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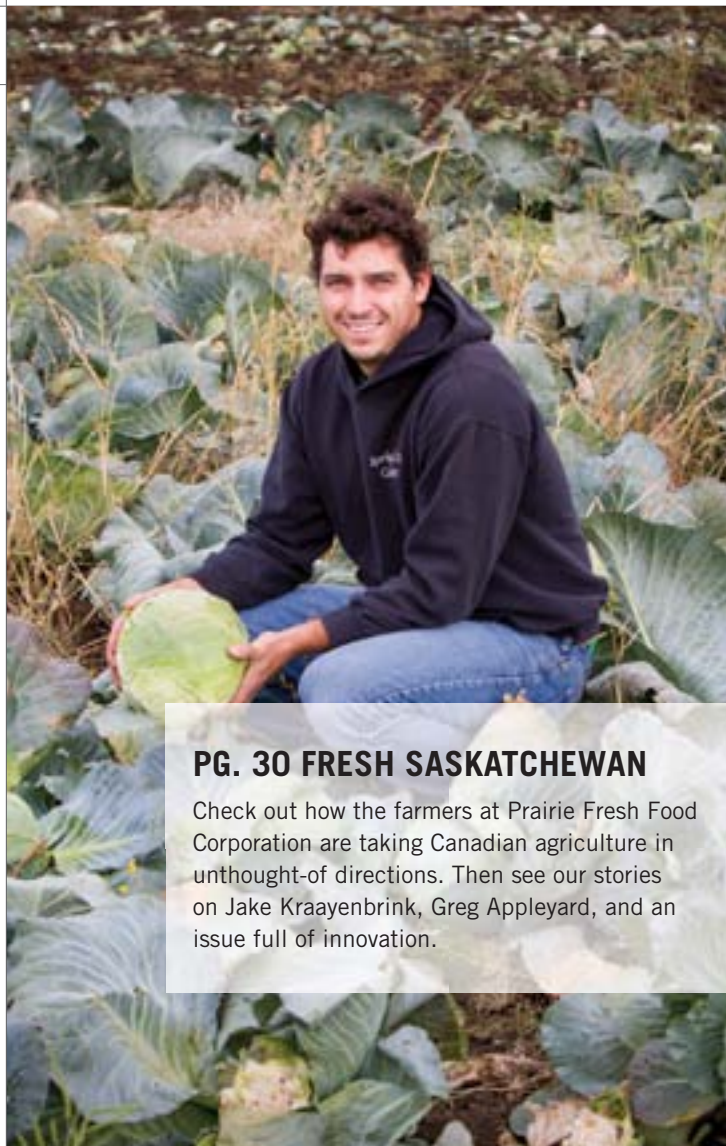
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BUSINESS

- 8 A GOOD IDEA GOES TO MARKET**
Jake Kraayenbrink converted his bright idea into a commercial success, but it takes hard work.
- 12 FEARLESS FINANCING**
A passion for leveraged growth has fuelled the phenomenal growth of Greg Appleyard.
- 18 BEYOND A BANK BALANCE**
What's the right level of working capital for your farm? It probably isn't what you think.
- 22 LET'S MAKE SOME FOOD**
Canada has enormous potential to irrigate more acres in Saskatchewan. So why isn't it happening?
- 33 GUIDE HR — CAN YOU DEVELOP A THRIVER'S MINDSET?**
These seven steps will help you thrive, not just survive.
- 34 IF THE GOOD TIMES ARE GONE**
Can you survive 25 years at this winter's grain prices? These economists think you may have to.
- 36 SMARTER OPTION USE FOR YOUR MARKET PLAN**
Errol Anderson's strategy to reduce risk, lift income.
- 37 NOURISHING NEW FARMERS**
This Manitoba couple is helping today's homesteaders rediscover the skills they need to live off the land.
- 40 TIME TO SUIT UP**
Enterprise risk management can prepare your farm for the big game.
- 44 YOU WANT TO FIRE DAD?**
There's always a better strategy, our panelists say.
- 46 THE VALUE PLAN**
What's next for John Deere? Scott Garvey talks strategy.
- 66 GUIDE LIFE — HEALTHY FOOD FOR BUSY FARM FAMILIES**
Healthier eating is good for you, and the farm.



PG. 30 FRESH SASKATCHEWAN

Check out how the farmers at Prairie Fresh Food Corporation are taking Canadian agriculture in unthought-of directions. Then see our stories on Jake Kraayenbrink, Greg Appleyard, and an issue full of innovation.

PRODUCTION

- 48 AND AT NUMBER ONE...**
Avoid the top 10 precision farming mistakes.
- 52 LEADING EDGE**
Tackle field variability with these new strategies.
- 54 THE PESTICIDE JUNGLE**
Warren Libby keeps us on top of input options.
- 56 FIELD NOTES**
Ideas and insights from the world of research.
- 57 RUTTING SEASON**
Your best options for fixing rutted fields.

EVERY ISSUE

- 6 MACHINERY GUIDE**
The planter versus drill debate gets shaken up by new planter technology.
- 64 HANSON ACRES**
Dale gets a wake-up call. How much is a dream worth, anyway?
- 68 GUIDE HEALTH**
Restless leg syndrome is more common than you think, but help is at hand.
- 70 PETUNIA VALLEY**
Owly Drysdale walks his last fenceline, and the valley says goodbye.

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Tom Button is editor of COUNTRY GUIDE magazine

The difference in 2014

Every year tells its own story. Inevitably, too, it isn't the story that anybody in January predicted. But here's my two cents anyway.

Will commodity prices sag? Will yields falter? We all have our guesses. It seems likely that world stocks will rebuild, and that this will put a ceiling on the markets. But it also seems likely there will be enough extreme weather so we won't be awash in a global glut, and enough economic strength to keep demand up. In other words, markets will have a floor as well. There will be weather scares to price on, but a lot of sideways movement too.

Overall in the markets, 2014 feels like a treading-water sort of year, waiting for the next big shock to set a new direction.

Indeed, there's a spreading sense that waiting for the next big shock is mainly what 2014 will be remembered for, even if that shock doesn't arrive for years. In this issue, after all, columnist Gerald Pilger writes of U.S. research that suggests this holding pattern may last 25 years or more, so that farmers who are starting their careers now may find themselves in a rut they can never truly climb out of.

It's fanciful at best to think 25 years forward in agriculture. Some would say it's folly. Still, it captures the mood.

But the mood is wrong. Yes, the holding pattern in the markets may continue. But the pattern on farms will not.

2014 is different from almost any year we've known because, while it's a

year that our farms are starting into with dented optimism, which has been common enough, it's also a year that our farms are entering with strong debt:equity positions and excellent working capital numbers, as Maggie Van Camp describes in this issue.

Working at COUNTRY GUIDE is an opportunity to see farms across the country. From here, my overriding impression from 2013 is of an incredible number of farms enhancing their management in an infinite number of ways. Almost every farm is improving its efficiency, acquiring new skills, and increasing its confidence.

There's an old saying that peace is what happens when the soldiers are resting. There's a sense now that our farmers have rested, they have re-armed, and they are ready for growth.

Because of high land prices, it had seemed we were going to enter a long period of attrition, where growth isn't possible. I no longer believe this.

The skills, the resources and the management ingenuity of today's farmers are simply too great. In 10 years time, I now believe, we'll look back at 2014 as the year when, on individual farms all across this country, the moves were made that led to their long-term success.

On their neighbours' farms, it will seem like the year when the decision was made that farming isn't forever.

2014 may prove our most decisive year in a decade. Am I getting it right? Let me know. I'm at tom.button@fbcpublishing.com.

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January is a month for new starts, so it fits neatly with this issue's focus on planters. Improved seed singulation and precision planting capabilities have driven planter sales in the past two years, not to mention the migration of corn into Western Canada. Even so, the debate is still raging. Which are better — planters or drills? There's a crowd of advocates on both sides, but with so many new technologies reaching the market, it's essential to start your search with an open mind. Here are four new planters, chosen from the dozen planter manufacturers on the basis of recent launches and upgrades. Get ready to do your homework.

