex trait for canola in 2019, pending global regulatory approvals, says Kelner. “TruFlex will offer growers superior weed control and flexibility in weed management, which are lacking in existing herbicide-tolerant systems,” he says.

HARVEST TRAITS

Ellis Clayton says Pioneer Protector HarvestMax traits will provide strong seed pods with good pod threshability, swath timing flexibility, ability to straight cut, maximized yields and reduced canola volunteers.

Three InVigor hybrids will arrive in 2018 with Bayer’s Pod Shatter Reduction technology: InVigor L140P, InVigor L233P and InVigor L255PC, the latter of which also contains clubroot-resistant traits.

“Grower adoption of straight cutting canola continues to rise, as well as demand for Bayer’s InVigor Pod Shatter Reduction technology,” says Wade Stocker, Bayer’s manager of canola seeds and traits. “A significant portion of the 2018 InVigor hybrid canola lineup will contain the patented Pod Shatter Reduction technology in 2017, and into the future.”

Dow AgroSciences offerings with pod shatter reduction are two Nexera canola varieties, 2022 CL and 2024 CL. The company expects to offer a Roundup Ready variety with this attribute in the near future, Woloshyn says.

Shatter tolerance is also a major area of focus for Monsanto. “75-65 RR is Dekalb’s newest straight-cut hybrid, which offers farmers a very good level of shatter tolerance combined with fast dry-down – an important consideration when straight cutting,” says Kelner. “In two to three years, Dekalb plans on releasing a new series of products that will incorporate the same sources of shatter tolerance utilized today in Europe.”

Canterra’s pod shattering tolerance offering is CS2100, “which has a proven track record versus the top competitor straight-cut varieties,” says Pitura.

SEED TREATMENTS

Dupont Lumiderm insecticide seed treatment for canola provides growers the benefits of early-season cutworm control and enhanced protection against crucifer and striped flea beetles, says Clayton.

Bayer will continue to offer Prosper EverGol as its base seed treatment for InVigor, DuPont’s Lumiderm for cutworms and flea beetle control and JumpStart for enhanced phosphate availability, says Stocker.

Dekalb launched Visivio in cooperation with Syngenta. “And Fortenza is a new cutworm seed treatment in our portfolio,” Kelner says.

For 2017, all Nexera is being treated with Visivio.

“Visivio offers a powerful combination of four fungicides and two insecticides to provide control of a wide range of seed and soil borne diseases, as well as excellent control of crucifer flea beetles and even the difficult to control striped flea beetles,” says Woloshyn.

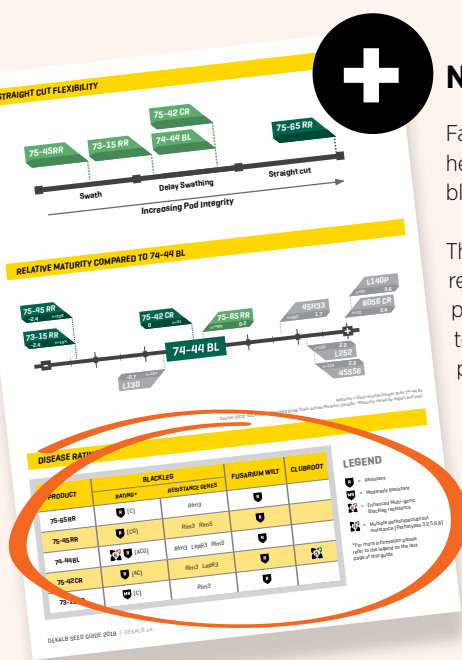
Syngenta is also a seed treatment partner of Canterra Seeds. “[We] offer a full range of seed treatment products, including protection against crucifer and striped flea beetles, as well as cutworms,” says Pitura. ✖

—Richard Kamchen is an agriculture reporter in Winnipeg.

“Grower adoption of straight cutting canola continues to rise, as well as demand for Bayer’s InVigor Pod Shatter Reduction technology.”

—Wade Stocker

Credit: iStock.com/dabjola



New labels for blackleg resistance

Farmers will soon have an additional tool to help them make informed decisions about what blackleg-fighting varieties to grow.

The Blackleg Steering Group – composed of farmers, researchers and pathologists from provinces and private industry – has developed a new system to classify blackleg resistance based on field performances and major resistance genes carried.

The new labels identify major resistance genes in a variety and will be paired with the current label for blackleg resistance (R/MR/MS/S).

Previously, farmers with blackleg issues would switch varieties in order to change the resistance genes used to battle the fungus, but by not knowing the resistance being deployed in their varieties, were blindly choosing a different variety. In so doing, growers chanced picking a variety of similar resistance makeup, says Justine Cornelsen, agronomy specialist with Canola Council of Canada.

So far, only Dekalb has publicly released their labels in their 2018 seed guide, but several other companies have expressed interest in the labels, and plan to have them public within the year.

