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SEPTEMBER 2014

SEED & HARVEST

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This canola grower hired a specialist to set his combine. It returned $40,000 the first year.

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COMBINE SETTINGS PROVIDE A $40,000 RAISE

Your canola yields might be bigger than you think. Taking time to measure losses and set the combine to suit the conditions can create a significant boost in captured yield.

Henning Wubbe farms near La Riviere, MB. Photo: Jay Whetter

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The Editor's Desk

Jay Whetter

On speed

A close read of this *Canola Digest* reveals two seemingly opposite views on combine ground speed. Henning Wubbe explains in the cover article how going a little slower made a big difference in his yield. Aaron Gross explains in the farmer panel how opening up the combine allowed him to combine faster and still achieve very low losses.

How can both be right? Because their decision reflects all the other things these two growers do to determine a speed that's right for them.

Both of them took the time to examine their harvest practices in full, looking at all aspects of combine settings, to figure out what they needed to do to lower their losses and harvest efficiently. Wubbe brought in a local combine expert. Gross went to Germany for an intense fact-finding mission. Their investments paid off, and they have systems proven to work for them.

What these two growers demonstrate is that there is no one right speed. The CCC agronomy team will not issue a recommendation that says, "Combine at 4 mph and cut your losses by 75 percent," because every grower will have his or her own sweet spot.

Slowing down, to speak generally, may be the way to go. We know that combines will start dumping more grain when sieves and chaffers are overloaded, and this point of overload can occur within a fairly narrow speed range. Windrow width, crop curing, humidity, cutting height, and variety are a few factors that influence this breaking point.

Rob Gulden's study featured in the *Canola Digest* Science Edition 2013, which you received last November and can still read online at **www.canolacouncil.org/publication-resources/canola-digest/**, surveyed harvest yield loss for 310 canola fields across the Prairies from 2010-12. The survey found that slower combine speeds relate to lower losses. As an interesting aside, Gulden saw no clear difference among combine brands.

The point I want to make is that if you're not checking, you don't know. The most important take home from Wubbe's and Gross's experiences is not how fast they combine, but that they checked all aspects of their combining procedures, made steps to reduce losses significantly, and are putting a lot more canola in the bin than they might have. Their decisions were about profit, not speed.

canolacouncil

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Manitoba grower Henning Wubbe brought in a combine specialist to help him cut canola losses at the combine to 0.7 bu./ac., down from 2.5. He put an extra $40,000 in the bin the first year.

By Angela Brackenreed

Combine settings provide a $40,000 raise

The Canola Council of Canada has an ambitious goal of reaching an average yield of 52 bu./ac. by 2025. An obstacle to achieving that target is the amount producers lose while harvesting. Surveys and research done across the Canadian Prairies found that producers can lose five percent or more of their total canola yield at harvest. We can't get these losses to zero, but we know it's possible to get them below 1 bu./ac.

The first step is admitting there is room for improvement. "Many operators are so proud of their combine, particularly the colour of it, and are unwilling to admit that losses – sometimes substantial losses – could be occurring," says Roland Requier of Westlock, AB. Requier custom manufactures loss screens. He made his first one for his own 1460 Case IH combine back in 1989.

Many producers across the west have taken steps to reduce their losses. Henning Wubbe of La Rivière, MB is one who decided to take action. Wubbe had a shocking realization in 2012 that led him to do something about his losses. "The degree of canola coming out of the back of the combine really hit me that year," he says. "I could not believe how much was on the ground."

Wubbe has been farming with his father since 2000. They currently have about 4,200 acres. Typically half of those are seeded to canola. He admits that he really had no accurate method of checking losses prior to 2013, when he hired a consultant from John Deere's FarmSight program to come set his two John Deere combines.

"The way we checked our losses prior to working with FarmSight was really imprecise. We just looked behind on the ground and made our best guess as to whether it was acceptable or not," Wubbe explains.

Scott Hildebrand, product specialist with Green Valley Equipment (GVE) in Morden, MB, worked with the Wubbes. "Scott was a mechanic with GVE for 17 years before moving into this role, so he knows these machines in and out," Wubbe says.

"My dad really didn't want to slow down. Scott worked hard to get the settings right to allow him to maintain 5 mph."

Hildebrand says this is a pretty typical scenario. "Ground speed may be the easiest adjustment, but it's not always the first one I make. Producers understandably would like to maintain higher speeds. We'll make other changes, like with the rotor and fan but, eventually, if those don't do the trick, we have to try slowing down."

Eventually, Wubbe's dad was forced to slow down to achieve an acceptable amount of loss. "That was definitely hard for my dad at first," Wubbe says. "I don't know about you, but I think $40,000 is way better in our bank account than on the ground." He chuckles while telling this story, but he's certainly not kidding around.

> "[Slowing down] was definitely hard for my dad at first... but I think $40,000 is way better in our bank account than on the ground."
>
> – Henning Wubbe

Henning Wubbe of La Rivière, MB was shocked by how much canola seed was left on the field after harvest, so he hired a combine specialist to help put more of it in the bin.

PHOTO: John Deere

The financial implications can be shocking. Before working with FarmSight, the Wubbes were losing over 2.5 bu./ac. After a few hours, they were able to get their losses consistent at around 0.7 bu./ac. "There's not only the lost yield, there's also the cost of dealing with all of those volunteers," Wubbe adds.

He also notes that it's probably a lot easier on the combine not pounding the material through. "Less breakdowns could be an added benefit and another cost saver," says Wubbe.

The service Hildebrand and other machinery specialists provide does come with a cost, but Wubbe says, "When you see results like we did, it's well worth it."

He adds that it's best to leave setting recommendations in the hands of experienced folks like Hildebrand. "He has a formula that he follows every time. If I was to do it, it would take me a lot longer and I'd probably end up doing it differently each time I checked."

Just because you can go fast...

Going slow can be tough, especially given that some newer combine models have upwards of 500 horsepower.

"We have extremely high horsepower machines today, and on many occasions we use that horsepower more than we should," says Requier. "If we use these units right, and don't try to pass everybody in the country with them, there's nothing wrong with them. They are great machines that will do a good job."

Les Hill, program director of agriculture and bio-resources at Prairie Agriculture Machinery Institute (PAMI), says, "A common misconception is that combines have to be driven fast to make sure they are fully loaded for the components to work best."

He says research over many years has proven that an increase in feed-rate causes an increase in loss. Once components become overloaded, increased travel speed results in such high loss that there is no practical benefit.

"Knowing and respecting the effective capacity of the components of your combine is the key to maximizing performance," Hill says. "Getting a reasonable yield in the tank isn't a

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"We have extremely high horsepower machines today, and on many occasions we use that horsepower more than we should."

–Roland Requier

guarantee that you're doing a good job. With yields increasing so much recently, high losses can be masked by what's still an attractive yield at the end of the day."

Hill also says canola growers can't assume the settings in the operator's manual are ideal for the specific crop and conditions. "They are a starting point, but then you need to explore what fine-tuning those adjustments can do to improve performance," he says. "It is difficult to offer blanket recommendations for a wide range of crop conditions, weather conditions, canola varieties and combine configurations."

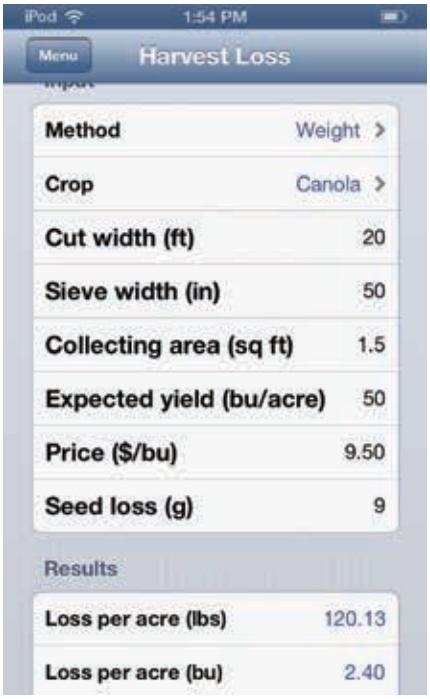
Bruce Peters, a canola producer from Fort Saskatchewan, AB, can attest to that. He became a customer of Requier's two years ago. Peters describes one notable situation in which he started harvesting canola, moved to wheat (due to storage logistics), and then went back into the same canola field four or five days later.

Peters says he was losing 5.7 bu./ac. less when he moved back into that field. There are many factors involved with this, but he believes it mostly had to do with the fact that the canola needed longer to cure in the swath. "At even $10 a bushel, 5.7 bushels on the ground is $57 per acre," he says "I don't want to pay that for renting land, let alone throw it out the back of the combine."

Peters has always believed it's important to continuously check for losses, and this situation only reinforced that idea for him. "Don't get exhausted with it because it can become frustrating, but at the same time don't be nonchalant about it," he says. "Don't assume that if it was good last week it will be good this week, too."

Ground-truthing the yield and loss monitors is also important. "I do like my yield monitors, I do like my throw-over monitors, and I watch that stuff pretty close, but you still need to physically check to calibrate those monitors and ensure they're accurate," Peters says.

"We can drive ourselves crazy with this kind of stuff, so at least if you check, it can help to relax the mind," he adds. "To me, it's just like greasing the combine before you head out every day. You need to be checking for losses, from field to field, and even from morning to afternoon."



HARVEST LOSSES APP

It can be pretty hard to figure out combine losses for canola, but now there's an app for that. "SSCA Harvest Loss" is available for free for iOS from **www.ssca.ca**. An Android version will be available soon.

Built on the math developed by Les Hill from PAMI, and retired Manitoba producer Klaus Wolf, the app asks the producer key questions to accurately quantify losses from canola and other crops. After the operator collects chaffer losses and enters the required information, the app provides users with a loss in lb./ac. or bu./ac.

"The beauty of agricultural apps is that they combine math formulas with an easy user interface, providing answers in seconds. The result is that we can make better decisions," says Tom Wolf, a scientist with Agrimetrix Research & Training and an SSCA boardmember. He worked with SSCA to produce the app.

Gone are the days of "being on your hands and knees behind the combine, scratching away pods and stems, and hunting for tiny black seeds on black ground," Wolf says. This allows for a more sophisticated and accurate way to determine losses.

Not a smartphone user? A web-based version of the calculator is available at **http://farmpro.ca/ref/CombineLoss/SeedCount.html**.

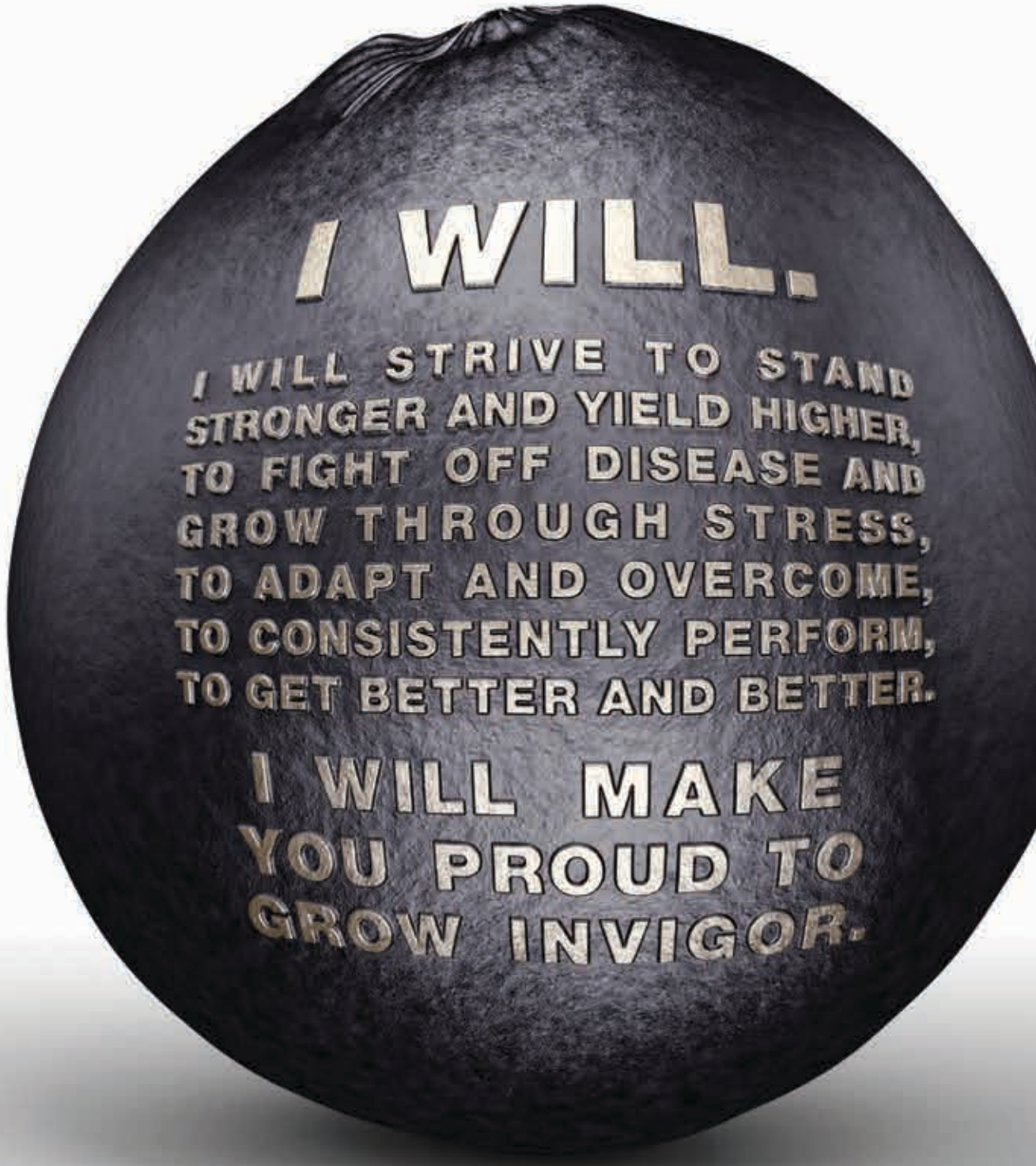
SSCA collaborated with the University of Saskatchewan to develop seven apps for agriculture. They hope to find funding to produce even more in the future. The Canadian Agricultural Adaptation Program (CAAP) provided funding support for these apps. ●

Peters recommends throwing down a pan to get a proper evaluation – something you can measure. Checking for losses is a 10 minute job. Sometimes no changes are necessary and you can carry on. If you're not satisfied, Peters, Wubbe, Requier, Hill and Hildebrand all recommend changing one setting at a time, and then checking again. "It can become impossible to know where those losses are coming from if you're making a bunch of changes at once," Hill says.