WHITE PLANTERS 9000 SERIES →

With one look at the new White Planters 9000 Series, it's clear that something has changed. In all, there are 15 improvements to the company's previous line, from a reconfigured seed tube to the use of positive air pressure instead of a vacuum system. And it's attracting attention. Again, singulation within the planter is a focal point for manufacturers and AGCO delivers, with a lower release point into the seed tube that reduces ricochets and misplaced seed. Other changes include a reversed air flow system, where positive air is drawn from above the planter and forward of the row unit. Seed meters, frames, depth gauge wheel adjusting link and other refinements are all geared to increasing planter efficiency and performance.

www.white-planters.com



KINZE 4900 SERIES →

Introduced early in 2013, Kinze's new 4900 Series planter is ready to jump into the 2014 planting season with precision metering and a narrow-transport, front-fold design on its frame. The most impressive feature on this new planter may be its seed meter, with accuracy that's measured at 99 per cent at speeds of two to eight m.p.h. The meter itself is available with three modes: contact drive, hydraulic and — new on the 4900 series — an electric drive. Plus, high-torque 24-volt motors provide control of the seed rate, row-by-row. The frame offers greater flexibility over rolling ground, thanks to 42-degree (21 up and 21 down) wing flex. Stops can also be kept to a minimum, with a seed capacity of 12 bushels and a 500-gallon capacity for liquid fertilizer.

www.kinze.com





SEED HAWK TEMPO ➤

Unveiled at the Farm Progress Show in Regina last June, Seed Hawk's Tempo planter is designed to add speed and precision to corn planting. Despite its top speed of 10.5 m.p.h. — nearly double the conventional speed for planting corn — Seed Hawk literature states it has proven performance with a low rate of skips and doubles, plus accurate seed placement in all conditions. Available in six- or eight-row configurations, the Tempo can provide up to 715 pounds of down pressure with a torsion spring control. There's also a central fertilizer hopper, with additional 17-litre micro granulate boxes on the back of each 70-litre seed hopper.

www.seedhawk.com



CASE IH 5 SERIES ←

Case IH says it has designed improved metering, seed monitoring and bulk-fill capacity into its updated Early Riser 5 Series planters. The new AccuState seed sensing system provides growers with the capacity to monitor and map detailed seed spacing data, including seed singulation, skips and multiples. The goal is to improve seed handling and deliver more uptime and reliability at planting, along with promoting more even and uniform emergence. The redesigned bulk fill delivery system also eases the filling process and decreases the number of stops, all leading to increased efficiency.

www.caseih.com



A good idea goes to market

Converting your bright idea into a commercial product takes determination, plus help from the experts, but it can be done

By Helen Lammers-Helps

On his farm near Drayton, Ont., hog producer Jake Kraayenbrink has built and perfected an automatic air inflation-deflation system that reduces the soil compaction caused by heavy manure tankers. Designing the system may have been the easy part, though. The path to launching a commercial version has been a long one.

It was back in 2009 that Kraayenbrink first approached Greg Stewart, a corn specialist with the Ontario Ministry of Agriculture and Food, about his concept for a system that could inflate and deflate tanker tires from a tractor seat.

Team building is the heart of a successful new product launch

By decreasing tire pressure, Kraayenbrink figured he could increase the tire footprint by as much as 60 per cent, thereby spreading the manure tank's weight over a greater area and reducing compaction.

Aware that the trucking industry was already using inflation-deflation systems, Kraayenbrink and Stewart sought funding from the Agricultural Adap-

tation Council (AAC) to help offset the cost of developing such a system for agriculture.

Their proposal was successful, but they soon discovered that purchasing a system off the shelf in North America would not be possible.

The system used by the trucking industry was too slow to be practical for farmers. It took two minutes to deflate the tires, and given that a farmer might need to deflate a tanker's tires three times an hour, this wasn't going to be practical on the farm, explains Kraayenbrink.

They envisaged a new system that would respond much more rapidly, with a design that was modified specifically for farm use.

Going forward, the right doors seemed to open when needed, Kraayenbrink says. Additional funding was sought from AAC to research systems which had already been used in Europe for more than 20 years, and soon a team of three — Greg Stewart, Sam Bradshaw (an engineer with Ontario Pork) and Kraayenbrink — were on a plane.

Much was learned visiting five countries, two universities and six tanker manufacturers, as well as local farmers, says Kraayenbrink.

However, the team didn't achieve their main goal. They had hoped to buy a European system for

use here, but the stumbling block was that the manufacturers wouldn't offer support for the North American market.

The best option then became to purchase a trucking air inflation/deflation system from Western Canada. The system worked well, but had limitations because it was developed for trucking systems and not for agriculture, says Kraayenbrink.

A local engineer, Maurice Veldhuis, and Kraayenbrink's truck mechanic, Steve Bailey of Teviotdale, came on board to help. Armed with the knowledge gained during the European trip, and with the equipment used by the trucking industry as a starting point, Kraayenbrink and the team developed a system that could deflate the tires in less than 30 seconds.

As a farmer with years of experience hauling and spreading manure, Kraayenbrink was able to steer the development to include many practical features, including:

- The controller is easy to operate with a toggle switch that can be thrown from the tractor seat to select pre-programmed tire pressures.

- The Quick Attach design allows the operator to use the air compressor and Air Inflation/Deflation Control on multiple implements.

- An air compressor and air tanks supply the air. If the air tank doesn't have enough air for re-inflation, the system won't allow the operator to deflate the tires. The control unit also has a manual override system so that should the electronics fail, a valve can be moved manually, bypassing the electronics, and inflating the tires.

- A series of swivels, valves and plumbing to deliver the air supply is mounted on the exterior of the equipment and can be retrofitted to any piece of heavy machinery, including hay balers, grain buggies, tankers, air seeders and self-propelled sprayers.

- The system uses tried and proven components from the trucking industry which are 100 per cent North American-made.

In 2011, the inflation system was recognized with a Premier's Award for Agri-Food Excellence.

A typical four-wheel tanker system costs about \$12,000. In addition to reducing compaction and increasing crop yields, the Automatic Air Inflation Deflation (AAID) system reduces fuel consumption and tire wear-and-tear, adds Kraayenbrink.

Three years ago, Baden, Ont. dairy farmer, Kees Hogendoorn, read about Kraayenbrink's invention in a local farm newspaper. Hoogendoorn was in the process of purchasing a new manure tanker for his 470-head dairy farm and wanted it equipped with the Automatic Inflation Deflation System. Having immigrated from the Netherlands in 1995, Hogendoorn was already familiar with the concept. Now, based on three years of field use, Hogendoorn says he is very pleased with how the equipment functions.

Kraayenbrink has been working hard to get the word out about the system. He has had displays at several events including Soil and Crop Association Field Days,

Continued on page 10



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Being a farmer and knowing what farmers need gave him an edge, Kraaynebrink says. "I'm a bit obsessive about it."

Continued from page 9

the Drayton Farm Show, Canada's Outdoor Farm Show, the Manure Expo, the Dairy Expo, the London Farm Show and the Ontario Pork Congress.

There's been a lot of interest in the equipment, and Kraayenbrink is busy working out the details of how to mass produce the equipment. Kraayenbrink says he's been fortunate to connect with BioEnterprise, a Guelph, Ont. non-profit company that promotes the growth of businesses engaged in agri-technologies. (BioEnter-

prise is supported by Growing Forward 2). If they deem your product worthy, they'll mentor you, says Kraayenbrink.

So far, BioEnterprise has helped him develop advertising materials, apply for a patent and develop pricing for the various components and options.