The new resistance-gene labelling is a voluntary label that seed developers can choose to add to their varieties.

A page from Dekalb's 2018 seed guide, featuring their blackleg labeling.

How teamwork fuels winning farm successions

These days, succession is on the minds of more and more Canadian producers. In many families, the older generation is thinking about life after farming. The younger generation is excited for the future and poised to take the reins.

Farm succession can seem overwhelming. It involves family dynamics, legal issues and a range of financial and tax considerations. But taking control is achievable with a little prioritization and organization.

So what's your next move if you're considering succession planning? Here's a few things to consider:

1. Discuss succession plans and ideas with your family. Starting these sometimes difficult conversations early is important to enable a smooth transition. An open dialogue is the best path forward to success.
2. Ensure critical papers are in order and easily accessible. Being armed with good – and accurate – information can make decision making much easier. This includes papers such as wills and directives, mortgage documents, lease agreements, employment contracts and insurance policies.
3. Assemble a team of advisors to guide you through the process. That includes your lawyer, your accountant and, of course, your financial planner. By working together as a team, they can help you create a succession that works for everyone.

“As you begin your farm succession journey, getting the first steps right are critical to a successful transition,” says Gwen Paddock, National Manager of Agriculture and Agribusiness for RBC®.

“If you're uncertain about the path forward, start by talking to a trusted advisor or even a neighbour who has been through it. It's just too important to leave to chance.”

One such advisor is your local RBC agriculture banking specialist. With a deep understanding of farming and business, Royal Bank of Canada can provide advice and resources on finance and banking issues that will help you create and execute a successful farm business succession plan.

What's your next move? We're ready to help.

Talk to one of our agriculture banking specialists today.

Visit [rbc.com/succession](https://www.rbc.com/succession) to find the agriculture banking specialist nearest you.



BILLIONS OF BENEFITS BEYOND THE FARM

BY GAIL GRANGER

Like many Alberta communities, Camrose is feeling the pinch of low oil and gas prices. But today the economy of this small city is getting a boost from Canada's other oil industry.

As the site of Canada's newest canola processing plant, Camrose is now extracting more employment and opportunity from the canola fields surrounding it. The Cargill facility has created 70 full-time jobs and work for 30 local contractors since opening in 2015, and spin-off opportunities are expected to grow as more people come to Camrose to transport canola, refuel and do business with the plant. The plant is one of 14 canola processing facilities across Canada, operated by Bunge, ADM, Cargill, Richardson, Viterra and Louis Dreyfus.

"When a large, established business like this comes to a city of 18,000, it's a very good thing," says Camrose City Councillor Kevin Hycha. "The plant has brought good jobs to our community – everything from blue collar to upper management. It attracts new people and strengthens our tax base. And we know it's a good, clean industry that's going to be around forever."

Camrose is one of the real-life success stories behind the latest report on the economic impact of the Canadian canola industry. The study by LMC International found that \$26.7 billion in economic activity now ripples through the economy as canola is grown, developed, processed, marketed to export customers and consumed by consumers and livestock herds here in Canada.

This is LMC's third economic analysis for the Canola Council of Canada, and the latest results confirm that canola's importance is burgeoning. The agri-business research firm found that the industry's impact has tripled in the last decade, and now accounts for a total of 250,000 Canadian jobs and \$11.2 billion in wages.

"A study like this illustrates just how far that value extends, and why canola is important to all Canadians, not just those who work in the industry," says Canola Council President Jim Everson.

"People may not always realize it, but our industry's success is helping to support everything from new business start-ups to education and social services. We're creating jobs in communities all across Canada, including

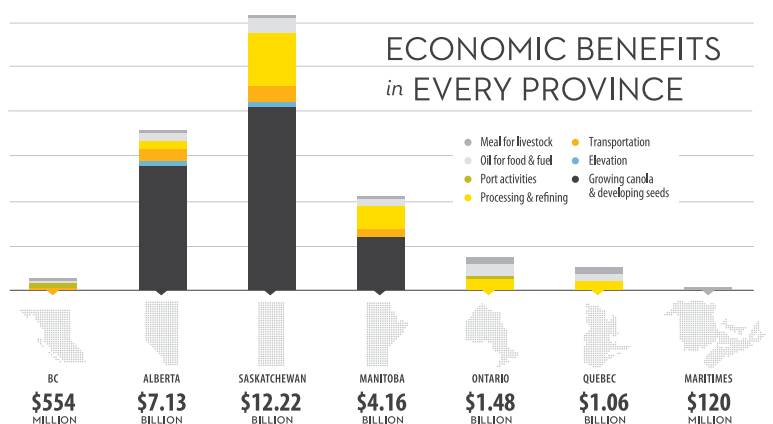
jobs for people who live far away from where canola is grown and who may not ever visit a farm."