Peters poses a very good question: "We put our heart and soul into our crops. It's so much work all year. Why would we be okay with letting that go out the back of the combine?"

Angela Brackenreed is the Canola Council of Canada's agronomy specialist for Manitoba. For more tips, read the article "Reduce Costly Harvest Losses – Tips" at www.canolawatch.org.

Roland Requier of Westlock, AB helps growers set combines to reduce harvest losses. He also makes large drop pans that connect by electro-magnet to the bottom of the combine. The operator turns off the magnet from the cab, releasing the pan.



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Four growers talk about recent investments in time and machinery to reduce losses at harvest and in storage – and which they say provides the greatest boost to profitability.

By Jay Whetter

Harvest investment

Aaron Gross

Aaron Gross

Fort Vermilion, Alberta

Four years ago, Aaron Gross and his father, Manfred, were looking for a combine and header that could handle all their crops, while also reducing harvest losses. Gross spent three weeks in Germany studying combines. When he got back, they purchased a Claas (Cat) rotary combine and a 35-foot Vario header. The Vario header has an adjustable cutter bar that can infinitely slide forward up to three feet to cut canola before the reel hits the crop. That way, any seeds shelled out as a result of reel contact fall onto the header and not on the ground.

Not all losses are out the back of the combine. After they bought the Vario header, the Grosses worked with Mackenzie Applied Research Association to compare the Vario header to a pickup header. Vario losses were 1.24 kg./ac., while losses from picking up cured swath were 23.07 kg./ac. (about one bu./ac.).

"Our first step in managing arvest loss is to figure out how much we are losing," Gross says. He throws a catch pan under the combine as it goes by and weighs the losses, then makes adjustments. His target is one gram of canola seed in the catch pan, which works out to about 0.25 bu./ac. (Across the Prairies, average losses are estimated at 2 to 5 bu./ac.)

"You work hard all year to produce the crop. If you lose it in the bin, there goes your investment."

– Aaron Gross

Based on his experience in Germany and his catch pan results, Gross's strategy when harvesting canola is to have the sieves and concave wide open and run at a fairly high ground speed. "The fastest we've harvested canola is 6.5 miles per hour with minimal losses," he says. Granted, he notes, every machine is different and every field is different. Dry crop and dry harvest conditions are better suited to this approach, he says.

The Grosses straight combined all their canola in 2013.

Despite their emphasis on reducing harvest losses, Gross still believes safe storage is more important. "You work hard all year to produce the crop. If you lose it in the bin, there goes your investment," he says, noting all their canola bins have temperature cables and aeration.

François Messier
Alvena, Saskatchewan

François Messier puts a priority on safe long-term storage, given that delivering high quality canola all year long is a big part of his marketing and profitability plan. "I'm a strong believer that, in terms of investment, storage is where you should put your money," he says.

François Messier

Messier has aeration fans and temperature monitoring cables in all his canola bins. "I put the vast majority of my canola on aeration immediately after harvest," he says.

Without aeration, canola that goes into the bin will sweat and quickly start to warm up. "Aeration, even if just to cool the canola, is a gold mine," he says.

With aeration, Messier says he can respond quickly to any problem that shows up in a bin. "Turning on the fans is cheaper and faster than turning a bin, which will cost at least 10 to 15 cents per bushel."

Messier still had 25 bins full of canola as of July 14 when he did this interview. He is still not sure whether to keep summer-stored canola cold for as long as possible or turn on the fans to warm it up to maintain an equilibrium with the outside air. So this summer he ran an experiment. He ran the fan on 60 percent of his bins for a couple nights, and he left the other 40 percent to warm up slowly and naturally.

"We don't know enough about what is happening in spring," Messier says. He looks forward to comparing his results with results from PAMI's summer bin storage experiment. (For details on the PAMI study, go to **www.canolawatch.org** and search for the article "Blog: Canola bin watch".)

Messier is particular about which canola he will store for longer periods. "Canola harvested at 10 percent moisture is too risky for long-term storage," he says, adding that canola in storage for summer delivery 10 to 12 months after harvest has to go into the bin at eight percent moisture.

He also keeps bins right full for summer storage. "The air at the top of a bin can get very hot, so the less air inside the bin, the better," he says.

When it comes to harvest management, Messier swaths canola and then tries to combine after about two weeks of curing. The longer canola stays in the field, the higher the risk of yield loss from wind and heavy rain, he says. By his experience, two-thirds of harvest losses relate to what happens while the crop waits in the swaths. Combine settings are just a small part of it, Messier says.

(You may recognize François Messier. *Canola Digest* featured him in an article on canola storage in September 2010.)

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MAKE INFORMED DECISIONS

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Canola Watch is a free agronomy email sent out each week through the growing season and each month through the winter. It is timely, research based and unbiased. Canola management articles in the email are based on weekly conference calls with Canola Council of Canada agronomists, provincial canola specialists, and experts in weed, disease, insect and fertility management. You get all of that expert advise free, along with helpful photography and videos. Canola Watch is for growers, agronomists, retailers and anyone else with an interest.
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David Rourke
Minto, Manitoba

David Rourke invests the time to plan a cropping system that allows him to harvest at the ideal time to preserve grade and yield for all his crops.

The ideal swath timing, Rourke says, is "just before we think there will be shattering losses from the swathing." The more uniform the emergence and growth, the easier it is to decide when to swath, he says.

How much is ready at the same time is another factor. "If you can only have a day's worth to swath at a time and the field is uniform, then you wait until 70 to 80 percent seed colour change on the main raceme. Otherwise you swath a bit earlier to keep up, or you get more swathing capacity," he says. "We often swath all day and night to get it down at the last minute."

Swathing canola gives Rourke maximum flexibility to get wheat off in good shape while minimizing the yield loss in canola. "Swathing canola also gets it out of the field seven to 10 days before we can generally straight cut," he says. "This can avoid the consequences of bad weather – sometimes – and the extra time we save by swathing canola often means the difference between getting winter wheat in at the optimum time or not."

Rourke has tried straight combining canola and, before combining, he crosses the field with a canola pusher from Ag Shield. "That is a great way to prevent loss from wind shattering at maturity, and we have found it increases kernel size and, consequently, yield," he says. "The downside is that it takes longer to combine due to green stems and longer to mature compared to swathing."

As for combine settings, Rourke usually runs the combine at 1" concave spacing and the cylinder at 450 rpm. "Most times I have a lot of luck opening the wind and top sieve up, but other times less wind and a tighter top sieve are needed," he says. Sometimes you have to use aggressive threshing to reduce canola losses, he adds.

Rourke will often do a kill test where he abruptly shuts off the combine full and then looks for losses and performance indicators. "We search the ground in front of the combine, under the combine where the swath was laying, in the combine, and, of course, behind the combine," he says. "We calibrate our yield loss monitors with our counts and observations. We do the majority of the fine tuning from in the cab with a few spot checks behind the combine for peace of mind."

David Rourke

Erica Sage
Hussar, Alberta

Steps to reduce losses in the field and in the bin are both very important to Erica Sage. "Neither should be neglected, and it's important to find a balance to do both," she says.

Sage says one of the best investments they made recently was an elevator that came available when the nearby rail line shut down. "I no longer need aeration bins," she says. "I can just turn the canola to keep it from heating and maintain a good storage temperature."

All harvested canola that hasn't been sold off the combine goes into the elevator. "In past years I've held onto canola when I thought there was an opportunity to make a couple extra dollars. I have ease of mind knowing our canola in the elevator is safely stored," she says. The elevator also provides easy access all year round.

Sage would never hesitate to put money into building bins. They put up a few 7,500-bushel bins a couple years ago. "Lots of people love the grain bag system but, in my mind, you can't beat building a bin," she says. "Once you've invested your money in it, it's a one-time fee, no buying grain bags, upgrading equipment or worrying about deer or lying water."

Erica Sage

The Sages straight cut all crops, including about 5,000 acres of canola a year. "Not having to spend money on swathers and not having to buy pickup headers makes straight cutting the cheaper route, and I believe it does just as good of a job," she says.

Sage adds that when combining, "there's nothing more important than taking the time to get out of the combine to check losses and ensure your combine is set to the best of its ability." ●

Jay Whetter is editor of Canola Digest. *He also produces Canola Watch, the Canola Council of Canada's free and timely agronomy newsletter. Sign up at www.canolawatch.org.*

TRY THE CANOLA DIAGNOSTIC TOOL

The online Canola Diagnostic Tool at **www.canoladiagnostictool.ca** walks you through a series of questions to get to the bottom of a problem. The tool then provides a list of potential causes, along with photos, descriptions and links to the Canola Encyclopedia to help users make the right management decision. ●

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The Canola Council of Canada's *Keep it Clean* initiative provides growers with five simple tips to get canola ready for export.

By Crystal Klippenstein

Keepin' it squeaky clean

Stable and open trade is one of three pillars guiding the Canola Council of Canada's (CCC) Keep it Coming 2025 strategic plan. Reliable and predictable markets are valuable to our entire industry, but they are especially important for growers to ensure their crop can be easily delivered to the export customers who take 90 percent of the canola grown in Canada. Importers are always on the lookout for shipments that contain even the smallest amount of de-registered varieties, pesticide residues or blackleg residues. *Keep it Clean*, formerly referred to as *Export Ready*, is a CCC initiative focused on the importance of on-farm practices that can impact trade.

Keep it Clean connects growers, agronomists and ag retailers to the market access work undertaken by the CCC. The CCC continuously monitors market issues and uses that information to inform and align Canadian canola production practices with the needs of our export markets.

It's easy to understand the implications of export restrictions and delays for the industry as a whole, but it's often hard to break that down into individual challenges for each link in the value chain. Neil Sabourin at Cargill Limited says a big challenge for exporters is to remain focused on improving current and potential trade environments for seed, oil and meal.

"A trade environment free of tariffs and non-tariff barriers benefits Canadian industry stakeholders, including farmers, processors and exporters," he says, "but it's also a major benefit for consumers around the world."

Canada is recognized by end-use customers around the world as having high-quality canola supplies, Sabourin says. Canadian growers play an important role in maintaining this reputation, by continuing their current farm management practices to produce safe, high-quality food.

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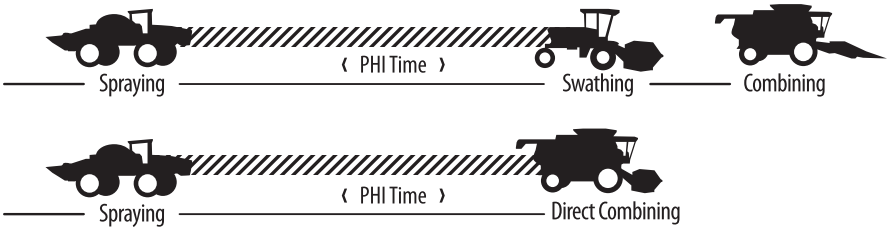
The 2014 *Keep it Clean* initiative outlines five simple tips to get canola ready for export.

1. Use pesticides at the correct rate, timing and pre-harvest interval.

Only apply pesticides registered for use on canola, and always follow the rates and timing listed on the label.

Stick to the pre-harvest interval (PHI), since applying the product too close to harvest may result in higher than accepted residue levels in the seed. The PHI (or Spray to Swath Interval) is the number of days that must pass between the last application of a pesticide and swathing or straight combining. The PHI is different for each product, so check the provincial Guides to Crop Protection and visit **spraytoswath.ca** for more info.