While Kraayenbrink admits he's amazed at how far his invention has come, he says it's been a long and bumpy road. He's put a lot of time and money into the development but he is quick to point out he hasn't done it alone. "I'm just the face," says Kraayenbrink, who

says one of the things he enjoys is building a team. "The right people have seemed to come forward when I needed them. I look for enthusiasm, not someone who is just doing their job," he explains. His wife and family have been important supports as well, he adds.

There were times when being a farmer was helpful. "People are excited to see a farmer doing something like this," he says. It also allowed him to have some really practical input into the design. And although "thinking outside the box" was good at times, having professionals involved was key in making it all work.

Reflecting back on what it takes to commercialize an innovative idea, Kraayenbrink says you have to really believe in the idea.

"I'm a bit obsessive about it," he says with a laugh.

Kraayenbrink has set up a company, AgriBrink, to market the equipment. While he will continue to farm, he sees his sons taking over more of the daily operation of the farm while he devotes more of his time to marketing and producing the inflation systems.

To find out more about the system, check out the company website at www.agribrink.com.

The equipment may be eligible for funding through the Growing Forward 2 Program. Check with your local program administrator for eligibility criteria. **CG**

With cab-mounted controls, the system deflates tanker tires to reduce compaction in the field.



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FEARLESS financing

By Maggie Van Camp, CG Associate Editor

A passion for leveraged growth has helped drive the phenomenal rise of Greg Appleyard

If anyone in Canadian agriculture knows how to push the traditional financing envelope to stimulate growth, it's got to be Greg Appleyard from Strathmore, Alta.

"There were points when I leveraged the buttons on my shirt," Appleyard says.

In the nine years from 2003 to 2012, Appleyard went from farming 5,000 acres and 500 cows to being at the epicentre of a farming kingdom with numbers like 25,000 acres of crops, 2,500 cows and 40,000 head at Cattleland Feedyards.

In addition to all that commodity production, Appleyard's companies offered trucking, cattle and grain marketing, bull testing, custom work, and fixed equipment for the gas and oil fields.

Before we get into that story, however, it's important to emphasize that Appleyard does know farming. In the midst of all his growth, he was busy innovating. For instance, research lots were created with GrowSafe pens for radio frequency identification so feed conversion and efficiency could be measured and managed. In 2009 these pens with data collection were offered to producers who wanted RFI data on their bulls.

The cropping operation, Creekstone Farms, also invested early in auto-steer and variable-rate fertilizer



PHOTOGRAPHY: MIRROR IMAGE PHOTOGRAPHY

Continued on page 14



Continued from page 12

application, and Appleyard parlayed his feed conversion data and no-till seeding to tap into Alberta's lucrative carbon credits.

Equally important is to emphasize that the strategy for these leaps in scale, diversification and technology has always been the same. It's to find partners and competent individuals to manage them.

In fact, underneath and supporting the whole enterprise are a soup of individuals, numbered companies, partners, managers, ever-shifting assets, inventory and financing agreements.

Stirring this pot and aggressively feeding the fire is Appleyard.

"I leverage everything," Appleyard says. "It's not an asset unless it's getting leveraged."

Traditionally, farm assets have depreciated faster than inflation, Appleyard explains, so if assets aren't leveraged for growth, they're just going to drop in value. Before the latest run-up, land prices increased at 5.2 per cent per year while the average interest rate was nine per cent. So, he is convinced, the only way to stay ahead is to borrow based on the current value of land to make more money from that asset.

START UP

After building up his own cow-calf and grain farming operations while working for Ben Thorlakson's feedlots and holding down another job, the then-27-year-old Appleyard wanted to buy the 20,000 head feedlot.

Appleyard and his wife, Candace, mustered up enough courage, capital and lending power to buy the bricks and mortar. However, they didn't have enough financing to cover the massive inventory costs of a feeder operation this size.

Then BSE showed up in Alberta and wreaked havoc with exports.

Instead of giving up on the purchase, Appleyard went looking for partners. After talking to some established cattlemen who wanted him to operate the feedlot their way, he went to his accountant to ask how to create venture capital agreements. After looking through the numbers, his accountant, Karen Gregory, and her retired vet husband, Joseph, decided to become Appleyard's partners in the feedlot.

They made a good team. In Karen's town office, she crunched numbers. At the feedlot, Appleyard made deals and focused on growth. He brought in new ideas, peo-

ple and businesses. She created financial structure to help make good decisions, and this information enabled them to seek out financing and partners. "I was a gunslinger and a deal-maker," says Appleyard. "She (Gregory) kept us from going broke."

Moreover, they each brought with them a very different network of potential investors and customers. "Between the two of us, we were able to pull in a lot of capital," says Appleyard.

Appleyard credits Garnet Altwasser, who started Lakeside Feeders Ltd. (which was later sold to IBD and eventually

HSBC Canada stepped up with a \$500,000 operating line, which at the time seemed outrageously huge to Appleyard. Not long after, this financial company switched account management internally and dropped Cattleland's agricultural lender in favour of one with an oil and gas portfolio. Soon the trust between Appleyard and new HSBC account manager went up in flames, and subsequently so did the loan agreement.

Appleyard was back looking for financing, which he found in multiple places. BMO helped finance some smaller



Tyson), for kick-starting their operation. Even though Altwasser had his own finishing facilities and really didn't need to put cattle through the yards, the young upstart from Strathmore asked for help. Altwasser came through, contracting 14,000 head at cost-plus to heavy weight of 1,670 pounds.

It was Cattleland's first whole turn and it helped project them into a decade of growth and innovation. Appleyard continued to ask for help and aggressively pursue expansion — land, feedlot customers, cows and other businesses — even when profits were tight.

However, acquiring financing was a bumpy road with many turns. When the long-term implications of BSE hit the beef industry, the bank that originally backed the feedlot pulled their operating loan.

sub-companies, FCC stepped in for the land portion, and Chinook Credit Union took on the feedlot loan.

Like many of the co-operatively owned credit unions, Chinook was a little more creative with how it structured their loans, but it's smaller. Appleyard remembers walking into the local branch with a \$4.5 million cheque for selling a feedlot full of cattle and no one in the branch had the authority to accept it.

It's not only feedlot owners who have turned to credit unions for financing. According to Rob Martin at Credit Union Central of Canada, agricultural lending by the country's 330 credit unions is on the rise. By the end of 2012, credit unions had issued \$6.7 billion worth of cumulative agricultural debt, or about 10 per cent of total agricul-

tural debt outstanding outside of Quebec. (Quebec's credit union, Desjardin, is not included in these statistics.)

According to Martin, Canada's chartered banks accounted for 37 per cent and Farm Credit Canada 32 per cent of farm debt (outside of Quebec). The rest comes from private individuals, supply companies, trust and insurance companies and government agencies, such as ACC.

Over the years as Appleyard made his way through this obstacle course, he learned to always keep his financing options open and to deal with credit

"I leverage everything," Appleyard says. "It's not an asset unless it's getting leveraged."

people who understood his business. He also learned how important information flow is to the lending process, especially for start ups. He now meets monthly with a team of advisers, including his credit managers, to harvest their knowledge and experiences, and in the process he updates them on changes to his fast-paced businesses.

"I buy, I sell, I have all kinds of partners in all sorts of businesses now," Appleyard says.

Appleyard's accountant/feedlot partner at Cattleyard was excellent at keeping everyone on top of the financials. For example, Gregory created spreadsheets for profitability targets. Managers would then fill in their costs and connect their inputs to revenues per acre or per head. Everyone knew what their costs were,

and Appleyard could hedge, buy and sell off those numbers.

Instead of speculating through this constantly changing maze of numbers, Appleyard hedged for certain margins. "So many things impact profitability and move daily — fluctuating currency, inputs costs, interest rates, cattle prices..." says Appleyard. "... too many to track."

It worked. He remembers one year making \$1.2 million more profit by hedging than the cash market. Using this margin-based system to set prices for marketing and feeding cattle, Cattleyard was able to retain and grow their customer base, even during the uncertainties of the BSE crisis and spiking grain prices. "I'm an options guy now, but I was a futures guy at Cattleyard," Appleyard says.