Everson notes that canola's influence on jobs and wages was much steadier over the three years covered by the latest study, reflecting the industry's evolution into a reliable mainstay of the Canadian economy.

The report also shows that wages for jobs linked to canola are higher than average. In the last three-year period studied, the average annual salary for jobs generated by canola was \$62,000, compared to the average Canadian salary of \$50,000.

LMC found that processing and refining are the fastest-growing generators of economic benefits related to canola, with the total impact of these enterprises now four times higher than a decade ago. In total, about 80,000 Canadian jobs are stimulated by canola processing and

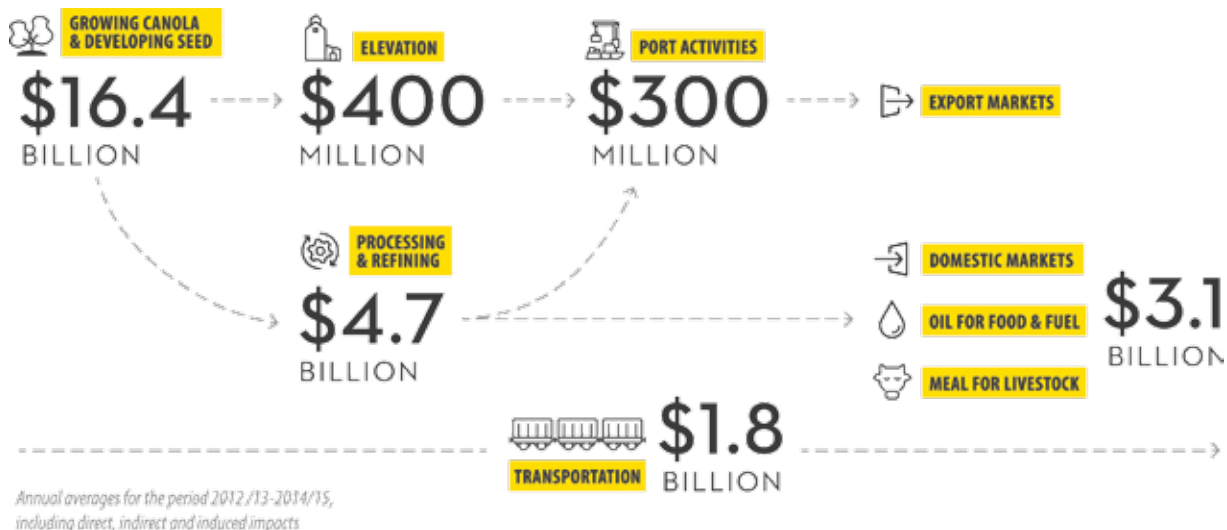
Below: While the greatest economic benefit is in the Prairies, canola also has a significant impact on the economies of Ontario, Quebec, British Columbia and the Maritime provinces.



Annual averages for the period 2012/13-2014/15, including direct, indirect and induced impacts

refining, and more growth is expected as the canola industry works toward its Keep it Coming 2025 goals.

In Camrose, the new processing facility was generating jobs even before it opened. It took a million hours of employment to build the plant and the new road leading into it. One local company expecting to see long-term benefits is Glover International Trucks, where Hycha is the Camrose general manager. The company sells and



TOTAL IMPACT on THE CANADIAN ECONOMY

250
THOUSAND
JOBS

\$11.2
BILLION
IN WAGES

\$26.7
BILLION
TOTAL ECONOMIC ACTIVITY

Annual averages for the period 2012/13-2014/15, including direct, indirect and induced impacts.

services the same sort of trucks and trailers that are used to transport canola to and from the processing plant.

"If the plant expands in the future, it will definitely have an impact on everyone in Camrose," Hycha says.

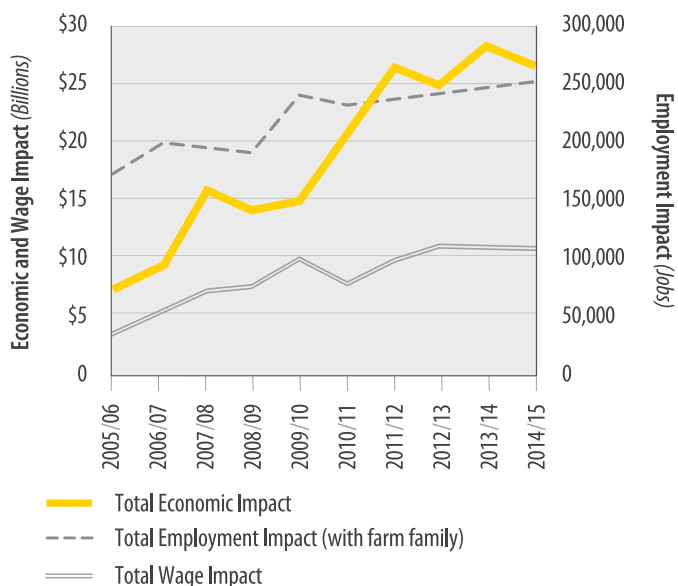
Victor Goodman, director of community development for the City of Camrose, predicts the plant could also provide the region with a base for further diversification into new types of food processing businesses.