The pre-harvest interval (PHI) represents the minimum number of days required between applying the product and cutting the crop. Cutting can be swathing or straight combining. PHI is different for each product.

2. Do not use unregistered pesticides or those with unacceptable residues.

All herbicides, insecticides and fungicides must be registered for use on canola by the Pest Management Regulatory Agency before growers can use them in Canada. In some cases, a pesticide is registered in Canada without a maximum residue limit (MRL) established in our major export markets. This means that canola treated with these pesticides may not be in compliance with the requirements of the importing country. Do not use the following pesticides on canola:

Fungicide: Ronilan. Canola tolerances for vinclozolin (the active ingredient in Ronilan) are no longer in place for the U.S. Any canola treated with Ronilan is no longer acceptable for shipment to the U.S.

Herbicide: Venture L and Fusion. Fluazifop-p-butyl is the active ingredient in grass herbicide Venture L and is a component of Fusion. The U.S. has no tolerance levels established for fluazifop residues in canola seed.

3. Always follow canola storage recommendations.

- Make sure your storage bins are free of treated seed (which contains pesticides) and animal protein like blood meal and bone meal.
- Clean bins thoroughly prior to storing canola and only apply approved bin treatments (like diatomaceous earth).
- Never use malathion to prepare canola for storage or to treat bins used to store canola. Its residue can linger for up to six months, so choose your canola storage bin carefully.
- Keep canola cool and dry to avoid spoilage and insect issues.

4. Grow blackleg resistant varieties and use practices that reduce infection.

Blackleg infection is initiated by spores being released from infected canola residue or stubble. Follow these practices to keep the disease from impacting yield and profitability, and to reduce the presence of blackleg on seed.

- All canola varieties are rated for resistance to blackleg. Plant only R (resistant) or MR (moderately resistant) rated canola varieties.
- Scout canola fields regularly for blackleg symptoms and prevalence. This information will allow you to determine the effectiveness of your blackleg management plan.
- Maintain a break between canola crops to allow time for crop residue to decompose. If blackleg becomes established in the field, a minimum break of two to three years is recommended.
- Plant certified treated seed. It's the first step in keeping your field clean.
- Rotate varieties to bring a mix of blackleg resistance genes to the field over time, which can prevent or delay the breakdown of resistance.
- Consider applying a fungicide if you identify the disease early in the season.
- Control volunteer canola and other brassica weeds (stinkweed, shepherd's purse, wild mustard and flixweed) to prevent blackleg build-up during non-canola years.

5. Do not grow deregistered varieties.

When you sign the mandatory Declaration of Eligibility affidavit at the elevator, you are making a legal assertion that your canola is registered. If it isn't, you can be held liable for the costs associated with contamination of a bin or shipment, which could be up to $400,000. Do not seed the de-registered varieties listed below or any seed produced from them, and don't deliver them to a Canadian elevator or crushing plant. For treated seed, contact provincial authorities or municipal landfill for disposal.

Roundup Ready Polish (B. rapa): Hysyn 101RR

Bromoxynil tolerant: 295BX, Armor BX, Cartier BX, Zodiac BX, Renegade BX

Liberty Link (B. napus): Exceed, 2631 LL, Swallow, SW Legion LL, SW Flare LL, LBD 2393 LL, Innovator, Independence, HCN 14, Phoenix, 3850, 2153, 3640, 3880, 2163, 2273

To learn more about best production practices as they relate to canola exports, visit **www.keepingitclean.ca.**

Crystal Klippenstein is a communications program manager at the Canola Council of Canada.

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Genetic resistance can be a highly effective way to manage diseases and weeds, but these traits need care. Growers can take steps to keep them effective longer.

By Bruce Barker

Trait maintenance: keep resistance genes working

Over the past few years, western Canadian farmers have had a few wakeup calls regarding the loss of disease resistance in canola varieties and the development of herbicide resistant weeds. First came news that blackleg resistance was eroding. Then glyphosate-resistant kochia was discovered. Now, a new clubroot pathotype has been found in Alberta. These cases all highlight the importance of using good stewardship to help maintain the important tools of genetic resistance.

"We have a few tools to help manage diseases and weeds. It's important that we use them responsibly so they remain effective for as long as possible," says Clint Jurke, Canola Council of Canada agronomy specialist.

Jurke says genetic resistance is the most important tool in the toolbox when it comes to disease. Genetic resistance is categorized as either qualitative – when one single gene confers resistance; or quantitative – when many different genes contribute to the resistance. Of the two, qualitative resistance is most easily broken down under high disease pressure.

In an ideal world, a resistant variety would have both quantitative and multiple qualitative resistance genes pyramided together. More practically, the type of resistance used depends on what genes have been discovered and how easy it is to get them into a new hybrid.

Blackleg, for instance, has high pathogen diversity and gene flow. Ideally, a blackleg resistant variety would have multiple resistance genes and quantitative resistance. Today, though, research has shown that many cultivars of canola carry only one resistance gene. Research at the University of Manitoba by Dilantha Fernando found that out of 100 cultivars and lines tested, about 65 percent carry a single resistance gene – the Rlm3 gene. This highlights the importance of proper stewardship for resistance genes.

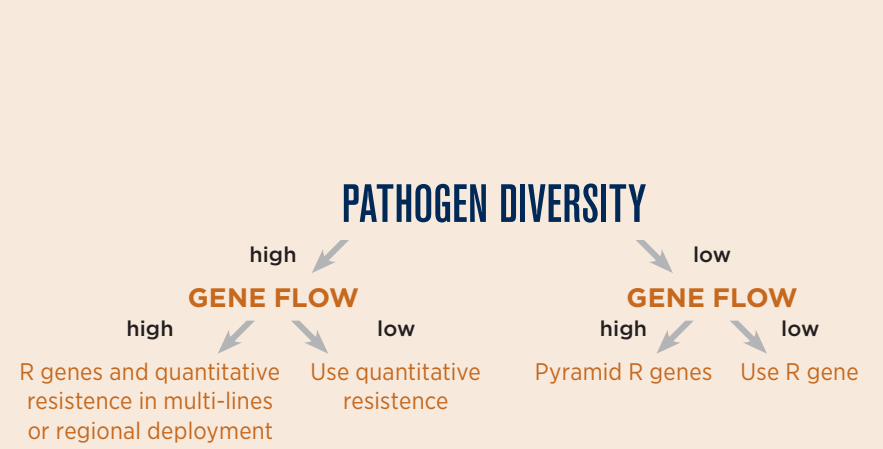
"When resistance comes from a single gene and the pathogen has high genetic diversity, that's where the biggest risk of losing resistance is," says Jurke.

Blackleg resistance stewardship

Blackleg resistance has been available in commercial varieties since

"When resistance comes from a single gene and the pathogen has high genetic diversity, that's where the biggest risk of losing resistance is."

– Clint Jurke



Genetic resistance is categorized as qualitative where one single gene confers resistance, and quantitative where many different genes contribute to resistance. Of the two, qualitative resistance is most easily broken down under high disease pressure.

the early 1990s. This resistance is breaking down with tighter canola rotations and increased selection pressure. For example, the variety Q2 has gone from an 'R' to 'MS' or 'S' rating because of a shift in the virulent races in some areas. Blackleg pathogen diversity is high with at least 16 virulent races confirmed in Western Canada.

"We have a few tools that can help manage the breakdown in blackleg resistance. Crop rotation is the first one," says Jurke.

A rotation study conducted at Agriculture and Agri-Food Canada (AAFC) in Melfort and Scott, SK from 2000 to 2006 found that blackleg severity in canola was reduced significantly as the length of rotation increased from two to four years even when growing an "R" rated hybrid. A rotation with a minimum two or three year break, along with the use of resistant varieties, is recommended in areas with heavy blackleg pressure.

Rotating resistant varieties may provide an additional strategy to reduce selection pressure on resistance genes. However, the source of resistance genes in commercially available canola hybrids in Canada isn't available to growers.

In France and Australia, the source of genetic resistance is available, and rotating resistant varieties is a proven strategy to help manage selection pressure. Jurke says the Canadian canola industry is still assessing whether this strategy would be beneficial here.

"There are differences in blackleg between Canada and Australia. That's predominantly where the discussion is on whether we should be labeling the sources of genetic resistance on each canola variety," says Jurke.

In Australia, the canola-growing season is twice as long, the selection pressure to overcome resistance is much greater, and quantitative resistance isn't as effective. Some large race shifts have occurred. Further research is required to determine whether that can happen in Canada.

Chris Anderson, canola lead for Monsanto Canada at Winnipeg, MB, says Monsanto supports the ongoing discussion surrounding the need for labeling as it relates to good stewardship of genetics. He recommends that growers talk to their seed supplier to discuss the types of resistance available in different hybrids. "Switching varieties won't necessarily mean switching resistance. Ask the manufacturer if there are different sources," Anderson says.

Other stewardship options include scouting for the disease to assess risk, using certified treated seed, and controlling brassica weeds in rotation. Fungicides may help, but research at AAFC Melfort and Scott and the University of Manitoba found little or no reduction in blackleg severity or improved yield when a fungicide was applied to an 'R' rated variety.

The ongoing challenge of clubroot resistance

DuPont Pioneer was the first company to bring a clubroot resistant variety to market in 2009, and Bayer CropScience and Monsanto have followed suit. The varieties have shown resistance to the common pathotypes 2, 3, 5, 6, and 8. Pathotype 3, a very virulent type, is the most common. The confirmation of a different pathotype in the Edmonton region will further challenge plant breeders.

"The pathotype is a new one that we hadn't previously identified," says Stephen Strelkov, professor and clubroot specialist at the University of Alberta. "The existing canola cultivars have good resistance against the other common pathotypes, but this one is able to overcome that resistance."

Current research indicates that the different pathotype is limited to patches within very few fields. Growers are advised to continue to monitor their fields for clubroot.

Currently, clubroot resistance is built on a single resistance gene, which is cause for concern for plant breeders. Strelkov says another resistance gene has been identified that would provide resistance to the new pathotype, but it is not yet in commercial varieties.

The confirmation of another clubroot pathotype shows there may be more diversity than first thought, Strelkov adds. "There seemed to be a fair amount of diversity in pathotypes. That is certainly the experience elsewhere. The pathogen is fairly adaptive," he says. "In greenhouse studies here, we've seen resistance broken down or eroded after only two canola crops and that has happened elsewhere as well."

Anderson says the canola industry is serious about working with growers to help maximize the value of resistant cultivars. While genetic resistance is the foundation of disease management and, in clubroot's case, the only tool for managing the disease once it's in a canola field, other practices can help farmers extend the life of a resistance gene.

"Good stewardship is crucial for these hybrids. Follow the recommendations that have been developed by the canola industry to help manage the disease," says Anderson.

Sanitation of equipment will help prevent the spread of clubroot. This is essential for fields known to be infested with clubroot, but is also important to

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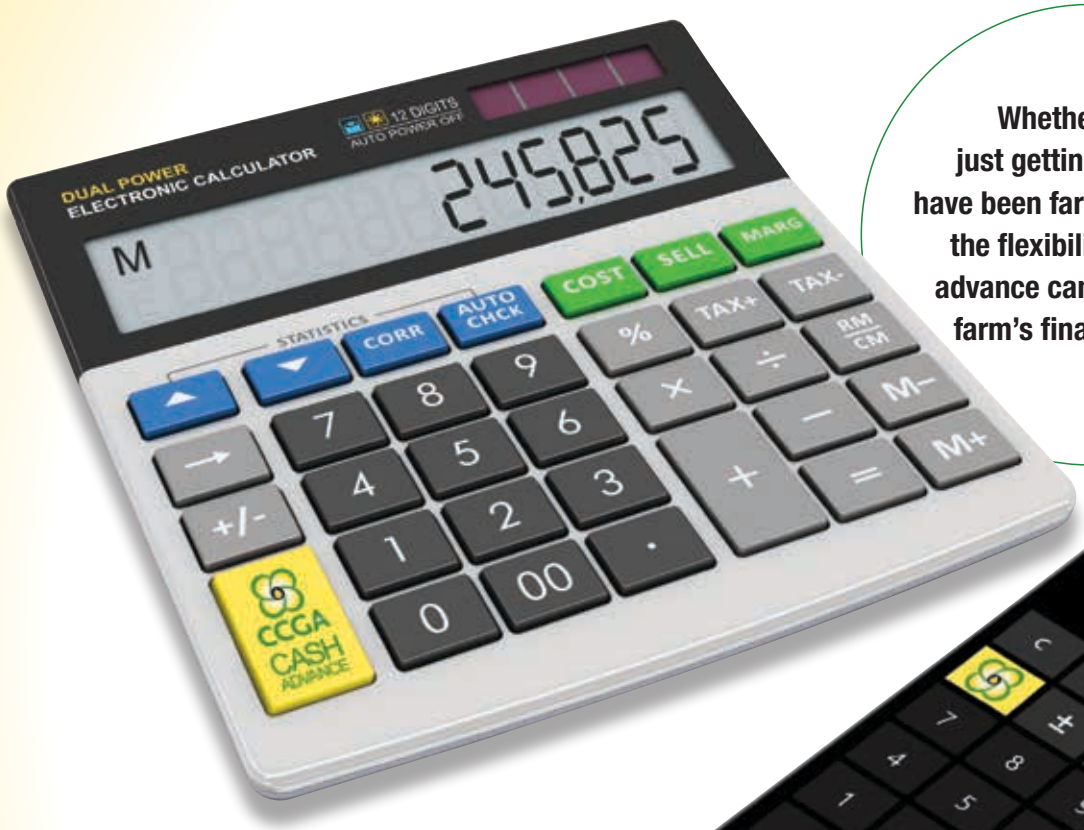

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prevent the spread of clubroot to fields that have not had clubroot identified.