Using futures gave him a line in the sand. However, he keeps in mind that it's easy to become speculative or over-contract physical grain and you really have to know what you're doing. Says Appleyard: "Like a gun, hedging can be used to protect you, or it can accidentally kill you."

Using these lessons Appleyard recently started Agra Risk Solutions Inc. With risk management software from his full supporting partner, FCStone, he now guides clients from Western Canada, the United States and Brazil through commodity risk management and he markets cattle and grain for them.

By inputting individuals' information in the computer, he shows his clients how hedging can have an impact on profitability on their own farm, feedlot or ranch. He's also able to physically buy cattle or grain and move them around the world.

"We're bringing Wall Street to the kitchen table," Appleyard says.

STRATEGIC GROWTH

With the feedlot established and growing, Appleyard began to expand the grain, oilseed and forage operation. When land became available, he jumped on it — during a time when it was available for much less.

In 2005, they acquired an astounding 62 quarters (almost 10,000 acres) near Clear Hills, in the Peace. However, they had trouble putting individuals in charge of that property and two years ago sold it for twice the purchase value.

After exceptionally good crop years in 2010 and 2011, Creekstone Farms was grazing and crop-farming about 20,000

acres of rented and owned land. "I'm an all-in kind of guy," says Appleyard. "I was like a race horse when the jockey had dropped the reins."

FCC, Canada's biggest farm lender, financed the crop side. Of FCC's \$25.1 billion portfolio almost 40 per cent is used to finance crop farms. During the last fiscal year, its portfolio grew by almost \$2 billion, about 30 per cent of the farm debt in Canada. At the same time, FCC had about one per cent more impaired loans for a total of \$321.2 million, with value-added and crops experiencing the largest year-over-year increase.

Appleyard's ideal lease-to-own ratio is three-to-two, for both the land and the cattle. At 60 to 70 per cent custom work and 30 to 40 per cent owned, they could stretch their leverage and meet their profitability goals. "A feedlot is simply a hotel for cattle that feeds three square meals a day," he says.

They had reached the size that had tapped out their management capacity. The research lot was booked out three years. The feeder business was full. Operationally they were at maximum capacity.

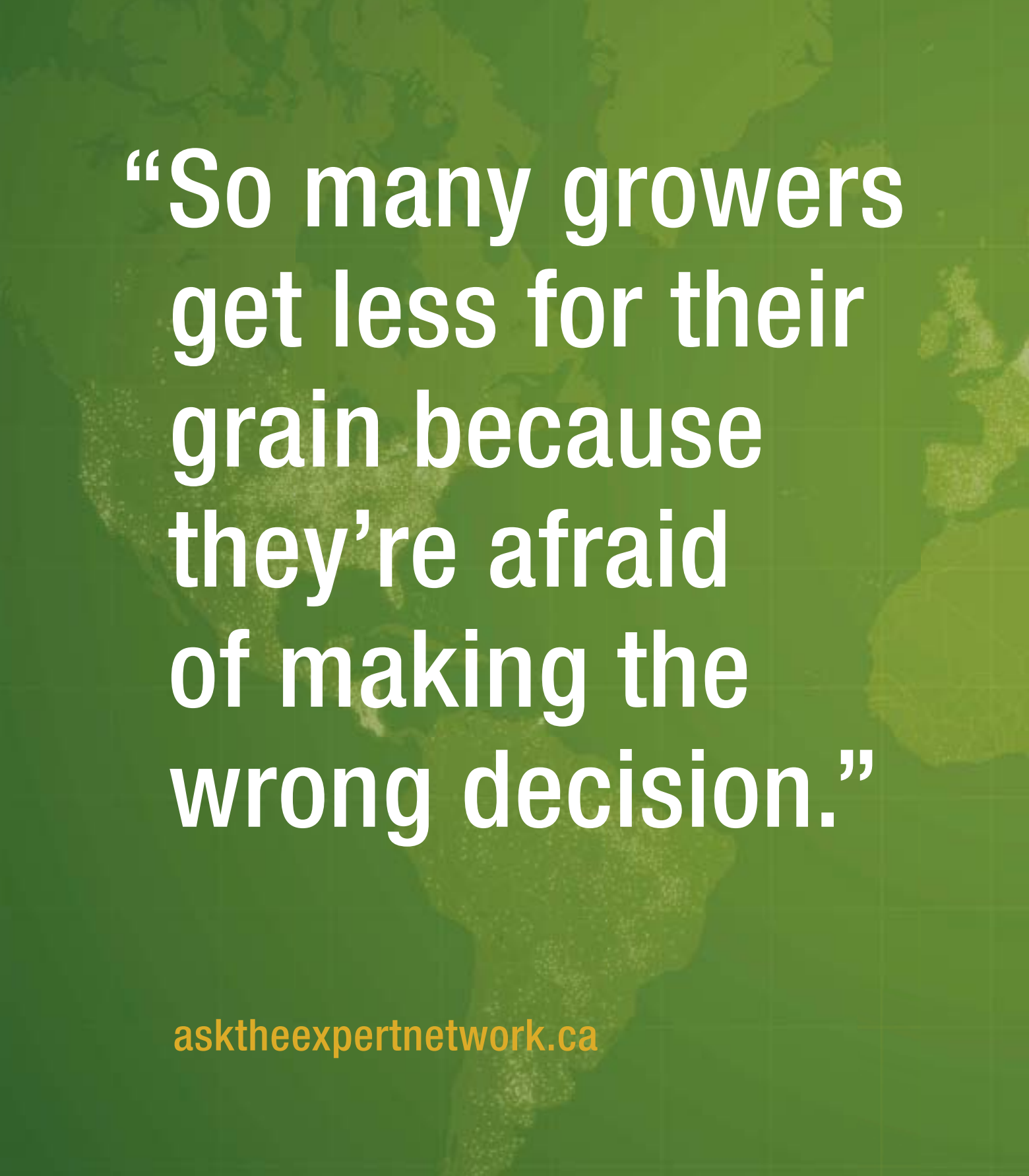
After a health scare in March of 2013, Appleyard sold his part of the feedlot and now rents the grain land back to the Cattleyard. Part of the deal is a non-compete clause on buying more land (he owns about 7,000 acres now) or expanding the grain farming operation for two years.

Since then, Appleyard has started the commodity risk consulting business. Additionally, with a small team of partners from Brazil, New York and Chicago, he founded an agricultural investment bank headquartered in Manhattan. "Nothing beats going into a New York City office in jeans," says Appleyard.

Among its current projects, One World Financial Partners (www.one-worldfp.com) buys land on behalf of investors with a focus on setting up replicable farms of the most efficient scale. The Western Canadian cropping units will be 6,000 to 7,000 acres, the ideal amount for maximizing two combines, one sprayer and nine grain bins.

Strategically, Appleyard sees this business model as becoming a leading part of farming in the future, with farmers owning and owing on proportionally less of their assets while maximizing the opportunity costs in scale, with outside investors owning farm assets and companies like One World brokering the deals.

Talk about creative financing. **CG**



“So many growers
get less for their
grain because
they’re afraid
of making the
wrong decision.”

asktheexpertnetwork.ca

Extra Bushels Need a Home and a Marketing Plan

Everyone agrees it's a good problem: harvesting more bushels than planned. It may not seem like a lot but even if 150 bushels/acre of corn (for example) was your plan and the final yield is 165 bu/ac, those extra bushels need a home and a marketing plan.

Remember, getting extra bushels per acre changes the breakeven price. If 150 bu/ac of corn needed to achieve a price of \$4.45/bu to cover costs and meet profit margin goals, then at 165 bu/ac, your target price changes to something much closer to \$4 for the entire crop.