"Having a canola plant here positions us worldwide as a location for a whole new layer of food processing, including operations focused on ingredient manufacturing, which aren't located here now," Goodman says. "It's a tremendously important pillar for the growth of Western Canada in the foreseeable future."

The complete economic impact report is available on the Canola Council website: canolacouncil.org/links/Canada. ✿

—Gail Granger is a freelance writer based in Winnipeg.

DRAMATIC GROWTH in ECONOMIC IMPORTANCE





A Hub of activity at canolaPALOOZA

The Canola Research Hub at canolaresearch.ca is a user-interactive database with practical tools designed to return growers' investment in agronomic research back to the farm. The Hub was recently featured at canolaPALOOZA across the Prairies.

BY BARBARA CHABIH

This summer, at research stations in Manitoba, Saskatchewan and Alberta, over 1,000 canola growers, researchers, agronomists and industry partners took part in the interactive field-day carnival that is canolaPALOOZA, now in its third year. As the coordinator of the Canola Research Hub, this gave me the opportunity once again to meet some of the website's audience and talk to the subject-matter experts about results and recommendations included in our content.

WHEEL OF STORAGE CONDITIONS

At the Storage Management station of the Manitoba event, Lorne Grieger, an engineer with Prairie Agricultural Machinery Institute (PAMI), spoke about the importance of making the right management decisions at the right time when it comes to long-term storage in grain bins.

"The key things to understand with storage management of canola is your moisture conditions and your temperature inside your bin," says Grieger. "If you need to dry the seed down to keep it at a safe moisture content level for the storage temperature, you have to make a decision to either turn fans on or off to get the condition you're looking for inside the canola."

Joy Agnew, also with PAMI, was on site with an innovative conversation starter around factors that affect the grain when it's in the bin. The two-part activity involved spinning a wheel to determine the scenario for conditions of the grain in the bin, and then dropping a chip into a pegboard to get the air conditions. This opened up discussion on the best options for managing proper storage under the given parameters.

"If the grain is tough or warm, you're probably going to run your fan no matter what," says Agnew. "But if it's close to what you want both temperature- and moisture-wise, it matters what the outside air is because that's going to affect the grain itself."

A research project led by Agnew entitled "Determining best practices for summer storage of canola in Western Canada" was undertaken in 2014 and continued in 2016. These studies filled a knowledge gap on what to do with canola stored through winter and into the summer. Canola is increasingly stored this long due in part to increased bin capacity and year-round market demand. With the temperature extremes experienced on the Prairies, the definition of best management practices is crucial to minimizing the risk of spoilage.

In 2014, very dry canola (six per cent moisture content) was stored in commercial-sized grain bins and treated with three different

management practices – aeration, turning or leaving it alone. Prior to the study period, the seed had been stored over the winter and frozen. Agnew found that, despite a large temperature differential (28°C) within the bin, temperature and moisture of the grain remained fairly stable throughout the summer.

The 2016 objective was to determine if higher moisture content (nine per cent) canola should be managed differently for storage into the summer months. In both years of study, both turning and aeration resulted in unstable conditions for a short period of time that may have resulted in condensation in the grain, and ultimately potential loss of revenue.

The best option found was to monitor the temperature profile, watching for any rapid increases regardless of actual values, and to have a plan to move the canola if any issue arises. You can find summaries and reports of both years of this study on the Canola Research Hub (canolaresearch.ca) under Harvest Management.

BLACKLEG BLACKJACK

Blackleg, the most widespread fungal disease of canola in Western Canada, poses a serious production threat. Although resistant cultivars are widely used to control this disease, canola's genetic resistance is breaking



Far Left: Angela Brackenreed, Canola Council of Canada agronomy specialist (in red), and Joy Agnew, PAMI, facilitated discussions on best practices in canola storage management under various seed moisture content and temperature conditions.

down, new blackleg races are emerging, and market restrictions and economic losses are increasing concerns to growers.

Clint Jurke, agronomy director for the Canola Council of Canada (CCC), was one of the presenters at the canolaPALOOZA Blackleg Management station. “We are trying to develop a better understanding for how blackleg can cause yield loss and our options for managing that disease in canola,” says Jurke. “Some new things have happened in the last year, and this is our opportunity to share that with the canola industry, especially farmers and agronomists.”

One significant step forward was the recent canola industry decision to

Left: CCC agronomy specialist Justine Cornelsen deals out a round of Blackleg Blackjack to illustrate the new labelling system for blackleg-resistant canola varieties. Read more about genetic resistance and R-gene labelling at blackleg.ca

incorporate new blackleg-resistance labels on canola varieties. These labels will provide greater detail than the current Resistant ‘R’ and Moderately Resistant ‘MR’ labels that are based on field ratings of blackleg compared to the susceptible variety, Westar.