Another key strategy is to reduce spore loads in the soil. While clubroot spores remain viable in the soil for many years, research has shown that growing a resistant variety and using longer canola rotations will help reduce the selection pressure for other potentially virulent pathotypes that could overtake current resistance genes. Growers in clubroot-infested areas should only grow canola once every four years.

Control of volunteer canola and other brassica weeds that can be infected by clubroot is also important, especially in non-canola years.

Scouting will remain important for monitoring the effectiveness of the resistance genes, and to determine if resistance is eroding. In fields without confirmed clubroot, Jurke encourages growers to scout near the field entry points where dirty equipment may contaminate the field.

Strelkov says rotating resistant cultivars from different companies may also be a good strategy. Some resistant cultivars react differently to pathogen infection, and while the source of genetic resistance in each cultivar isn't publicly known, growing the same cultivar year after year is a guaranteed way to put selection pressure on that resistance source.

"Ultimately, it would be nice to have gene pyramiding and quantitative resistance bred into canola cultivars to enhance resistance," says Strelkov.

Sclerotinia stem rot stewardship differs slightly

With sclerotinia, the canola hybrids sold by Bayer CropScience Canada and DuPont Pioneer are described as moderately resistant. A fungicide application may still be warranted on these hybrids under heavy disease pressure, and could help reduce the selection pressure on the resistance genes.

"We are pursuing higher levels of resistance that will hopefully eliminate the need for a fungicide," says Dave Harwood, technical services manager with DuPont Pioneer.

Harwood says sclerotinia resistance comes from quantitative genes across several locations on the canola genome.

"Improving the degree of resistance is an exercise in accumulating more and more favourable genes and gene versions (alleles) that incrementally add to the level of resistance," explains Harwood. "Resistant traits of this nature are at low risk of pathotypes evolving to overcome them."

Crop rotation isn't as effective for sclerotinia stem rot management, given that sclerotia bodies can remain in the soil for years, and air-borne spores can blow in on the wind. However, high sclerotinia disease levels are more likely under tight broadleaf crop rotations, so good stewardship practices to reduce sclerotia loading include extending rotations, using certified seed and applying fungicides when warranted.

How to protect herbicide tolerance

The most important risk factor for the development of herbicide-resistant weeds is repeat application of herbicides with the same mode of action. Other risk factors include high population densities of weed species that produce a lot of seed, and seeds that spread easily.

Whether Liberty Link, Roundup Ready or Clearfield, the message is the same: Throughout your cropping system, rotate herbicides and use multiple modes of action when controlling weeds. Use the right rate of herbicide at the correct crop and weed stage. Monitor herbicide efficacy after spraying so misses or escapes can be controlled. ●

Bruce Barker is a freelance writer who specializes in agricultural production. He lives in Bragg Creek, AB.

DO A HARVEST DISEASE SCAN

Clip stems just below ground level to check for blackleg infection.

Yield-robbing levels of blackleg, clubroot and sclerotinia stem rot are easy to spot while scouting fields just before swathing. Scouting soon after cutting can help, too, if that's your situation by this date in September.

"Knowing what diseases you have at the end of the season is the only way to know how successful your disease management strategies have been this year and what you need to do for 2015 to be disease free," says Clint Jurke, agronomy specialist with the Canola Council of Canada (CCC). "You only get one small window to do this well. Do not let it slip by."

To help, the CCC has released a new pre-swath disease scouting video (available at **www.canolacouncil.org**). It provides proper identification tips and close up views of typical damage from the major diseases.

Look for areas of the field with prematurely ripening plants and excessive lodging, which hints at the possible presence of disease. Here are tips to identify each.

Blackleg. Pull up diseased plants and use garden clippers to slice through the stem just below ground level. Look for blackened tissue inside the stem – a distinguishing feature of blackleg. If more than half the area of the stem is blackened, blackleg has likely reduced the yield of that plant.

Clubroot. Carefully dig up diseased-looking plants and look for galls on the roots. If clubroot is the reason for above-ground symptoms, the plant will have large galls at the base of the stem.

Sclerotinia stem rot. As the infected stem dries, it will become bleached or brown. Twist the infected stem. If it shreds apart, the disease is likely sclerotinia stem rot. Hard, black sclerotia bodies – similar in appearance to mouse droppings – found inside these bleached stems are a sure sign of sclerotinia stem rot.

Find more details on disease scouting, photos and long-term management suggestions at **www.canolawatch.org**. While there, sign up to receive this free science-based agronomy newsletter. ●

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As you make your seed decisions for 2015, take a look at your harvest plant population. Did your 2014 canola crop have enough plants to reach its yield potential?

By Jay Whetter

The right seeding rate

Harvest plant counts are good way to test that your canola plant population targets set in spring were actually achieved at harvest time, and whether you had enough plants for the crop to reach its yield potential.

Autumn Barnes loves to talk about plant counts. The Canola Council of Canada (CCC) agronomy specialist is the team leader on crop establishment, and bangs the gong for target populations of seven to 10 plants per square foot and all other steps at seeding that lead to a healthy vigorous stand.

Barnes had an ongoing conversation this year with an independent agronomist on the topic of seeding rates. The independent agronomist was talking about the difficulty he and a grower client were having cutting through the "noise" about seed weight and seeding rates. Do they just stick with a seeding rate of five lb./ac.? Do they adjust for seed weight? What really matters most?

"The bottom line is that you want seven to 10 plants per square foot. Short of that and you could be leaving yield on the table," Barnes told him.

This has a solid foundation in science. Murray Hartman, oilseed specialist with Alberta Agriculture and Rural Development, and Steve Shirtliffe, professor at the University of Saskatchewan, separately analyzed the research on canola seeding rates, and each concluded that canola needs a minimum of four to five plants per square foot to reach its yield potential.

"A target of seven to 10 plants reduces the risk even more and provides a buffer if you lose a couple plants to insects or disease or environmental factors through the season," Barnes said.

She and the agronomist then discussed articles in Canola Watch and sections of the Canola Encyclopedia with useful tips. This was one of them: With an average seeding rate of five lb./ac., an average thousand seed weight (TSW) of five grams, and 50 percent seed survival rate, the result is only 5.2 plants per square foot. This is well below the target of seven to 10.

One way to work around seed weight is to take steps to increase seed survival. These include: Set a seeding depth that puts seed ½" to ¾" below the packer furrow. Adjust the drill to make sure it seeds at a consistent depth across its width. Find a seeding speed that suits the drill and soil conditions. Limit seed-placed fertilizer, with most placed outside the seed row. Spread residue evenly in the fall, and have a drill that can penetrate trash so all openers place seed into the soil. Leave a firm seedbed, and pack according to the conditions. Seeding into moist, warm soil also has a huge influence on seed survival.

"Everything we do in spring to ensure a strong stand relates back to the goal of seven to 10 plants per square foot," Barnes says. "Growers need to

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set this target, or a similar target that meets their risk tolerance, and then take necessary steps at seeding to meet that goal. If the target is not achieved, investigate to find out why and change things for next year."

The grower in this case targeted eight to nine plants per square foot. He seeded ½" to ¾" deep into wheat stubble using a drill with independent link openers for consistent depth across its width. The grower had a good straw and chaff spreader on the combine, and harrowed the field so there were no adverse heavy straw conditions.

"Growers need to set this target (of seven to 10 plants per square foot), or a similar target that meets their risk tolerance, and then take necessary steps at seeding to meet that goal. If the target is not achieved, investigate to find out why and change things for next year."

– Autumn Barnes

Barnes and the agronomist talked a few more times throughout the season. She encouraged him and his grower client to do a final plant population assessment after harvest.

Plant counts in September and October are a good way to make a final assessment on the season, and work on a database of information that can help growers make the connection between plant counts and yield and quality. Plant counts also help growers determine how much seed they need to order – a decision often made at this time of year.

There are two ways to do a harvest count:

1. Count the stems per metre of row. Lay a metre stick down the row and count the stems along the stick. Multiply that number by 100 then divide by the seed row spacing in cm to get plants per square metre. For example, if there are 25 plants in a metre of row and row spacing is 25 cm (10"), the plant population is 100 per square metre. This works out to roughly 10 per square foot – which is right on target.

2. Use a hoop with an inside diameter of 56 cm. This is equivalent to 0.25 of a square metre. Count the stems inside the hoop, and multiply by four to get plants per square metre. Divide that total by 10 for plants per square foot. Repeat counts a few times throughout the field.

Canola Digest went to print in August, before we knew the harvest counts for the agronomist's grower client. The grower faced fairly dry conditions at the beginning of the year, but the crop established well, and in July was growing strong with six to seven plants per square foot. Losing a few plants over the summer is typical, which is why starting out with seven to 10 is so important.

"The grower achieved this stand largely because he started with a target plant population in mind, then set a seeding rate and took measures to improve seed survival with the purpose of achieving that target," Barnes says.

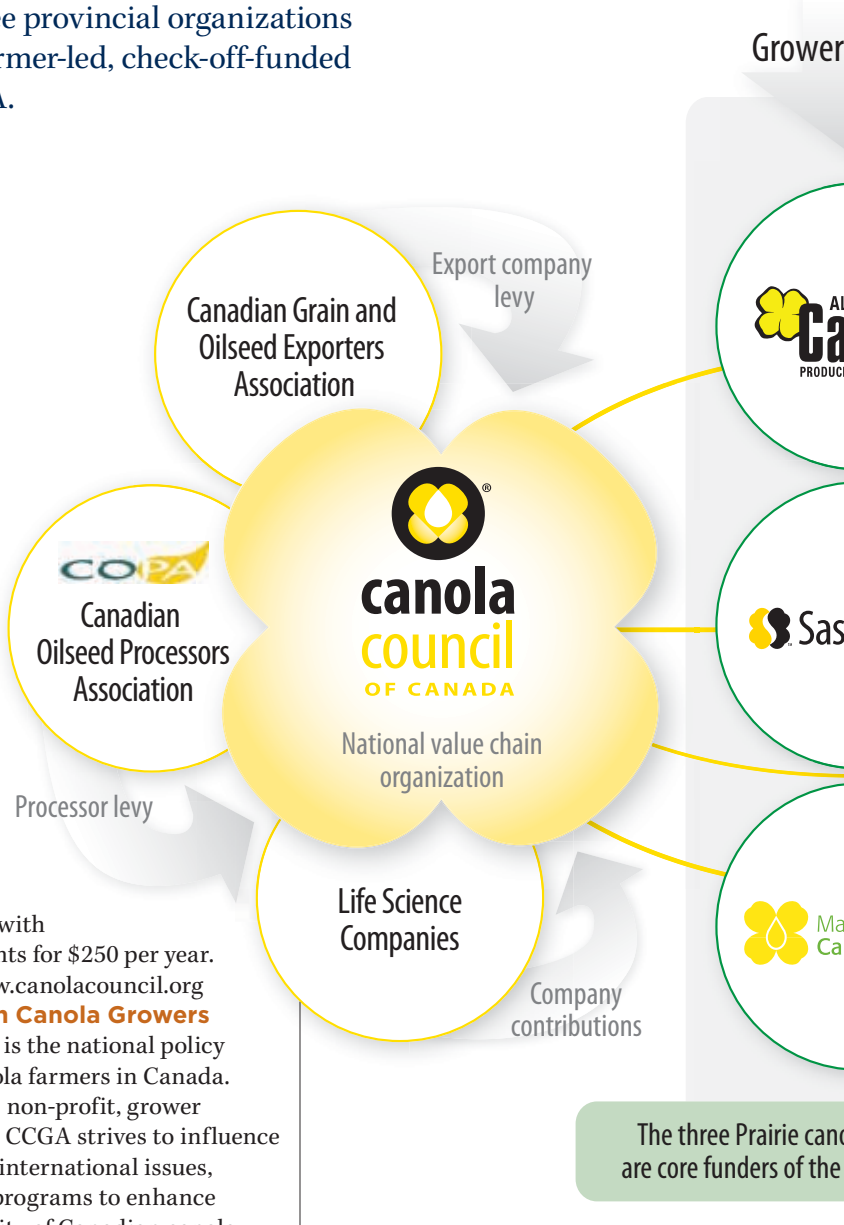
Jay Whetter is the editor of Canola Digest. *For more on stand establishment and seeding rates, go to www.canolawatch.org and search for the articles "How to increase seed survival rates" and "Buy enough seed to meet population targets."*

Checking seed depth at various rows is an important step in making sure drill performance is where you need it to be for uniform stand establishment.