So how to set the target price? Well, that's an essay in itself. Start by determining your cost of production, including direct inputs (fertilizer, seed, crop protection), machinery and land costs, and overhead expenses such as utilities and wages (don't forget to pay yourself).

Once you've got a target price in mind, storage space and grain movement

are your next considerations. If you have extra bushels, chances are most of your neighbours probably do as well. That means grain delivery times may be at a premium. Ethanol plants usually grind so many trucks of corn each day, whether it's November or February.

So many growers get less for their grain because they are afraid of making the wrong decision. If these extra bushels don't need to be sold in order to meet a certain payment schedule, there is no "wrong" decision. This could be an opportunity to try something different.

No short piece of writing can cover an entire strategy. Your Grain Marketing Advisor can help you strategize for these "bonus" bushels, reflecting your grain movement, cash flow needs, your market bias and what we know about the market. These extra bushels are a good problem to have. To read the complete story, visit asktheexpertnetwork.ca.

Jennifer Kilbourne,
Grain Marketing Advisor, Ontario



Beyond a bank balance

What's the right level of working capital for your farm?
It probably isn't what you think

By Maggie Van Camp, CG Associate Editor

Working capital can be a harsh indicator of liquidity. On a practical level, it tells you how much you'll have on hand to buy operating inputs for next season. It's your ability to get next year's crop in the ground or to feed animals in the lot — before you need to tap into an operating loan.

For many grain and oilseed farmers, what used to be a worry line has become a source of pride.

But is a big working capital number really such a good thing?

Well, you could start by talking to anybody who has had to survive with limited working capital (which is most of us at some point in our careers). Depending on the bank for 80 to 90 per cent of crop expenses in a year can be difficult and stressful.

As a farm's working capital increases, there's more flexibility in marketing, negotiating, getting discounts and acquiring capital assets.

However, there's a sweet spot for every farm. If you have too much working capital, your cash isn't working hard enough. If you have too little, you don't have an adequate buffer against risk.

“Working capital allows you to be opportunistic.”

— Craig Bremner

“Working capital is like the lifeline of a business,” says Craig Bremner, vice-president of TD Canada Trust.

The amount of net working capital needed for any business varies depending on size and cash flow. Grain and oilseed farmers have a lot of variation within the year, and their pre-paid expenses and storing crop can dramatically change cash flow, while businesses with consistent, predictable cash flow, such as supply management, require less working capital.

For some agribusinesses, including grain elevators, maintaining strong working capital is critical. They need to continually deal with the ins and outs of their customers, and they must be positioned to make the most of here-today, gone-tomorrow market opportunities.

A strong working capital position also eases the tension on farm marketing, helping you be more patient, and it also enhances your ability to purchase discounted inputs. “Having working capital allows you to be opportunistic,” Bremner says.

Working capital can also allow for some pre-buying and tax planning. However, Bremner warns if pre-buying ties up too much cash, it may be better to balance it with some temporary financing.

This buffer should be used for short-term expenses and not be kept and used to buy long-term assets. Don't dip into working capital to leverage acquisitions of land, says Bremner. “You should buy short-term assets with short-term loans or working capital.”

It may seem counterintuitive to have money sitting in a low-interest account when it could be generating income in an appreciating asset, but tying up all your extra liquidity may leave you unable to buy land when and if land prices ease off.

Typically, only 75 to 85 per cent of land value can be financed, says Bremner.

“Cash is king,” says Mike Bossy, president of Bossy Nagy Geoffrey Group Chartered Accountants in southwestern Ontario. “You can make profits and have good return on investment, but can you still keep paying all your bills?”

The most common error Bossy sees with managing working capital is paying for fixed assets out of cash flow, such as farmers pulling the deposit for equipment replacements out of working capital.

“Stop buying equipment out of cash flow,” Bossy urges. “Get a loan and then if you have extra at the end of the year, make extra payments on that loan.”

A strong working capital and equity position going into the next few years should help with three potential changes: sustained lower commodity prices, levelling real estate prices and increases in interest rates.

Pulling working capital down the balance sheet limits buying opportunities later. “Ask yourself what opportunities would exist if interest rates doubled?” advises Bossy. “That's where they were five years ago.”

TRACK IT

To calculate working capital, add up all current assets that will last less than one year, such as cash, crops growing in the field, inventories and receivables, and prepaid expenses. Salable assets not held

for resale, such as fall-applied fertilizer, farm supplies and feed are not included.

Then simply subtract current liabilities, such as accounts payable, accrued interest, principal payments and loans due within the next year, notes payable to banks, wages and taxes payable, and your current portion of any long-term debt payments.

Bossy says most farmers have their accountants calculate working capital on their year-end financial statement only, and very few recap their current assets and current liabilities on a regular basis. It becomes more difficult to sort out with cash, not accrual, accounting.

Comparing your own farm's working capital over several years tells a powerful story. If it's decreasing, what's going on. Is it low profits, or is the structure of the debt depleting working capital? Or is it something else?

As a quick reference point, Bossy suggests farmers divide their total cash expenses by 12 months and then see if they have enough current assets to cover three months of expenses. He'd even take it a step further and do a spreadsheet of monthly projected cash flow, and then compare that to actuals.

"Tracking working capital is a great tool to monitor the health of your business, the liquidity," Bossy says.

Working capital is not only cash but also includes assets that can be turned into cash in 12 months, and it also gives a picture of what expenses are up ahead. Most often current assets are receivables and inventory. "Not very often do I see cash on the balance sheet," says Bossy.

BENCHMARK

When stress-testing a balance sheet, lenders and economists love to look at net working capital divided by gross revenues. Then you can compare between various sizes of operations.

Last year, David Kohl, agricultural economics professor emeritus at Virginia Tech and founder of AgriVisions, crunched this ratio from data of about 1,200 farms on the Minnesota farm management education programs, and found the working capital to gross revenue ratio averaged 36.8 per cent.

Not surprisingly he found as profitability increased, farm balance sheet liquidity improved too. When divided by gross farm revenue, there was very little difference by age of farmers but the larger farms generally had lower working capital ratios.

The precarious position of some of these farms shone through Kohl's work. Farmers with more debt maintained less working capital. Those in his data base with a debt-to-asset ratio higher than 80 per cent had only three per cent working capital to revenue. Those with less than 40 per cent and less than 20 per cent, had ratios of 53 per cent and 73 per cent working capital to revenue, respectively.

Generally, after several years of good yields and commodity prices, the talk about working capital has shifted. "Most farmers have a more comfortable level of working capital and a buffer this year," says Pierre Robitaille, director and group lead at Scotiabank in Listowel, Ont.

Profits have been reinvested to make farms more efficient, adopt new technology and grow. Any extras are being invested in things like RRSP, RESP, AgriInvest and other non-farm investments, says Robitaille. "Primary producers are becoming more sophisticated investors, pulling advice from accountants and financial advisers." **CG**

WORKING CAPITAL Q+A

Fresh from a 30-year career on the front line and in management with Farm Credit Canada, Paul Reed now works as a regional program lead for the Ontario Soil and Crop Improvement Association, where he helps deliver Growing Forward 2 programs.

Country Guide: As a banker and as a farmer, what's the best way to monitor working capital? Do they differ?

Paul Reed: Regular monitoring of a budget is one of the best methods for cash flow management. For most farmers, doing a projected budget and then comparing the actual results on a monthly, or at least a quarterly basis, will point out if they are on or off track and give the needed time to react.

CG: In your opinion, beyond profit margins, what factors have an impact on the amount of working capital farmers should keep on hand?

PR: The amount of working capital depends on many factors. Two of the main factors are the length of the business cycle, and the variability of revenues and expenses. The business cycle is how long between "pay days." If there is monthly income like dairy, then lower levels of working capital are needed compared to, say, a beef cow-calf operation that may sell calves once per year.

Highly variability of revenue and expenses increases the amount of working capital needed. Budgeting on a "best case" and also a "worst case" scenario provides an indication of potential working capital needs.