“Because this pathogen is one that changes really quickly,” Jurke says, “it has a really complicated genetic ammunition with which to overcome resistance genes. We’re finding out that as blackleg continues to evolve, we do need to have a more complicated system to stay one step ahead of it.”

At canolaPALOOZA, this complicated system was illustrated at the Blackleg Blackjack table. Players were dealt cards bearing the new labelling codes A, B, C, D, E1, E2, F, G, H or X, which correspond to major resistance genes present in canola varieties. The ‘house’ was then dealt cards to indicate a number of avirulence genes that the blackleg pathogen would be carrying in the given scenario. If the player was holding enough of the right resistance cards, they could successfully manage the disease and win the hand.

Dilantha Fernando, researcher at the University of Manitoba Department of Plant Science, and Gary Peng, research scientist with Agriculture and Agri-Food Canada, also took part in this year’s blackleg stations.

Fernando and Peng concluded that diversity is key to blackleg resistance in the four-year Canola Agronomic Research Program (CARP) study titled “Blackleg Resistant Stewardship: Improving our management of host resistance”.

The objective of this study was to understand pathogens on-farm and by regions and identify strategies to reduce resistance breakdown. The findings showed that the avirulence gene (*AvrLM3*) that corresponds with the most commonly used resistance gene (*Rlm3*) was actually among the rarest of genes to be found in all tested blackleg samples. However, two others (*AvrLM5* and *AvrLM7*) were detected in more than 85 per cent of the pathogen population. The new labelling system will provide growers the tools they need to equip their crops to combat exactly what they’re up against.

You can find summaries and reports of Drs. Fernando and Peng’s research, and other completed and in-progress studies, on the Hub (canolaresearch.ca) under Integrated Pest Management by entering the keyword ‘blackleg.’ 🌻

—Barbara Chabih is communications program coordinator with the Canola Council of Canada. She manages the Canola Research Hub.



Inside the Canola Research Hub

Looking for canola research and best practices in canola production? Find it at the Canola Research Hub – canolaresearch.ca

- Navigate a library of research summaries
- View and filter research data
- Watch video interviews and clips
- Access published resources
- Download multimedia materials
- Keep up to date on science-based industry news and events

The Canola Research Hub has been made possible by the canola industry’s investment in agronomic research through the CCC and grower check-off dollars administered by their provincial organizations. It is supported by a \$15 million Agriculture and Agri-Food Canada canola research cluster investment under Growing Forward 2 (GF2).

The Hub’s library currently houses over 100 reports from programs including AAFC’s Growing Forward (GF), the Canola Agronomic Research Program (CARP), studies funded by the provincial grower groups and the Ultimate Canola Challenge (UCC). This database and the site’s functionality will continue to expand with the latest in canola agronomic research as findings become available.



For more information on navigating the Hub, view a guided-tour tutorial available from the landing page.

Providing top science for the bottom line.



Ontario Canola Growers Association and Agronomy Advantage organized a day of hands-on learning near Kenilworth. Farmers learned about nitrogen rates and application, seeding rates and various challenges facing the industry.

SWEDE MIDGE, CLUBROOT CHALLENGE ONTARIO CANOLA



Credit: Meghan Moran

Canola Council of Canada agronomy specialist Dan Orchard (far left) shared the Alberta clubroot experience, including what clubroot looks like, how and why it spreads, and what mistakes were made.

BY KATE PROCTER

Don Curry grows about 1,500 acres of canola near Owen Sound. He says that while he attends a lot of meetings, he was glad he made time for the agronomy event at Kenilworth in Wellington County. “It was a very high-caliber meeting and lot of thought went into it,” Curry says.

Kurt Krohn grows 90 acres of canola near Elmvalle every four years, using a very strict rotation. He feels that the biggest concerns affecting canola growers are disease, insect pressure and crop price. He thought the meeting provided good information about improvements in planting equipment.

Hubert Beaudry farms about 1,800 acres in the Nipissing District near North Bay and usually grows about 500 acres of canola each year. He is also the vice president of the Ontario Canola Growers Association. Beaudry appreciates the opportunity to listen to other growers when he comes to meetings like this. “I try to learn from other people and sometimes change my own management based on what other people are doing,” he says.

Anything that affects yield, specifically insects and disease, are top of mind for Ontario canola growers. Curry found the session dealing with clubroot to be especially pertinent. While he has not experienced it first hand, he can see that it will be something Ontario growers need to be proactive about keeping under control.