PHOTO: Cheri Jacobsen

The Canola Council of Canada represents the entire canola value chain. The Canadian Canola Growers Association is the national policy voice for canola farmers. The three provincial organizations – SaskCanola, ACPC and MCGA – are farmer-led, check-off-funded and involved in both the CCC and CCGA.

Canada's canola organizations



The **Canola Council of Canada** is a national, non-profit, industry association representing the entire canola value chain – growers, seed developers, processors and exporters of canola and its products. The CCC's mission is to advance the growth and profitability of the canola industry based on innovation, sustainability, resilience and the creation of superior value for a healthier world.

The CCC is focused on crop production and innovation, trade and market access. It is governed by a 17-person Board of Directors representing all sectors of the canola industry. The board consists of three processors, three exporters, three growers (from MCGA, SaskCanola and ACPC), five directors at large (appointed by the board) and three directors (appointed by the regular members). The CCC has 22 core funders. Core funding comes from a voluntary industry levy paid directly to the Council by the three provincial grower associations, processors, exporters as well as life science company contributions. The CCC also offers regular membership with voting rights for $500 per year and affiliate membership with no voting rights for $250 per year. Website: www.canolacouncil.org

Canadian Canola Growers Association is the national policy voice for canola farmers in Canada. As a national, non-profit, grower organization, CCGA strives to influence national and international issues, policies and programs to enhance the profitability of Canadian canola growers. In addition to its advocacy and agriculture policy development role, CCGA also administers the national Advance Payments Program (otherwise known as the cash advance program) for 25 crops and certain livestock across Western Canada. CCGA is governed by a 10-member Board of Directors appointed by the elected boards of OCGA, MCGA, SCDC, ACPC, and BCGPA. CCGA is represented on the CCC Board of Directors. Website: www.ccga.ca

SaskCanola (Saskatchewan Canola Development Commission) is a producer led organization with a mission to optimize canola producers' competitiveness and profitability through a producer-controlled fund which directs research, market development, extension and policy development. SaskCanola is supported and funded by registered producers through their check-off contributions. It uses these contributions to: further explore and secure canola markets for producers nationally and internationally; continue agronomic success by working on research that benefits producer profitability; and acquire the latest crop and farm business information through communications programs and services. The Board of Directors is composed of eight registered canola producers elected

by registered canola producers for a four-year term. SaskCanola generates its operating funds through a canola grower check-off. It is a core funder of the CCC and a member of the CCGA. Website: www.saskcanola.com

Alberta Canola Producers Commission (ACPC) represents all canola producers in Alberta. The ACPC mission is to increase the long-term profitability of canola growers. ACPC focuses on agronomic research, grower education and extension, market development and policy. It is governed by a grower elected Board of Directors representing 12 regions within Alberta. ACPC generates its operating funds through a canola grower check-off. It is a core funder of the CCC and a member of the CCGA. Website: www.albertacanola.com

Manitoba Canola Growers Association (MCGA) is a member organization committed to maximizing net income for canola farmers through sustainable production. It fulfills this commitment by: providing leadership and learning and contributing to the industry by producing healthy safe products; providing imagination and innovation for future generations of canola growers; collaborating with partners to provide positive outcomes through marketing, market development, research, education and awareness; and managing the land and environment in order to enhance it for future generations. MCGA is governed by an eight-member Board of Directors that represents canola producers throughout the province of Manitoba. MCGA generates its operating funds through a canola grower check-off. It is a core funder of the CCC and a member of the CCGA. Website: www.mcgacanola.org

B.C. Grain Producers Association encourages all farmers to participate within their industry so their voices may be heard. Its mission is to work to improve the viability of the grains and oilseed industry in the B.C. Peace River region. The association and its members maintain sustained liaison with other agencies to benefit the field crop industry. It is governed by an eight-member Board of Directors, four from the South Peace and four from the North Peace. It is funded by the Peace River Agriculture Development Fund, Investment Agriculture Foundation and the B.C. Peace River Grain Industry Council. BCGP is a member of the CCGA. Website: www.bcgrain.com

Ontario Canola Growers Association represents 800 growers who have marketed canola in the last four years. Its mission is to provide support to the provincial canola industry by: being involved in research activities; providing effective communication of canola production information; delivering producer education programs; acting as the grower's voice to governments and industry; and encouraging future market opportunities suitable to Ontario canola production. It is governed by a Board of Directors representing four Ontario canola growing districts. It is funded through a canola grower check-off. OCGA is a member of the CCC and a member of the CCGA. Website: www.ontariocanolagrowers.ca

Canadian Oilseed Processors Association is a national industry association representing the oilseed processors in Canada: ADM Agri-Industries Company, Bunge Canada, Cargill Limited, Louis Dreyfus Commodities Yorkton Corp., Richardson Oilseed Limited, TRT ETGO du Québec, and Viterra Inc. It nominates three processing industry representatives to the CCC Board of Directors. Website: www.copaonline.net

Canadian Grain and Oilseed Exporters Association represents the export side of the industry. It nominates three representatives from the export industry to the CCC Board of Directors.

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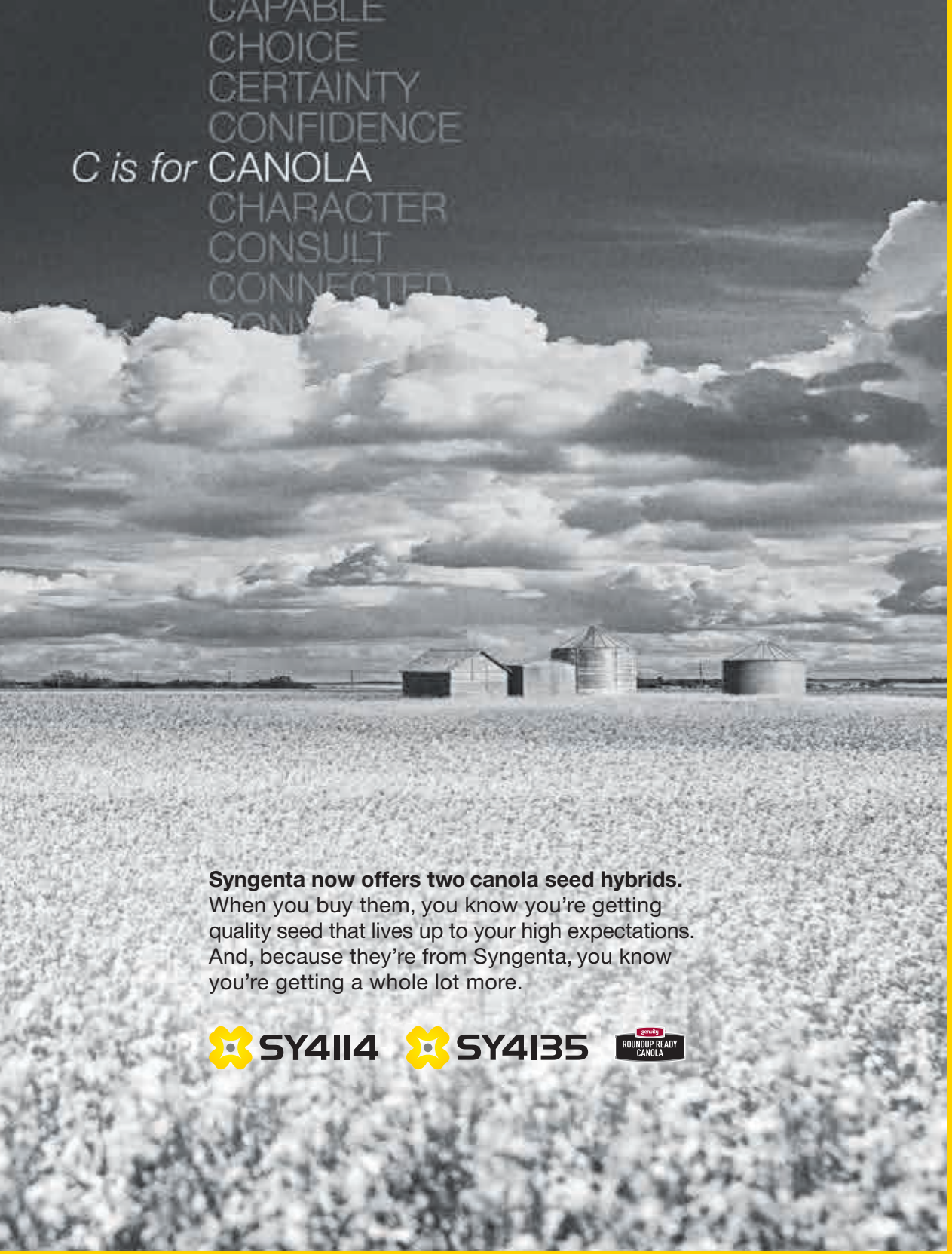

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The Canola Council of Canada launched a Mandarin edition of CanolaInfo.org during a trade mission to China in June. It will help more people in China to appreciate the health benefits of canola oil in their diets.

By Brian Innes

Canadian canola – good for Chinese health and wealth

Canadian canola offers China both health and wealth. Canadian Agriculture Minister Gerry Ritz delivered this message at an event in Beijing in June celebrating Sino-Canadian agricultural trade. He went on to explain how canola oil improves consumer health and how processing Canadian canola in China contributes to the economy. While canola is already Canada's number one agricultural export to China and China's number two imported oilseed, the Canola Council of Canada (CCC) sees potential for significant growth.

"China has huge potential for continued imports of Canadian canola," says Terry Youzwa, CCC board chair and canola grower from Nipawin, SK. "Being in China helps the Canola Council staff understand the market better and build these trade relationships."

The delegation included Youzwa, CCC president Patti Miller, CCC vice president of market development Bruce Jowett,and Ward Toma, general manager of the Alberta Canola Producers Commission (ACPC).

The CCC and ACPC participated in industry meetings with importers to promote the potential of canola oil and meal in China, discuss regulatory challenges and highlight the progress made to meet Chinese regulations for blackleg residue on canola seed deliveries and canola meal quality.

Terry Youzwa, CCC board chair, signs a commemorative wall at the launch of CanolaInfo in China.

CanolaInfo China launched

During the mission, Minister Ritz helped the CCC launch the Chinese edition of CanolaInfo.org, a portal for promoting the health benefits of Canadian canola oil to Chinese consumers. Thirty-four Chinese media attended the event in Beijing June 17. Nutritional spokesperson Dr. Liu Na introduced CanolaInfo and described the attributes of canola and canola oil.

(Go to **www.canolainfo.org** and click on the Mandarin symbol, to see how it looks.)

Dr. Liu, speaking to journalists in Mandarin, said, "Canola oil is the ideal

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continued from page 32

Nutritional spokesperson Dr. Liu Na speaks to Chinese journalists about the health benefits of canola oil.

Chef Kenny Fu cheers while Canadian Agriculture Minister Gerry Ritz demonstrates his culinary skills.

choice as an everyday staple [in China's kitchens]."

About 290 million Chinese adults (over 22 percent) have cardiovascular disease (CVD) and 114 million (almost 12 percent) have diabetes, which puts them at greater risk for CVD. Therefore, having a heart-healthy diet with an everyday cooking oil low in saturated fat is critical, she said.

During the launch, Minister Ritz did a cooking demonstration with celebrity chef Kenny Fu at the St. Regis Hotel's China Gate restaurant in Beijing. "Canola oil is ideal for Chinese cuisine," Chef Fu said. "It lets the flavours of Chinese ingredients shine and can be used in most culinary applications – from cold dishes to stir-frying and deep-frying."

"GM was often raised as a concern, so launching CanolaInfo and hiring Dr. Liu and Chef Fu as spokepeople is very timely," Youzwa said. "We reinforced the message of not only safety but how GM helps with sustainable production, reduced use of fossil fuels and crop inputs, and more food from the same land base." ●

Brian Innes is market access manager with the Canola Council of Canada in Ottawa.

A TRIBUTE TO RJ WANG

The Canola Council of Canada (CCC) sadly announces the passing of Dr. Ruojun Wang on July 21, 2014. Ruojun Wang, better known as RJ, worked with the CCC as a canola meal market development representative in China for nearly 10 years. He also assisted the Canadian International Grains Institute (Cigi) and Pulse Canada.

Wang was enthusiastic about demonstrating the benefits of Canadian canola meal in livestock rations in China. He coordinated feeding trials in the sector that resulted in five of the largest Chinese dairy companies using canola meal in their commercial feed. He also coordinated aquaculture feeding trials that resulted in higher inclusion levels of canola meal in Chinese aquaculture feeds.

Wang was a respected professor at China Agricultural University and helped facilitate canola meal understanding at many academic conferences.

"RJ's knowledge and contacts in China were invaluable for the development of Canadian canola and canola meal exports to China," says Dave Hickling, retired VP canola utilization at the CCC. "With his tremendous credibility and understanding of the Canadian canola industry, he was able to get the canola message out to the right people."