CG: In recent years, have you noticed any trends in how farmers are managing their cash flow?

PR: There are certainly many options to obtain working capital. Input suppliers, banks, FCC and ACC are just some of the alternatives. While it can be convenient at the time and some offer lower interest rates, it does make monitoring and managing more complex to use several sources.

CG: How does the ratio of rented to owned land have an impact on working capital ratio requirements?

PR: A commitment to maintain mortgage payments even if farm returns are poor can strain cash flow. It is also important to note that some loans are "demand loans" in that, if the lender wishes, they can demand payment of the entire loan principal at any time and this may adversely impact the farm business.

Renting land may give the farmer the choice to walk away from the land rent and lower cash-flow demand. This, of course, depends on the terms of the lease.

CG: Doesn't letting working capital sit in non-farm investments make farmers uncomfortable?

PR: Because of low deposit rates (such as GICs) farmers are reluctant to have off-farm investments. However, they should not overlook the various investment vehicles held in RRSPs and TFSAs, since these can offer good after-tax returns. They also help with risk reduction and succession planning.

Off-farm investment can sometimes lower risk since investments won't all be in one basket.

It is also worth remembering that interest paid on farm debt is usually tax deductible so when paying down the farm debt you may not be receiving the same return as the loan rate.

Good accountant/financial management advice is required when considering these matters.

"Because of low deposit rates, farmers are reluctant to have off-farm investments."

Giving forage and grassland their due

First of a regular series of columns by the Canadian Forage & Grassland Association

What crop has the largest acreage in Canada? The usual answer is "wheat," which in 2012 was seeded on about 20 million acres. But cultivated forages made up 33 million acres, and more than 36 million acres were in native or unimproved pastures and rangeland.

According to a National Forage and Grassland Assessment in 2012, those acres were responsible for economic activity of \$5.09 billion in 2011, following only wheat at \$5.2 billion and canola at \$7.3 billion. The forage industry is also the foundation of the dairy and beef industries, which together contribute \$11 billion in direct value to Canadian farmers and generate over \$50 billion in economic activity.

In other words, forage and grassland are big business, but they're not always recognized as big business, even in the agricultural community.

Five years ago, a group of individuals from across the country met to discuss how to change that by forming a national organization to represent the forage and grassland sector, and the Canadian Forage & Grassland Association was incorporated in December 2009.

We represent a broad spectrum of the industry, including domestic forage and grassland producers and forage product exporters.

Our first task was to commission the National Forage and Grassland Assessment, which confirmed what we suspected about the value of the industry. It also confirmed that despite the importance of forage and grassland, it is getting far less research support compared to other crops.

Our next task was to create a forage and grassland research strategy. We are especially concerned about the decline of public forage and grassland research, and our research advocacy group is developing and implementing an action plan to address these concerns. We have also worked with the Beef Value Chain Round Table and the Beef Cattle Research Council on the Beef Industry Research Strategy to increase investment in forage breeding and productivity research. We also have been striving to increase awareness of the value of forage and grassland to our environment.

The CFGA believes that independent forage variety performance testing is important, and we are providing input into the development and implementation of a national testing strategy. The proposed changes to the Seed Act would end merit testing as a requirement for the registration of forage varieties, and could come into effect in late 2013. If merit testing were no

longer required, registration trials would not be conducted. If this system is not replaced with another, there will be no independent, unbiased data available to compare varieties. The CFGA has developed two surveys for the industry and end-users, and this information will be used to develop a performance testing strategy.

The export sector is an important component of the CFGA and we are working with members exporting to the U.S. and overseas to develop market protocols. Activities have included hosting a visit from a Chinese group interested in Canadian timothy as well as addressing issues in the alfalfa protocol for export to China.

As our membership base continues to expand, the CFGA faces an increasing number of requests to address challenges and opportunities in the forage and grassland sector. But without a checkoff, CFGA depends on the development of creative arrangements with stakeholders, and partnerships are a major priority.

Our sold-out national conference in Olds, Alta. in December illustrates the level of enthusiasm within our industry, and we are looking forward to working with Ron Pidksalny, our new CFGA executive director.

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“Let’s make some food”

Canada has enormous potential to increase irrigation in Saskatchewan. So why is so little happening?

By Anne Lazurko, CG Contributing Editor

Using only 20 per cent of the available supply, there is enough water running through Saskatchewan’s Gardiner Dam at Lake Diefenbaker to irrigate half a million acres. The potential for farm diversification and value-added processing would add billions to the national agriculture economy and cement Canada’s role in feeding a hungry world. And the other 80 per cent of the water allocated to the province through agreements with Alberta and Manitoba could be used to support burgeoning resource industries in the province and provide for the needs of growing municipal districts around major centres including Regina, Saskatoon and Moose Jaw.

So say reports from the Saskatchewan Irrigation Projects Association (SIPA), the Canada-Saskatchewan Irrigation Diversification Centre (CSIDC), and the Saskatchewan ministry of agriculture. Back in 2009, a SIPA study showed that a \$3 billion investment over 40 years at a five percent discount rate would provide a cost/benefit ratio of 4:1 from agriculture and 15:1 from resulting value-added activity. It would provide for 384,000 person years employment and contribute \$35 billion to provincial GDP.

Irrigation could add billions to farm incomes, boosting jobs in processing, transportation and more. But the infrastructure isn’t getting built

Today only 110,000 acres are irrigated from Lake Diefenbaker, and the system uses only two per cent of the water available. It begs the question: why is it taking so long for the province to expand its irrigation infrastructure to reach such huge potential?

Back in 1967, those who built the Diefenbaker Dam envisioned exactly the scenarios outlined in recent studies — to build a critical mass of acres that would attract processing, and to provide hydro power, municipal water supplies and recreational opportunities — but the government halted expansion in 1973 and successive governments have stayed that course with only small infill projects added through the last two Growing Forward programs.



Dryland canola goes 30 bu. Irrigated gets 65. “It’s a no-brainer,” says grower Mark Gravelle.

What will be required are huge and complex infrastructure projects. And, of course, money.

While the proper uses of the world's scarce water sources will increasingly be debated, the data for a Saskatchewan economy with expanded irrigation is pretty conclusive. And one only has to look across the border to Alberta as reference. (see Alberta Irrigation sidebar)

Mark Gravelle knows how it could

be. He has farmed under irrigation in both provinces, and now crops 3,000 acres in the Riverhurst Irrigation District in southern Saskatchewan. He's 28 years old, and originally from Bow Island, Alta., where his dad farmed under irrigation for years. When his dad was ready to think about retirement, Saskatchewan became part of the succession plan. Gravelle couldn't pencil out land costs in Alberta anymore, but he looked east and

saw big opportunity. In 2009 they sold their land in Alberta, bought in Saskatchewan and Gravelle Ag is now one of the biggest irrigators in the province.

"Among the best things about growing under irrigation are the cropping options," Gravelle says. He grows edible beans, durum, spring wheat, flax and canola. Witnessing its success in Alberta, he grew hemp for the first time this year, and soybeans, though he says those didn't work out so well.

While it costs a few more dollars per acre to farm under irrigation in Saskatchewan, Gravelle says he would never go back to the Alberta system. "The Riverhurst system is state of the art," he says. "You press a button and it works. There are far fewer headaches than in Bow Island because there we had to phone and order water 24 hours in advance and then physically turn it on. It's open ditch irrigation there and much more complicated... because it's simpler here, one guy can manage a lot more acres."

Many Saskatchewan dryland farmers might wince at the cost of growing under irrigation. Over and above regular input costs, Gravelle calculates his irrigation costs at \$50 per acre for water and power, plus the long-term capital expenditure for pivot costs (Sask Ag estimates pivot costs at around \$800 per acre).

"But when you can get 30 bushels-per-acre canola on dryland, and 65 bushels per acre under irrigation, to me it's a no-brainer," Gravelle says.