Curry learned that best management practices for clubroot – including a longer rotation, resistant variety selection and having separate field entries and exits – can all help keep the disease-causing spores at a manageable level. Once the spores have moved into an area, it is easy to transport them on farm equipment from field to field. That’s why field entrances tend to be the first and most heavily infested areas. With a separate exit, it means equipment won’t leave through the most heavily infested area, picking up more spore-infested soil to transfer to another field.

Beaudry is concerned with swede midge and is being challenged by cutworms for the first time this year. He has been experiment-

ing with a variety of cover crops, including clovers, rye, oats and tillage radish, and is wondering if this has played a role in his cutworm problem.

Beaudry and Curry are optimistic about the future of canola in Ontario. “I think it will hold its own,” says Curry. Beaudry says it is a perfect fit for areas of the province that aren’t well suited for corn and soybeans. “I will keep trying for sure,” says Beaudry. “I don’t give up easily.” For his part, Krohn is unsure.

Canola is a good option for growers in more northern parts of the province, and all three agree it is a great addition to a rotation that includes winter wheat. Because canola is harvested earlier than soybeans, it allows wheat to be planted earlier in the fall, which has a huge impact on wheat yields.

Krohn adds that better planting equipment could help growers have better stands. Specifically, he would like to see equipment that provides more accurate depth control and seed singulation.



Credit: Carrie James

Deb Campbell (in the blue shirt, presenting), owner of Agronomy Advantage, organized the day at an eight-acre Canola Learning Centre to test canola row widths, seeding rates and nitrogen rates. Her goal with the test plots is to fine tune management to push canola's yield barriers and demonstrate why canola is a viable rotation option in Ontario.

Beaudry feels that more research should be done on swede midge and its impact in Ontario. He feels that because Ontario is a relatively small market compared to other areas, chemical companies are not that concerned with advancing technologies to address swede midge.

As for the 2017 crop, weather has had the biggest impact so far. In Curry's case, excess rain is causing him some concern. "I've never seen the effect that we've had this year – even on tiled ground there will be a yield impact," he said. Krohn has also had a lot of moisture, but says his crop looks fantastic at this point. He adds that he is concerned about white mould (a.k.a. sclerotinia stem rot) and standability going towards harvest. Beaudry says his crop was thin at the beginning and he did some reseeding, but now it is looking good. "It was a struggle in the spring, but I'm actually impressed and now it is coming along fine," he says. 🌻

—Kate Proctor is a freelance writer based in Ontario.



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Retaining crop residue benefits soil health, erosion management and crop health, but it must be managed to enable best seeding practices and crop establishment the following season.

MANAGEMENT OPTIONS FOR HEAVY RESIDUE

BY BLAINE METZGER

An effective residue-management system must consider timeliness, economics, cropping plans and conservation of soil and soil moisture. It must also leave the field surface in suitable condition for seeding equipment to place the seed at the proper depth with good seed-to-soil contact.

The list describes various residue-management options, including tips on how to manage crop that overwintered unharvested – a situation many Prairie farmers experienced this past winter.

1. THE COMBINE

The combine's straw chopper and chaff spreader are the best tools for residue management. Most manufacturers supply after-market attachments to improve chop and spread performance, if necessary.

2. SEEDING SYSTEMS

Farmers can upgrade existing equipment to improve seed placement in high-residue situations. For example, residue managers, which consist of tines, spikes, notched discs or grooved rubber, can pull, move, throw or pin-and-cut residue in front of seeding opener systems. Row spacing between openers and the type of residue manager will significantly vary the residue clearance. Coulters have been designed to cut residue in front of seeding openers, reducing residue wrapping around shanks or between disks. Disc openers typically clear higher amounts of standing residue than hoe- and shank-type openers can. However, discs have poorer soil penetration and seed placement when high amounts of residue are on the soil surface or in piles.



Factors that affect residue management

- Higher moisture residue will not cut, break, chop or spread as well as dry residue.
- High soil moisture will reduce the effectiveness of tillage and make the residue tougher.
- Cereal residue is not the same as canola residue or pulse residue, for example. Each will require different levels of management to reach the same processed level.
- Amount of residue will significantly impact how any practice will work. With 75 per cent or more residue cover (such as with unharvested crop), effectiveness of most residue-management equipment will be significantly reduced.
- Research has shown that if the average length of residue is more than 70 per cent of the tool spacing, plugging will occur. Most research has shown that if the average residue height is more than 65 per cent of the equipment clearance, plugging will likely occur. With the seeding tool, opener spacing, equipment height clearance, number of rows and opener design will all influence the residue clearance capability.





TIME

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3. CONVENTIONAL TILLAGE

A cultivator will help break up piles and spread them out, but will not incorporate quickly and may require several passes. A discer will cut, break up and incorporate residue quicker than cultivation, but will not spread out piles as quickly and would likely require more than one pass. Tillage is generally done at a two- to four-inch depth for best operation and any amount of tillage reduces soil quality and structure and increases greenhouse gas emissions.