"RJ will be missed by Cigi as he was an invaluable resource in China and was a great friend full of enthusiasm for life and the work he was doing for Canada," says Rex Newkirk, Cigi. The two were in the midst of planning a mission to China with Brittany Dyck, canola meal manager at the CCC, at the time of RJ's passing.

CCC President Patti Miller had the pleasure of working with Wang on several of her mission trips to China. She says, "He has been an invaluable connection for us into China's feeding industry and most recently helped us navigate the challenging regulatory environment for meal registration. He will be greatly missed." ●

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The 2013-14 rail shipping season exposed a critical flaw in Canada's agriculture supply chain. What's being done to ensure Canada's rail system can meet our needs today and our growth for tomorrow?

By Steve Pratte

Stress point in our supply chain

In the early fall of 2013, the industry could not have imagined what was about to transpire. Optimism across the west was high. Canola stocks were tight, with a carry-out of only 608,000 tonnes from the previous crop year, the size and quality of the canola crop was excellent, and reports of phenomenal yields began rolling in. Although prices had been trending downwards, the total volume based on yield would reasonably compensate.

What emerged over the following months is widely considered a failure of the western Canadian grain handling transportation system. The true impact of the situation will become apparent in 2015 after the statistics are summed up and total costs tallied. One thing is for certain, the impact will be huge. It cannot happen again.

Export dependent crop

Predictable, timely and efficient rail service is critical for our $19 billion canola industry. With over 90 percent of Canadian canola ultimately destined for export markets, canola farmers rely on Canada's railways to help get our bulk products to customers and keep those products competitive within the global oilseed market. Furthermore, with rising demand for our products, supply chains and rail logistics will be even more important as our industry strives to reach the strategic 2025 goal of 26 million tonnes of annual sales and production.

The broader question this raises for the grains and oilseed sector is can we rely on the current transportation system to support our industry, which is only one of many that is dependent on bulk rail shipping? In the past six months, there has been an immense amount of political and legislative activity to address the issue, and hopefully these actions will work toward avoiding a repeat situation. But there is still work to be done.

Legislative action

Sustained advocacy by agricultural groups began in the late fall of 2013 and resulted in the grain transportation issue getting attention in Ottawa. On February 12, 2014, the House of Commons Standing Committee on Agriculture held hearings on the grain supply chain issue.

On March 7, to the surprise of the grain industry and all rail shippers, the federal government announced an Order in Council (OIC). It mandated a minimum movement of grain, invoking a rarely used and relatively obscure power buried within *The Canada Transportation Act* (CTA). Effective immediately, the two railways were

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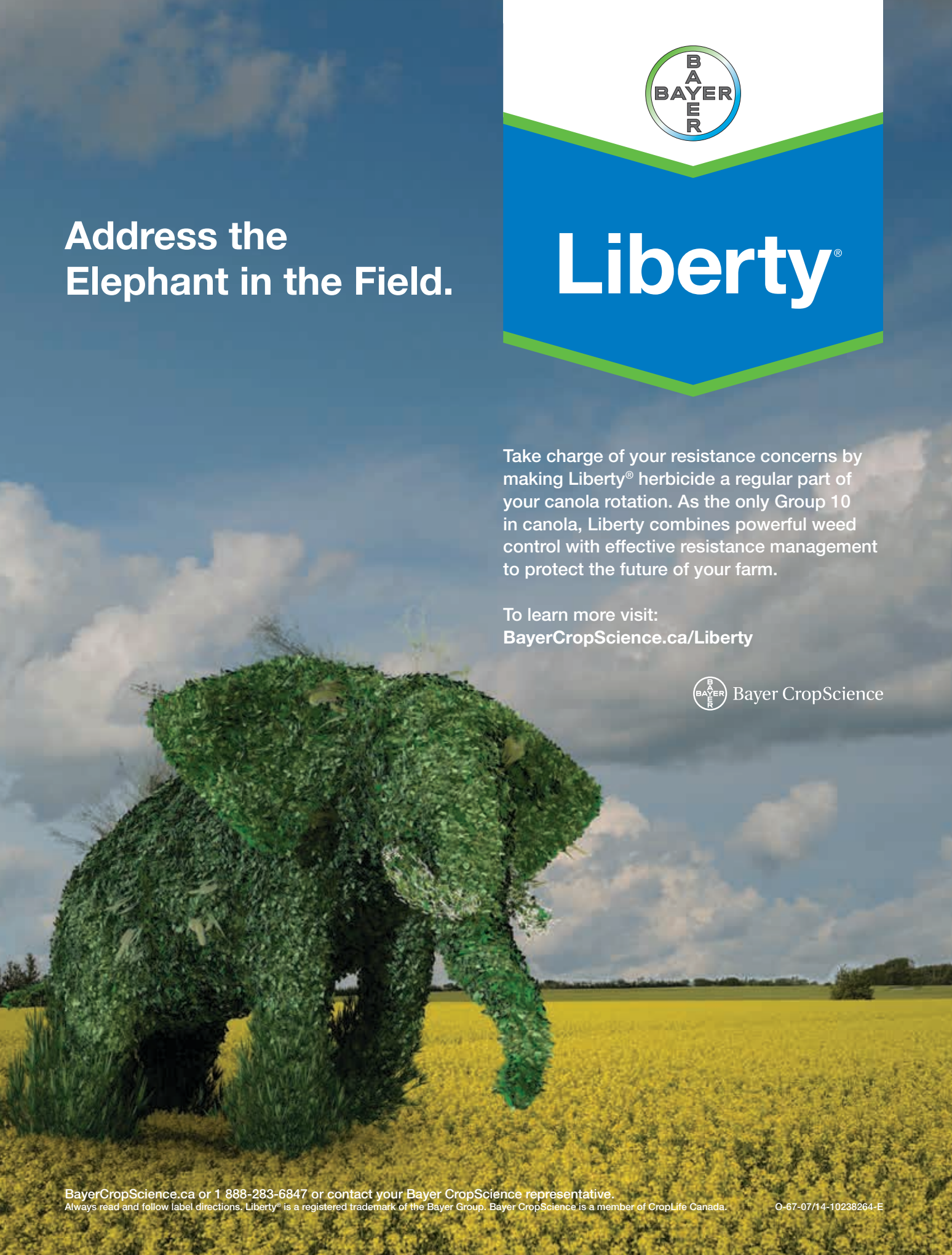
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compelled to transport a combined one million tonnes of grain per week for a 90-day period.

On March 26, the federal government tabled Bill C-30, *The Fair Rail for Grain Farmers Act* amending *The Canada Grains Act* and the CTA. The Bill received Royal Assent on May 29. With a sunset clause of August 1, 2016, it is a short-term bridging measure that attempts to address the transportation backlog and previous legislative shortcomings. The regulatory measures, in effect August 1, include:

1. Mandatory compensation in grain contracts between producers and licensed grain companies for non-acceptance of grain within the stipulated delivery period (see the sidebar);
2. An extension of the OIC provisions from August 3 to November 29, 2014, with the ability for the federal government to set grain volume transport requirements for future crop years;
3. Increased industry collaboration and forecasting through annual stakeholder consultation and more detailed reporting requirements;
4. Extension of the regulated interswitching limits from 30 km to 160 km in the Prairie provinces; and
5. Clarification of the operational terms in a service level agreement that may be arbitrated by the CTA (specifically opening the door for railways to have to pay grain companies for service failure).

In the short-term, the OIC addresses an immediate crisis, compelling the movement of grain, although it is a rather blunt policy lever and has had several serious spinoff effects – such as the railway companies ignoring certain corridors, focusing on mainlines and certain regions to more easily fulfill volume requirements and keep car cycle times down, among others.

Bill C-30 provides the federal government the ability to continue to compel movement if deemed necessary and an opportunity to modernize the commercial relationship between the players in the supply chain in an attempt to make the railways financially responsible for their performance (as producers and the grain companies already are).

GRAIN CONTRACTS INCLUDE MANDATORY COMPENSATION FOR FARMERS

Beginning August 1st, farmers have an important new protection under the *Canada Grains Regulations*. All grain marketing contracts must now contain a provision to compensate growers for grain that is not accepted within the defined delivery period.

The new regulation, stemming from the *Fair Rail for Grain Farmers Act*, is designed to address farmers' concerns with grain companies not accepting their contracted grain within the stipulated delivery window. Some companies already offer storage payments for late acceptance, but until now, most contracts did not provide for financial compensation.

If in place this past winter, mandatory penalties would have provided remuneration when limited storage capacity at local elevators and poor rail service prevented farmers from delivering grain, despite having taken out contracts early in the crop year.

Moving forward, it will be important for farmers to ensure that the penalty, either a daily amount or lump sum, is included in their contract and agreed to prior to signing any agreement. Compensation is expected to vary by company, allowing buyers the flexibility to manage their operations and adding a new dimension for growers when determining which marketing contracts to choose.

In the event of a dispute regarding the application or payment of the penalty, the Canadian Grain Commission may arbitrate or refer the dispute to an arbitrator upon written request from a producer. ●

The impact for canola producers

The flaw in our supply chain had many implications for producers. First, delivering and selling contracted grain was challenging – there was simply no space in many country elevators. Many farmers experienced cash flow problems because they were unable to deliver grain. Extended delivery terms became a norm for the 2013 crop.

Second, to maintain and continue to grow the canola industry, global markets need assurance we can deliver on our commitments.

Third, the current commercial relationship between rail shippers and the railways is modeled on something out of the 19th century. It is completely one-sided and requires a fundamental commercial rebalancing – something that rail shippers have been advocating for years. Without action, this problem will continue into the future. For this reason, the Canadian Canola Growers Association (CCGA) launched a Level of Service Complaint against the railways in May 2014. CCGA would like clarification on what are the statutory obligations of the railways to provide "suitable and adequate" service and compel them to increase rail capacity to fulfill those statutory obligations, including through the winter – which the Canadian Transportation Agency has the wide-ranging authority to do.

What's next?

Beyond the OIC and Bill C-30, further work is required. The review of the CTA has been expedited and began June 25, 2014. The federal government recently launched its long awaited Commodity Supply Chain Roundtable (which CCGA sits on). Modernizing the commercial framework between railways and shippers and redefining the common carrier obligation of "suitable and adequate" service to meet shipper needs are the twin goals being worked towards.

Producers should not bear a repeat of 2013-14, and the 2025 vision of marketing and sustainably producing 26 tonnes of canola annually will be absolutely dependent on the ability of the supply chain to support this growth. ●

Steve Pratte is a policy analyst with the Canadian Canola Growers Association.

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H.J. Baker is a name synonymous with quality for more than 160 years. H.J. Baker provides high quality products and services to the fertilizer, feed ingredient and sulphur industries throughout the world.

David Jones runs a dairy in Stevinson, California. He explains why the diet for his high-producing cows includes canola meal.

By Brittany Dyck

Dairyman loves canola meal

Meet David Jones, a college graduate turned dairy farmer. Perhaps the name sounds familiar? If you've visited Canolamazing.com since its launch in October 2013, you may have seen Jones featured on the website's blog. Jones is a large-scale dairy farmer who regularly feeds his cows canola meal. This makes him the perfect feature farmer to share the benefits of feeding Canadian canola meal to lactating dairy cows.

Jones is a third-generation dairy farmer in Stevinson, California whose love for farming drew him back home. After graduating from California Polytechnic State University, San Luis Obispo (Cal Poly), with degrees in dairy science and agricultural communications, Jones took a marketing position with a cattle genetics company. About a year after graduating, he realized his heart belonged on the farm. He took a leap of faith and returned to the farm full-time.

The farm looks different today than it did when Jones was growing up, having grown in both cows and land. A 50-cow herd – a fairly normal herd size for a dairyman in the Canadian Prairies – is peanuts in the state of California. Jones and his family manage a herd of 1,650 total head with 850 milking cows and 800 replacement heifers, which is in line with the state average of 1,175 milking cows per farm. On any given day, each cow on Jones Farm is producing 80L of milk – the equivalent of 20 four-litre jugs! California dairy cows are some of the most productive in the world, producing over 23,000 pounds of milk per cow per year. In addition to milking cows, the Jones family also grows oats, alfalfa and corn.

High production like that on Jones's Farm requires careful herd management. This includes comfortable housing, attention to herd health and a highly sophisticated feeding program. Jones's cows are housed in free-stall barns and managed through herd health software. Each of the farm's six full-time employees also makes daily observations. The cows on the high-producing string are milked three times per day and fed a total mixed ration, which includes canola meal, once per day.

Discovering canola meal

Along with expansion of the herd came the necessity to provide a carefully balanced ration to support all that milk production. While Jones's education at Cal Poly taught him the basics of balancing a dairy cow ration, his job as one of the farm managers means that on any given day he's raising calves, managing people, fixing broken equipment, maintaining crops and putting up silage. This leaves little time to finely manage his feeding program. The Joneses decided to hire an industry nutritionist who would be responsible for using the most cost effective, high quality ingredients to keep the cows satisfied and producing at their highest potential.

The Jones family is not cutting any corners when it comes to keeping the cows well fed. "We strongly believe everything on the dairy starts with the feeding decisions we make," Jones says. "If we aren't giving the cows the best we can, we can't expect them to stay healthy and produce quality milk at a consistent level. Working with a nutritionist ensures we're always using the best ingredients

David Jones

and balancing rations to preserve milk production, maintain herd health and keep cows reproducing."