In fact, 2011 data from a provincial study found that dryland grown canola has gross returns of \$419 per acre with a contribution of \$80 per acre, whereas on irrigated land in the Diefenbaker Lake district, those returns are \$825 gross with a contribution of \$282.

Gravelle's can-do attitude might reflect his Alberta roots. "In Alberta guys are lining up to pay \$1,800 per acre for water rights," he says. "Those water rights are free in the Riverhurst area and guys are still slow in picking them up."

He sounds pretty incredulous at that. But he does see one negative about growing under irrigation in Saskatchewan, one that might be solved with the very infrastructure proposed by all those studies.

Gravelle spends a huge amount of time and money getting his crops to processors. Where? In Alberta of



PHOTOGRAPHY: TOCREATIVE PHOTOGRAPHY

Continued on page 26

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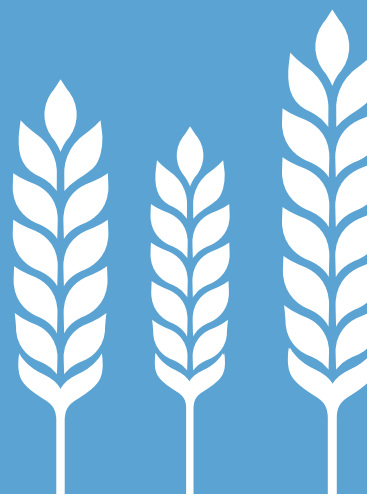
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Continued from page 23

course. With his bean processor in far-off Taber, he bought a truck this spring and put 17,000 km on it in one month.

"That's where Alberta has us beat," he says. "We were only hauling one mile to the bean plant there. I spoke with one bean processor in North Dakota who said he wouldn't consider a processing plant in Saskatchewan until there were at least 30,000 acres of beans grown. It's the same with potatoes."

But while it's slow, Gravelle is seeing a shift in attitudes that is turning into more irrigated acres. In fact he's seen more development in the Riverhurst area in the past three months than he's seen in the three years prior, and he credits strong crop markets and high land prices. Rather than shell out for expensive land, farmers would rather spend money to irrigate what they have and grow high-value crops more intensively.

It's a trend John Linsley believes will continue. It takes time for farmers to buy into irrigation because their investment costs go through the roof and they need the cash flow for that, but Linsley firmly believes infrastructure needs to be in place to capture the opportunities.

Linsley is the assistant director of the crops and irrigation branch of Saskatchewan Agriculture. He works closely with the CSIDC in Outlook, Sask., where economically and environmentally sustainable irrigation practices are researched and promoted. Applied research on crops, technologies and best management practices at the centre have contributed to projects across Canada and around the world, and provide leverage for the arguments for irrigation expansion in Saskatchewan.

Linsley uses the Riverhurst area as an example of how things could evolve. It took 10 years to plan and construct the district system and farmers started out growing the field crops they knew. Very quickly they began to investigate beans and potatoes. Then 14 guys with no prior experience started growing 65 acres of potatoes. They survived, grew, found markets and now crop 800 acres in a multi-million dollar operation, even selling Saskatchewan seed potatoes to the vegetable's traditional home, P.E.I.

Linsley believes it's the kind of evolution that can happen if irrigation is available. He says it requires good production and good management in order to pay back on investment, and it will require



new opportunities for increasing revenues. But it's worth it for both farmers and the larger rural Saskatchewan economy.

"Irrigation changed the face of Riverhurst," Linsley says. An 800-acre irrigated potato farm employs as many as 30 people, where a single farmer can work five quarters of dry land. Where dwindling populations and the loss of services to small communities have been the trend, irrigation creates new demands for employment, inputs and equipment, "creating an economy that was not there before... it's a rural economy issue that evolves well beyond the farm gate."

Imagine if that economy was spread over 500,000 acres.

THE SUCCESS OF THE SASKATCHEWAN POTATO (A CASE STUDY)

In terms of farming under irrigation, Saskatchewan can look to the lowly spud as a test case in success, particularly the Northern Vigour seed potato. In 2011 the province grew 7,000 acres of potatoes and produced 1.9 million cwt (or

190 million pounds). That's an increase of 10 per cent from the previous year.

Harry Meyers is chair of the board of True North Seed Potato Co. Ltd., a high generation seed farm in the Outlook Irrigation District near Diefenbaker Lake. The company is a strategic alliance between HB Management Ltd, a potato management company, and Green Valley Farms made up of irrigation land owners in the area. Some 2,500 acres of irrigated land are committed to True North under contract, producing around 6,000 tonnes of seed each year which is sold to process growers all over North America and is available to other seed growers for reproduction.

This year the company produced an average of 12 to 13 tonnes per acre. While seed is the focus, True North also produces for the fresh potato market. According to Meyers, prices fluctuate as much as 40 per cent from year to year, and the company's ability to size its potatoes gives it an advantage in a fussy market; seed should be small, fresh should be large, and True North sells both, depending on market prices.



Gravelle put on 17,000 km a month shipping to Alberta processors. More irrigation, he says, would mean local processing.

The farmers supplying land to True North do not participate in potato production. Instead the contract allows for a good rotation in their irrigated crops. Most rotations are potatoes, canola and a cereal. Meyers says they are looking at a fourth year in the rotation with edible beans.

“Our claim to fame is on the seed side, particularly the Northern Vigour variety,” says Meyers. “We have good isolation from disease and good rotations. Where growth will happen (in the province) is on the seed side... the fresh market is difficult to get into because it is mature. People are not eating more potatoes. In fact there’s been a slow decline, so anyone wanting to sell into the fresh market has to be willing to displace somebody. Seed is different. You can develop a reputation for quality.”

True North’s fresh product is washed and graded locally and sent to affiliate companies in Saskatoon, Calgary and Surrey for packing and labelling. Meyers feels in this way the company is vertically integrated. The seed potatoes are graded and shipped in bulk.

To his mind, expansion of the industry will depend on markets and not on the availability of land or irrigation. Does he see potatoes turned into french fries within Saskatchewan in the near future? No.

“It’s not a market with a lot of opportunities today. We missed that boat and plants have already been built in Manitoba and Alberta,” Meyers says. “There was a flurry of activity under (premier Roy) Romanow, but those of us who survived the bad decisions made then have strengthened our reputation, and markets are opening up and will continue to open up if we do things right.”

He’s referring to the SPUDCO incident of the late ’90s when Sask Water teamed up with the Lake Diefenbaker Potato Corporation in a private/public partnership to increase potato acres in the province. They invested \$20 million

Continued on page 28

ALBERTA IRRIGATION BY THE NUMBERS

Chandra Madramootoo thinks Saskatchewan needs only to look west to see what irrigation can do for agriculture and a provincial economy. As the dean of agriculture and environmental sciences at McGill University, his is a renowned voice in water management, and he has worked on irrigation projects across Canada and around the world.

First the numbers:

According to a report from the Alberta Irrigation Projects Association, the province claims 65 per cent of total irrigation acres in Canada. There are 8,000 km of pipelines and canals and 50 storage reservoirs, with 54 varieties of crops grown on 1.4 million acres. That amounts to only four per cent of the agricultural land base, but 20 per cent of gross primary agricultural production.

Some 6,000 farm families make their living from irrigation in the province, and there are 35 food processing plants in the South Saskatchewan River Basin alone. The total economic benefit to Alberta from irrigation is \$5 billion annually.

Efficiency is increasing as well. Compared to 1976, the province irrigates 46 per cent more land today but uses 14 per cent less water.

Those are pretty impressive statistics from a system that started out growing hay to fatten cattle. With the BSE crisis, producers quickly went beyond that to growing potatoes and sugar beets, which then drew in processing companies. It further evolved to the expansion of specialty crops such as peas and beans for export, says Madramootoo.

All this success has also come despite a cap on water use, Madramootoo adds. Irrigators worked with government to create legislation and water regulations. They’ve embraced the use of water saving technology and have made canal improvements and also converted pressurized systems to energy efficient ones.