4. HARROWING

Lighter tined-type harrows could be used in conjunction with cultivation to increase residue break up and spreading, thus reducing the passes of cultivation alone. Light harrowing alone can spread residue and results

in low soil disturbance, but is not as effective in heavy residue. Rotary harrows are more aggressive and can break up and spread straw quickly, but do create some soil disturbance. Rotary harrows can roll over excessive residue and piles to reduce plugging, but for this reason are not as effective to spread excessive residue concentrations. Heavy harrows are very aggressive and will handle high residue concentrations, but will also create some surface soil disturbance.

5. CAPTURING RESIDUE FOR FEED

Residue dropped behind the combine can be baled. High-moisture residue can be baled and then wrapped for long-term storage. Some farms also collect residue in wagons behind the combine and stack it for feed. These



What if you have unharvested crop again? For residue management tips and more, read “Spring management options for un-harvested crops”. Go to agric.gov.ab.ca and search for “com16303”.

are effective ways to manage heavy residue, but they remove more nutrients that have to be replaced through fertilization. (See Table 1.)

6. VERTICAL TILLAGE OR MULTI-TOOL

Specialized tools with combinations of harrows, concave disks, coulters and/or shanks can be used to till, break up and spread heavy amounts of residue. Each design has a combination of any two, or possibly all, of the above-mentioned tools mounted on one large frame. They can be very effective at residue management, but they require high horsepower and create high surface-soil disturbance. Research has not looked into long-term effects from using this equipment.

7. MOWING

Large heavy-duty mowers have been designed for hard, thick and heavy residue.

8. GRAZING

One method of livestock winter feeding is to leave residue piles or windrows in the field, then use temporary fencing to move livestock through the field. 🌱

—Blaine Metzger is a project technologist at the Farm Stewardship Centre (formerly AgTech Centre) at Lethbridge. For podcasts and more on some of these topics, go to agric.gov.ab.ca and search for “com16303”.

Table 1. Value based on average nutrient contents in straw*

| Crop straw and chaff | lb N/ton | lb P ₂ O ₅ /ton | lb K ₂ O/ton | lb S/ton | Total \$/ton** |
|----------------------|----------|---------------------------------------|-------------------------|----------|----------------|
| Wheat | 30 | 8.3 | 54 | 6.4 | 63.04 |
| Barley | 35 | 10.1 | 77 | 6.4 | 79.63 |
| Oats | 34 | 8.7 | 79 | 7.4 | 78.19 |
| Peas | 58 | 15.2 | 54 | 10 | 99.12 |

* straw with 10 per cent moisture

** based on fertilizer prices of \$0.99/lb N; \$1.10/lb P₂O₅; \$0.42/lb K₂O; and \$0.24/lb S.



Cost of residue burning

Many years of research around the world, including in Western Canada, has shown that burning of residue has the following risks and impacts:

- A burning and post-burned field requires time and effort to monitor.
- Your own and neighbouring properties, public, livestock and wildlife are at risk of smoke and fire damage.
- Burned fields have lower residue matter, which will reduce soil health and productivity.
- Risk of wind and water soil erosion increases.
- Soils from burned crops have lower organic matter, lower water-holding capacity, lower microbial activity due to less

available food for beneficial organisms, reduced readily-assimilated carbon sources for microbes, reduced ammonium levels and reduced available phosphorus.

- Burning residue releases greenhouse gases.
- Without soil-residue cover, soil becomes drier and harder very quickly, making for a lower-quality seedbed.
- Burning reduces or eliminates nutrients, dependent on type, present in the residue that would otherwise be available to the subsequent crop.

Several different research studies concede that occasional burning may not have lasting harmful effects on the soil and crop health, but repeated burning will have larger long-term costs due to loss of soil health and function, organic matter and nutrients.



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*To predominant clubroot pathotypes identified in Canada at the time of registration.

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9 steps to find and keep skilled workers

Canadian Agricultural Human Resource Council provides nine steps to recruit, select and hire the right people for the job. This article is based on a webinar sponsored by Alberta Canola.

BY JAY WHETTER

Hiring workers is one of the most important business activities, says Tracy Biernacki-Dusza, manager of the Canadian Agricultural Human Resource Council's AgriSkills program.

"When you hire motivated, committed and qualified people, it helps your organization achieve its goals. When you hire the wrong people, it can affect productivity, profitability, turnover and workplace morale," Biernacki-Dusza says. "Eighty per cent of turnover is the result of hiring the wrong person."

The Canadian Agricultural Human Resource Council is a national non-profit organization to support the HR management needs of agriculture. It outlines these nine steps to recruit, select and hire the right people the first time.

RECRUIT

Step 1: Define the job. What role am I trying to fill? What skills will the candidate need? Identify key tasks, duties and responsibilities the job will require, and then rank them. This makes it much easier to recruit people who fit the need. Include physical abilities required, financial decisions the person will be expected to make, and other important competencies – including driver's license, designations, education and specific experiences.