The Joneses started using canola meal in their rations in the 1990s. At the time, canola meal was readily available in the area, and producers and nutritionists were starting to realize the production advantages of using canola meal as a dairy ration protein source. Jones's nutritionist added canola meal quite simply because it fit so well into a least-cost feed formulation. It provides highly digestible protein to the cows at a lesser cost than other popular protein sources such as soybean meal, while at the same time helping to maximize milk yield.

Jones is also driven to keep up to date with the most recent research regarding the true feeding value of the ingredients he uses. "Just a few years ago, we didn't know how much bypass protein canola meal provides, but now we know that, with canola meal, we get more usable protein for milk production," he says. "This kind of information helps us efficiently feed our cows while remaining profitable."

DAIRY DEFINITIONS

- **Bypass protein:** Protein that makes it past the rumen to the small intestine where it can be digested and absorbed. A high bypass protein value supports milk yield. Canola meal shines in this area.
- **Least cost feed formulation:** A ration that is not only nutritionally complete for the cow, but also makes sense from an economic standpoint.
- **Ration:** The daily diet of a dairy cow, made up of all the nutrients the animal needs to produce milk.
- **Replacement heifer:** A young, female cow who hasn't begun producing milk. She will join the milking herd once she is ready to produce milk.
- **Silage:** This is the forage portion of the dairy ration, most often made from corn and barley.
- **TMR:** Total mixed ration is the daily diet of a dairy cow. ●

With a full year of dairy farming behind him, and an education to help him make the best decisions for him and his cows, Jones is learning fast and moving his family farm onward and upward.

"You really can't overstate the importance of nutrition on the dairy. Sacrifice a quality ingredient to save a few dollars, and you'll probably see milk production drop and impacts on overall herd health," Jones says. "Working with a nutritionist can help you identify ingredients like canola meal that are high-quality and affordable and that you might not have discovered otherwise. That's pretty valuable stuff."

To learn more about David Jones and the benefits of feeding canola meal to lactating dairy cows, visit **Canolamazing.com/blog**. ●

Brittany Dyck is canola meal manager with the Canola Council of Canada.

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ALBERTA Canola PRODUCERS COMMISSION

ABreport

Leaders wanted for the Alberta Canola Producers Commission

The Alberta Canola Producers Commission (ACPC) is seeking four canola growers to serve as directors of the ACPC. Directors are needed for **regions 2, 5, 8 and 11** this year.

Alberta is divided into 12 regions, and each region elects a director to represent the growers of that region. The Board of Directors meets as a whole four times each year, and is guided in decision-making by recommendations from four committees: Agronomic Research, Market Development, Grower Relations & Extension, and Governance & Finance.

Who may become a director of ACPC?

Anyone who has paid the ACPC a service charge on canola sold since August 1, 2012 is an eligible producer and can stand for election as a director.

An eligible producer can be an individual or represent a corporation, partnership or organization. Eligible producers must grow canola within the defined region in order to be nominated, but do not have to reside within the region.

For detailed descriptions about the ACPC regions where elections are being held, visit **www.canola.ab.ca** or call the ACPC office at 1-800-551-6652.

Nominations for the position of director must be filed in writing at the ACPC office at #170, 14315-118 Avenue, Edmonton, AB T5L 4S6, or by fax at 780-451-6933 on or before October 31, 2014.

For more information, contact Ward Toma, ACPC general manager at 1-800-551-6652 or by email **ward.toma@canola.ab.ca** ●

Canola School on RealAgriculture.com

The Alberta Canola Producers Commission (ACPC) has partnered with SaskCanola and the Manitoba Canola Growers Association to sponsor the Canola School on **RealAgriculture.com**.

The new agreement is for a three year sponsorship that will see 100 episodes produced and distributed over the next three years. "We've been sponsoring the Canola School since 2012, and last year we teamed up with grower groups in Saskatchewan and Manitoba", says Rick Taillieu, ACPC's grower relations and extension coordinator.

"We have a great working arrangement with RealAgriculture.com and we are very pleased to have worked out a long term commitment for the Canola School series of videos and podcasts," he adds.

The Canola School videos often feature the Canola Council of Canada agronomists, and this is a terrific way to share their expertise with growers across the Prairies in a quick and easy to access format.

We are also able to share the videos through our own websites, twitter feeds and they are featured in Canola Watch.

You can find all the videos at **www.realagriculture.com/canola-school/** ●

A review of the 2014 Alberta Canola Producers research investments

In 2014 the Alberta Canola Producers Commission (ACPC) made research commitments of just over $2.1 million dollars to canola-related research projects and programs. These 11 different endeavours, with timeframes ranging from one to five years, have a collective total budget of nearly $31 million.

In 2014, every $1 of ACPC commitment was matched by $13.56 of partner funding.

The backbone of these commitments was two large programs undertaken by the Canola Council of Canada and SaskCanola. These five-year programs have multiple projects planned and had large funding commitments from the government of Canada and other members of the canola industry value chain.

Aside from these two larger research programs, there were seven agronomic research projects designed to help canola farmers grow canola better or control weeds, insects or diseases. There was one product development project that is investigating how to increase the functionality of canola lecithin.

How does the ACPC attract proposals? The ACPC participates in the Alberta Ag Funding Consortium, a roundtable of funding agencies that has developed a common call for proposals, and the Canola Agronomic Research Program (CARP) which is a targeted call for canola agronomy projects in conjunction with SaskCanola, MCGA and the CCC. This allows for maximum exposure to both researchers and research funders in Canada. The more partners the ACPC has in its research portfolio, the greater the leverage of grower dollars. In this manner the ACPC works toward its mission of increasing the long-term profitability of Alberta's canola farmers. ●

Project Title	Researcher/ Organization	Total ACPC Funding	Total Project Budget	Funding Partners
Development of canola cultivar blackleg resistance groups: feasibility evaluation	Lange AITF	$85,000	$438,000	WGRF, ACIDF
Enzymatic modification of egg lecithin and canola lecithin for functional food development	Dr. Curtis U of A	$71,500	$181,575	ALMA, AB Egg
Reliable and effective use of managed bees for canola pollination	Dr. Hoover AARD	$49,500	$800,000	SaskCanola, ACIDF, AASC
Improving growth and yield of canola with a novel fungal endophyte Piriformospora indic	Dr. Zwiazek U of A	$36,100	$262,000	AIBIO, WGRF
Harvest weed seed management to control kochia, cleavers and wild buckwheat	Dr. Shirtliffe U of S	$54,333	$138,700	SaskCanola, MCGA
Development and implementation of a weather-based, near real time, crop insect pest monitoring/prediction model and program for Alberta	Dr. Itenfisu AARD	$469,956	$922,656	AARD
Verifying seed primer benefits on canola and wheat establishment, vigour and yield under direct seeding in Alberta	Dr. Gill SARDA	$34,300	$102,800	SARDA
Performance and cost of field scouting for weeds and diseases using imagery obtained with an unmanned aerial vehicle	Dr. Neeser AARD	$5,500	$110,000	ACIDF, WGRF, APGC, AWC, AASC, PGA, ABC
SaskCanola canola disease management tools for the Prairies – Blackleg and Sclerotinia	AAFC	$500,000	$2,023,656	SaskCanola
Canola Council of Canada GF2 Canola Research Program	AAFC	$800,000	$25,777,352	SaskCanola, MCGA,CCC
Determining best practices for summer storage of canola	PAMI	$10,000	$50,000	SaskCanola, MCGA,CCC
TOTAL COMMITMENTS		**$2,116,189**	**$30,806,739**	

AITF = Alberta Innovates Technology Futures; U of A = University of Alberta; AARD = Alberta Agriculture and Rural Development; U of S = University of Saskatchewan; SARDA = Smokey Applied Research and Demonstration Association; AAFC = Agriculture and Agri-Food Canada; PAMI = Prairie Agriculture Machinery Institute; WGRF = Western Grains Research Foundation; ACIDF = Alberta Crop Industry Development Fund; ALMA = Alberta Livestock and Meat Agency; AASC = Alberta Alfalfa Seed Commission; AIBIO = Alberta Innovates BioSolutions; MCGA = Manitoba Canola Growers Association; AWC = Alberta Wheat Commission; ABC = Alberta Barley Commission; APGC = Alberta Pulse Growers Commission; PGA = Potato Growers of Alberta; CCC = Canola Council of Canada

SaskCanola

SKreport

Catherine Folkersen
SaskCanola

Executive Director's Report

Welcome back to another season of *Canola Digest*. To all the farmers and communities in southeast Saskatchewan, your area has received another one hundred year weather event. We hope there can be a constructive dialogue about water management and action for you and your communities' sakes.

Our summer was busy with field days at Outlook, Scott, Swift Current, Melfort and Indian Head. It's always a pleasure to see the farmers from these areas coming out to see how their levy dollars supported the research projects, to learn from the scientists, and also to give the scientists the benefits of their knowledge. These events are part of the reason why Prairie producers are able to compete globally. This fall, we will be at Canola Days in Yorkton and at Agribition's Grain Expo in Regina. We will be at Canola Days in Yorkton and at Agribition at the Grain Expo. We hope to have a chance to see you there!

This autumn, given it's an even numbered year, SaskCanola is scheduled for an election of directors for the board. The SaskCanola board consists of eight canola producers from Saskatchewan. Nominations opened on August 7, 2014. Is it time for you to get involved?

In mid-July, I had the opportunity to talk to an entomologist from Agriculture Canada. The good news was that he saw a very low population of leafhoppers, the insect that carries aster yellows, in his insect collection traps. This is great news for farmers because the yield loss a few years ago due to this pest was significant. We continue to pursue research to understand this insect better, but with no population to work on, that gets more difficult. However, we are ready should the hoppers make an appearance. He also cautioned that the cabbage seedpod weevil range continues to expand. You can follow the reports of Agriculture Canada insect surveys at **canola.ab.ca/prairie_pest_monitoring_network_updates.aspx**

This past summer, we piloted a sclerotia depot project. Farmers and researchers reported on the development of the sclerotinia sporing bodies during the growing season and this was updated daily on our website so that farmers could assess risk in real time with data from several areas of the province. This will be up and running again next year — so bookmark this page too... **www.saskcanola.com/research/sclerotiniariskassessment.php**

Wishing you a safe harvest.

Catherine Folkersen
Executive Director

2014 Dr. Keith Downey Undergraduate Scholarships available

The Dr. Keith Downey Undergraduate Scholarships, each valued at $2,000, are made available by SaskCanola on an annual basis to the immediate family members of registered Saskatchewan canola producers. The scholarships are available to students who are enrolled in undergraduate post-secondary agriculture education in a recognized Canadian institution in the second, third, or fourth years of their program.

Applications must be received by 4:00 p.m. on October 10, 2014. The top four essay writers will be awarded scholarships of $2,000 on or before October 24, 2014.

Further details and the application form can be found at **www.saskcanola.com**. ●

PHOTO: ©iStock.com/kostsov

SaskCanola welcomes Errin Tollefson as new research manager

SaskCanola is pleased to announce that Errin Tollefson, P.Ag., joined the team as Research Manager on August 5, 2014. Errin had been with Cavalier Agrow in Medstead, SK, where she built a client-driven retail agriculture outlet. Her passion for agronomy and ensuring that inputs designed to protect crops or increase yield actually pay off have made Cavalier Agrow's agPROVE program a winner for farmers. Many of you know her as @AgrowErrin!

Errin is a graduate of the College of Agriculture and Bioresources at the University of Saskatchewan and has 10 field seasons under her belt. We enthusiastically welcome Errin to the team at SaskCanola. ●

CropSphere
Ideas, Innovation, and Knowledge

CropSphere 2015

Planning is well underway for the second annual CropSphere event for Saskatchewan farmers. The conference will open with a reception on January 12 at TCU Place in Saskatoon, with sessions and speaking events to be held January 13 and 14. SaskCanola continues to partner with five other commodity organizations representing wheat, barley, oat, flax, and pulse crop farmers.

A number of the keynote speakers have been confirmed and we are excited to have Rick Hansen as the Tuesday night banquet speaker! The conference will be opened by Damien Mason from the Midwest, who will charge up the crowd with his energetic personality and encourage delegates to take pride in the agriculture industry that provides so much for society. Lunchtime speakers include John Ibbitson and Joe Schwarcz. Ibbitson will provide a vision of the future of politics in our country. Schwarcz will talk about the importance of science and critical thinking in our everyday lives. Curt Steinhorst will provide real data that will give attendees tools to address challenges with succession planning related to generational differences.

In addition to the broader topics covered in the plenary sessions, there will be a number of breakout sessions for delegates to choose from, with topics covering agronomy (general and crop specific), farm business management, marketing, and policy issues.