The website hrtoolkit.cahrc-ccrha.ca includes a variety of "How to" documents and templates, including "How to develop a job description."

Step 2: Develop the selection criteria. List the job-specific capabilities – knowledge, skills, abilities, qualifications and experience – needed to successfully perform the job. You will use these criteria first to define the job in such a way as to attract the right applicants, and then to narrow down the list of applicants to find the most qualified candidates. Make sure these criteria are related only to the job, and not any personal requirements with regard to marriage status and age, for example.

Step 3: Create a job advertisement. The goal is to attract the best-suited candidates, not the greatest number of candidates. Provide enough detail to allow potential applicants to decide if they're well-suited. Spark the interest of potential applicants by outlining the benefits of working with your organization. Include farm profile, job title, location, start date, terms of work, responsibilities, qualifications, working conditions, salary, benefits and where to apply. You are marketing your farm and the job to potential recruits.

Step 4: Choose a recruitment method. You could hire from among existing employees, ask existing employees for referrals, network with other producers, neighbours and former employees, place an ad in print and online media, use recruiting agencies, go to job fairs or post on job boards. The HR Council has an online job board called AgriJobMatch.

A poll during a webinar on this topic suggested that employers often struggle getting job postings to the right people and generating qualified interest in the position. The online HR toolkit has a

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template to write an attractive farm profile and goes through the benefits and drawbacks of each recruiting method.

Step 5: Review job applications. Assess the amount and quality of applications in response to the job posted. Choose another method if the first methods did not yield the quality of applications needed. If satisfied, go through the applications and choose those who advance to the selection stage. To be legal, these have to be chosen based on alignment with selection criteria only.

SELECT

This is how you whittle down the short list of qualified candidates to find the one you'd like to hire. Go through the applications and assess only the qualifications, skills and other characteristics required for successful performance. Apply this assessment equally and consistently to all candidates.

"An appropriate and predictive selection process improves your chances of hiring a high-quality employee," Biernacki-Dusza says.

Step 6: Prepare the interview. The interview is one of the most important elements of the hiring process. In preparation, have three types of questions ready to ask. (1) Job knowledge questions, asking how they'd perform a specific task. (2) Situational questions, asking how a candidate would handle a hypothetical situation that could occur on the job. (3) Behavioural questions, asking how a candidate handled a situation in the past. "Describe a time when you noticed a sanitation issue. What did you do about it?" Set up a procedure to score the answers.

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"Answers to behavioural questions are often the best indicators of future job performance," Biernacki-Dusza says. "Listen for actions taken and rationale for the action."

By law, an interview must avoid personal questions, especially those that relate to age, marital status, religion or origin.

With the interview questions prepared, call candidates who meet the minimum criteria and explain to them the next steps. This will include the interview itself as well as reference checks and any other tests – such as a combine driving session – you may want to conduct.

Step 7: Conduct the interview. Greet the candidate, confirm the job on offer, explain the purpose of the interview, the questions to be asked and the scoring procedure. Be consistent. Ask the same questions to each candidate and ask them the same way. Take notes. Focus on answers, not behaviour. Note that candidates may be nervous during the interview. Allow them time to pause and think and give a full response.

Complete evaluations as soon as possible after the interview is over. Assign 15-30 minutes after the interview to write down additional notes and score each response.

In addition to an interview, employers may want to do a job preview – such as a test to see how well they operate a combine. The preview can also include discussion with current employees to address common work challenges and describe the work environment.

Step 8: Check references. When calling references, ask about the candidate's past performance. Avoid general questions. Instead, ask specific questions relevant to the job: How did they perform while monitoring machines? Was this person detail oriented? Did this person show up on time? Avoid non-work questions. Talk to supervisors as they are most likely to have accurate information. Again, take good notes.

HIRE

Step 9: Hire. The hiring process includes three steps. (1) Prepare the offer letter, which describes the job, wage and hours. Have terms and conditions clearly spelled out. (2) Extend the offer to the candidate. Ensure it is signed before the individual starts. (3) Thank unsuccessful candidates. Wish them well. This creates goodwill and can make it easier to find people the next time you need to hire someone.

On the first day, take the new employee through a welcoming and orientation. This will help new employees learn about the job requirements and expectations, and the culture and values of your business. Introduce them to all members of the team. Talk about key safety information, and key aspects of farm management.

For more on recruiting, selection and hiring, work through the HR toolkit at hrtoolkit.cahrc-cerha.ca. Find all supporting documents and more detail on each of these nine points. The site also has links to legal requirements for each province. Take the "What keeps you up at night" quiz. ✨

—Jay Whetter is the editor of Canola Digest.



Alberta Canola has posted the webinars at albertacanola.com.

Click "Management" in the banner at the top, then "Videos" to find the Canadian Agricultural Human Resource Council series.

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