Continue to visit **www.cropsphere.com** for more information on registration, hotels, speakers, and the Annual General Meetings of the host groups. ●

Tee up for agriculture

The sun shone on the second annual Oilseeds Invitational Golf Classic that took place on June 24, 2014 at the Dakota Dunes Golf Links. The Classic, organized in partnership with SaskFlax, Sask Mustard and SaskCanola, attracted 144 golfers comprised of growers, industry, stakeholders, and sponsors.

A total of $25,000 was raised by the event and presented to this year's recipient, Saskatchewan Agriculture in the Classroom (AITC). Proceeds will fund AITC's projects and programs to ensure students understand how modern agriculture works and how the industry benefits the province, the country, and customers around the world.

"I want to thank everyone who participated in this year's tournament," said Sara Shymko, AITC's Executive Director. "Last year, our staff reached out to more than 26,500 students in Saskatchewan. That is fantastic, but there are so many more students out there, and we have a lot more work to do. This funding will help us reach additional students and teachers."

We will continue with the winning formula next year, as plans are already in motion for the 2015 tournament! ●

Executive Director of AITC Sara Shymko (left) receives a cheque for $25,000 from SaskCanola Chair Franck Groeneweg, SaskFlax Chair Erwin Hanley, and Sask Mustard Chair Patrick Ackerman (right).

Deputy Minister of Agriculture Alanna Koch (l) golfed with SaskCanola directors Joan Heath and Stan Jeeves and SaskCanola Policy Manager Tracy Jones (r).

Manitoba Canola Growers

MBreport

Manitoba Canola Growers Association scholarship winners

Manitoba Canola Growers Association (MCGA) is proud to announce their 2014 scholarship winners. Five $1,000 scholarships have been awarded to deserving high school students across Manitoba.

The $1,000 scholarships are available to students who are from a farm that is a member of the Manitoba Canola Growers and are planning to attend post secondary education in any field within two years of graduating. Students submitted their applications, which were judged by an independent panel, based on academic standing, canola connection, references, essay submission and school and community involvement.

Judges had their work cut out for them as they reviewed and ranked the stack of very strong applications. Thank you to all of the students who applied and to the judges who took their time to choose this years deserving winners.

Congratulations Bradley, Elliott, Jenilee, Richard and Sheena!

Bradley Wright
from MacGregor, MB is planning to attend the University of Manitoba to take Agriculture and Food Sciences.

Elliott Kiel
from Teulon, MB is planning to attend the University of Manitoba to take Agriculture and Food Sciences.

Jenilee Dyck
from Winkler, MB is planning to attend the University of Manitoba to take Agriculture and Food Sciences.

Richard Watson
from Rossendale, MB is planning to attend the University of Manitoba to take Engineering.

Sheena Meggison
from Goodlands, MB is planning to attend the University of Manitoba to take Agriculture and Food Sciences.

Stay connected with the Manitoba Canola Growers

Sign up for our monthly e-newsletter at www.mcgacanola.org

Follow us on Twitter: @CanolaGrowers

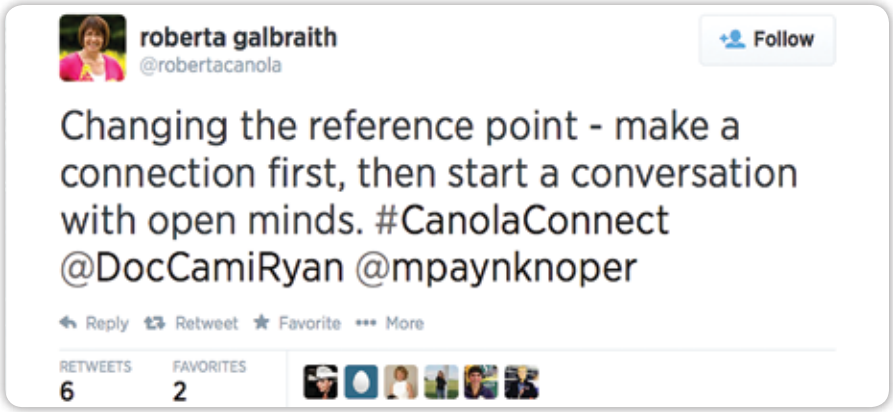
Find us on Facebook: /ManitobaCanolaGrowers

DID YOU KNOW?

The UN has declared 2014 as the International Year of Family Farming.

#CANOLACONNECT

Since most consumers are several generations removed from the farm, many don't have a farmer on speed dial. For this reason, we have launched our #CanolaConnect initiative. This series is designed to bring consumers and farmers together, encouraging them to have an open dialogue about food and farming and learn from one another. Below are some examples of events we have run.



Growing the conversation

These #CanolaConnect events featured Dr. Cami Ryan and Michele Payne-Knoper who highlighted the "how-tos" of starting and growing a conversation around agriculture and food. This event brought farmers and agriculture professionals together with consumers, dietitians, media professionals, bloggers, and home economists – allowing everyone to learn from each other. ●

Navigating your food choices

A panel made up of a farmer, a foodie and a home economist was the focus of this #CanolaConnect event as they discussed how they go about making their food choices. Curtis McRae (the farmer), Shel Zolkewich (the foodie) and Marilyn Smith and Getty Stewart (the home economists) took questions from the crowd and twitter covering a range of topics ranging from what local food means to them to what is a corporate farm. ●

Simon Ellis will be the Manitoba Canola Grower's next Be Well Story. You can watch past episodes and read more about Simon, his farm and how he is growing the #farmtofood conversation at www.CanolaEatWell.com.

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canolainfo.org

CanolaInfo is a canola awareness campaign targeted at consumers in the U.S. – our biggest export market for canola oil. CanolaInfo recently ran a media campaign targeted at everyday athletes.

By Alison Neumer Lara

Canola oil flexes its muscle

Sports nutrition isn't just the domain of professional athletes. For a good workout and quick recovery, everyday athletes need the right diet, too. That was the main idea behind CanolaInfo's "Fuel Up for Fitness" media campaign in early 2014. It focused on nutrient-rich healthy snacks and smart plates made with canola oil to help fitness fans prepare for exercise and repair muscles afterward.

"This promotion strategy really drove home the idea that healthy fats found in canola oil are important to consider for an optimal diet," says Shaunda Durance-Tod, the Canola Council of Canada's program manager for CanolaInfo. "Light and flavourful recipes show off canola oil's versatility in addition to its health benefits."

For the campaign, CanolaInfo partnered with Michele Macedonio, a veteran sports nutritionist and team dietitian for Major League Baseball's Cincinnati Reds. She hit the media field as the campaign spokesperson.

"These quick and easy recipes are made-to-order meals for the everyday

Michele Macedonio, team dietitian for the Cincinnati Reds, helps keep their Canadian-born first baseman Joey Votto eating well.

athlete," she says of the collection. "A good workout is draining and can lead to fatigue and sore muscles. The right combination of foods helps restore energy and nutrients used during exercise. It also prepares your body for the next workout."

More than 36 million listeners tuned into a radio media tour with Macedonio to learn about sports nutrition (see sidebar) and how to prepare recipes such as "Skillet Quinoa with Black Beans, Cilantro and Feta" and "Muesli Muffins with Almonds and Cranberries."

"Fat is an important energy source for athletes because it has nine calories per gram versus four per gram for protein and carbohydrates. But it's important to choose the right kinds of fats."

– Michele Macedonio

Timing was the key. Launched in January 2014, "Fuel up for Fitness" capitalized on both the New Year's drive to get back in shape and the interest in sports generated by the Winter Olympics. News articles appeared in 2,700 print and online outlets in all 50 states, with almost 40 million readers and viewers. Front-page food sections in daily newspapers also featured the recipe collection, as well as online and over the newswire, attracting more than 55 million readers.

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DO YOU KNOW THE SCORE?

As part of the "Fuel up for Fitness" media campaign, CanolaInfo developed this "score sheet" of sports nutrition tips to help everyday athletes boost energy and speed recovery.

- **Feed the furnace:** Running on empty? Your body needs consistent fuel to function. A small pre-workout snack may improve your workout performance. Portion out homemade snacks to have convenient options on hand. Liquid foods such as smoothies digest more quickly than solids, which makes them ideal pre- or post-workout for energy, hydration and restoring nutrients. Remember, though, that liquid calories mount up fast.
- **Pump up protein:** Resistance training builds and breaks down skeletal muscle proteins. Maximize muscle growth with a snack that contains carbohydrates plus 10 to 20 grams of protein within 15 to 30 minutes after a workout when muscle is most receptive to growing.
- **Make friends with fat:** Fat is an important energy source for athletes but it's important to choose healthy fats. Canola oil, for example, is a valuable source of unsaturated fats, including monounsaturated and omega-3 fats.
- **Don't ignore complex carbs:** Athletes especially need healthy carbohydrates, the preferred source of energy for active muscles. Whole grains, beans, vegetables and fruit are four good sources. Combined with protein, carbohydrates speed recovery so you're ready for your next workout.
- **Value variety:** Love quinoa? Great, but you can't live on one super grain alone. Athletes need a varied diet for the best mix of vitamins and minerals. Good nutrition, which fuels good performance, is about combining a variety of foods.
- **Food first:** Sports bars and energy supplements are easy to grab on the go, but may be too high in calories. Wholesome, nutrient-rich foods are better for you, not to mention cheaper in many cases.
- **Avoid portion distortion:** How much you eat is as important as what you consume. Even nutritious foods, if eaten in excess, add unwanted weight that hinders exercise performance. Train your eye to recognize the right portion sizes by measuring and portioning at home.
- **Drink to your health:** Adequate hydration helps workout performance and prevents injury so be sure to drink before, during and after a workout. Also, stick to water just before and during exercise. Carbohydrate-electrolyte sports drinks are designed for heavy sweating and extended workouts lasting more than an hour to help you perform better and replace sodium lost in sweat.
- **Rehydrate right:** After exercise, the goal is to replace the fluids lost in sweat and normal body functions. Water, low-fat milk and 100 percent juice are your best rehydration choices. Avoid so-called "energy drinks" that are loaded with sugar, stimulants or artificial ingredients. ●

Muesli Muffins with Almonds and Cranberries

continued from page 53

Culinary expert Nancy S. Hughes developed the recipes to provide complex carbohydrates, fibre and protein with nutrition-packed ingredients such as whole grains, beans, nuts, fruits and plenty of vegetables. All the dishes featured heart-smart canola oil to supply healthy unsaturated fats, including monounsaturated and omega-3 fats.

"Fat is an important energy source for athletes because it has nine calories per gram versus four per gram for protein and carbohydrates," Macedonio notes. "But it's important to choose the right kinds of fats. Unsaturated fats, in place of saturated and trans fats, are known to reduce bad LDL cholesterol."

Several recipes also targeted the on-the-go crowd, including "Powerhouse Green Smoothie," an ideal pre- or post-workout meal that combines many food groups and is easy to prepare, and fibre-rich "Crispy Chickpeas and Pumpkin Seeds with Lime."

"Whether you're fueling your next round of exercise or about to begin your post-exercise recovery, these healthy foods can fit into your fitness routine," Macedonio says. "Everybody can be an athlete. Eating right helps your body function at its best, however active you are."

For the complete "Fuel up for Fitness" recipe collection, go to **CanolaInfo.org**.

Alison Neumer Lara is communications manager at Inkovation, Inc. in Chicago, Ill.

BRUSSELS SPROUT, BLUEBERRY AND WALNUT SLAW

The nutrient-rich ingredients in this delicious slaw make it a smart choice for athletes. Brussels sprouts and blueberries provide vitamins, minerals, fibre and phytonutrients. Walnuts and canola oil are among the top 10 food sources of plant-based omega-3 fat, and may help protect the heart.

Ingredients

1 lb.	**fresh Brussels sprouts**, ends trimmed, thinly sliced or shredded (not grated)*
¼ cup	chopped **walnuts**
½ cup	finely chopped **red onion**
½ cup	dried **blueberries**
2-½ Tbsp	**canola oil**
2-½ Tbsp	**cider vinegar**
2 Tbsp	**granulated sugar**
½ tsp	**salt**
¼ tsp	crushed **red pepper flakes**

**Note: To thinly slice Brussels sprouts, put them in a food processor fitted with the slicing attachment or cut thinly with a knife as you would coleslaw.*

Instructions

Combine all ingredients in a medium bowl. Refrigerate 30 minutes before serving.

Yield: 8 servings
Serving Size: 3/4 cup (175 mL)

Nutritional analysis per serving

Calories	140
Total Fat	7 g
Saturated Fat	0.5 g
Cholesterol	0 mg
Carbohydrates	16 g
Fibre	4 g
Sugars	8 g
Protein	3 g
Sodium	160 mg
Potassium	271 mg

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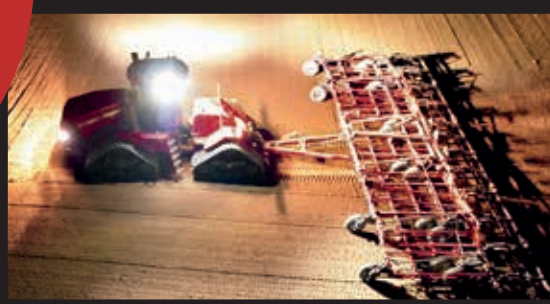

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