“It shows the potential for irrigation,” says Madramootoo. “You can use water wisely and efficiently and have a cap on water, and producers will adapt. In turn there is enough produce for processors, for exports and for value-added endeavours.”

Continued from page 27

into high tech storage facilities that were never fully utilized. Then, when the company finally went bankrupt, many farmers suffered heavy losses.

Could it be the memory of SPUDCO prevents producers from signing up for those free water rights Mark Gravelle talks about? Scientists, economists and governments see the water, see the land, and see the need to put the two together to grow food for a hungry world and through it, to grow the provincial econ-

omy. It will be up to them to create policy and regulations around water use. And to build the infrastructure. But will Saskatchewan farmers come?

Perhaps Sask Ag's John Linsley provides the best picture of actual water use in an expanded Saskatchewan irrigation system.

Water flows into the province from Alberta, which typically sends about 80 per cent of the flow downstream. Through agreements Saskatchewan is entitled to 50 per cent before sending it further downstream to Manitoba.

Right now Saskatchewan uses less than five percent.

In other parts of the world 70 to 80 per cent of water consumption is used for agriculture, Linsley says. "We think it is reasonable to suggest that 20 per cent go to agriculture."

"Even with climate change and the potential for drought, we can store and irrigate for two to three years without any flow," Linsley says. "The 2001 drought was as close as we ever came to using our 50 per cent, and we were able to sort it out with Alberta, so it can be done." **CG**

WHERE SCIENCE AND POLITICS MEET

In 1967, the Gardiner Dam on Saskatchewan's Lake Diefenbaker was built with the potential to irrigate half a million acres. Today only 110,000 acres are irrigated and only two percent of available water is used. Study after study has indicated a huge boon for agriculture, industry and employment if the irrigation potential were to be reached.

While successive governments after 1973 did little to further the plan, the province appears to be seeing what those early visionaries saw.

"The thing people don't realize is that we have plenty of water," says agriculture minister, Lyle Stewart. "In Saskatchewan we don't use enough of our water. And if we don't, someone else will... we have plans for irrigation and are moving on them. These are huge projects and there is a lot of momentum on them."

It's these projects that will develop the critical mass necessary to attract processing and to provide for the growing needs of industry and cities. But the cost of these projects runs in the billions.

Stewart says an intergovernmental agency on irrigation is in place to design funding agreements. "They could be P3 agreements, or there are a number of federal, provincial, municipal arrangements. These are very complex deals."

"Irrigation is a priority of mine as agriculture minister. I won't likely see it (new infrastructure) in my time as minister. I probably won't even see it started," Stewart says. "But I will be working toward it."

The first step, if one is taken, would probably be what is called the "Qu'Appelle South" project. It could include 130,000 acres and, as it's situated near the Regina/Moose Jaw corridor, it would provide for potash mines in the region as well as the needs of the two growing cities. "It makes sense to do it all together," Stewart says. "An irrigation district has been established and the province has funded a preliminary engineering study which indicates significant benefits for the province and the region."

"Politically it is not such a difficult sell anymore," Stewart says. "It was hard slogging in the early days. It started out with a bunch of producers who really started to push about 10 years ago."

But if the province builds it, will they come? The farmers? The processors? Stewart believes they will. He points to the Alberta example. Expanded cattle feeding followed irrigation in that province and resulted in a huge packing industry. He says Alberta provides a good example to Saskatchewan of what is possible.

"It was fortunate they went ahead of us," he pauses and laughs. "Except that they got the packing plants. But we have better options for management now than when Alberta started, and better technology for equipment on the farm."

"Young producers out there are ready and willing to invest in infrastructure in their own areas. More and more, the potential of irrigation is understood in this province," Stewart says. "Producers now are early adopters of technology and new ideas."

And the processors? "We've been trying to attract them all along," Stewart says. "They like the atmosphere in Saskatchewan and want to be here, but they need the critical mass... the irrigation has to be in place before that can happen."

Dr. Chandra Madramootoo thinks that can't happen too soon. He's the dean of agriculture and environmental sciences at McGill University. A renowned voice in water management, he has worked on irrigation projects across Canada and around the world. He believes Saskatchewan has an enormous role to play in global food security. And he thinks the expansion of the province's irrigation system requires no further study. Only action.

The land and water resources of countries like China and India are stretched as a result of population growth. "The challenge to feed their populations creates markets for us," Madramootoo says. "There's no way Saskatchewan cannot be involved. We are already producing lentils and peas for that market, and their demand for meat is growing as the middle class grows. If the province has good water management and gets the private sector working on this, Saskatchewan has a huge role to play."

Madramootoo argues that one of the advantages Canada has, which extends to Saskatchewan, is a brand. While they can always be tweaked, overall food safety standards are good and if you add in environmental quality, Canada's reputation in the world is good. We have the necessary institutions and regulatory pieces in place, he says, adding that Brazil, Argentina and the U.S. don't even come close. "Saskatchewan can use all of this to its advantage."

Of course the use of water for either agriculture or industry is not without controversy, and concern over supply and the environment are foremost in many minds. Madramootoo stresses that the whole irrigation process has to happen in an environmentally secure and safe way so that the resource is not degraded and technologies are used for conservation. "If we do a better job now, it is the price to pay for a clean, safe and secure food supply."

And he is firm on one point. "The development of the natural resource industries cannot be at the expense of agriculture and food production." In other words, use water to grow food before committing to potash and oil.

Lyle Stewart seems to agree. "I don't remember a time when the importance of agriculture was ever such a priority," he says. "Agriculture is our best chance for economic growth and will not be sacrificed for anything else."



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For veg grower Dan Erlandson, the Prairies plus water add up to opportunity.



GETTING FRESH IN SASKATCHEWAN

The farmers in Prairie Fresh Food Corporation are transforming the world's breadbasket (at least a part of it) into their own salad bowl by getting as business minded as grain growers

By Anne Lazurko, CG Contributing Editor

The famous and predictable vista of Saskatchewan includes tracts of yellow canola, fields of wheat bending to the endless wind, and more recently, the deep leafy green of soybeans.

But irrigation pivots, rows of cucumbers, beans and corn? Not so much.

Still, despite its small population and few urban centres of size, Saskatchewan folk are demanding more locally grown and fresh produce. And local growers are responding, including growers like Dan Erlandson, a young vegetable producer who's been gardening since he was 16.

Erlandson is quiet, well-spoken and confident as he talks about the history of his farm and its future potential.

A green thumb and an entrepreneurial spirit run deep in this family. His mother and grandmother started gardening south of Saskatoon on their farm near Outlook in the mid-'80s, and their efforts morphed into an extra source of income that kept their grandfather's struggling grain farm alive.

Erlandson's parents ran Spring Creek Gardens until the late '90s when they bought the Berry Barn near Saskatoon, a greenhouse and restaurant set along the South Saskatchewan River.

At the old location, Erlandson began to garden in the summer while playing junior hockey in the winter. Now married to Chelsea and with a two-year-old daughter, he is at the forefront of an effort by Saskatchewan vegetable producers to establish more and bigger markets for their fresh field produce.

His Spring Creek Gardens is one of 16 farm members of the newly minted Prairie Fresh Food Corporation (PFFC), which just last spring struck a deal with the Grocery

People to supply fresh produce to Federated Cooperatives Limited (FCL). The produce is packaged under the Home Grown Saskatchewan brand with the tag, "Taste the Difference."

"Three years ago, a couple of guys from the co-op came to us asking about purchasing local product. We had a series of meetings and things grew from there," Erlandson says. "We started out almost as small and grassroots as you can be."

The new corporation is striding forward one baby step at a time. Erlandson says slow expansion is necessary with vegetable production because the cost of investment is high and markets are not always predictable.

"Vegetables are not like grain," Erlandson says. "We don't always have a market for all of our production, and it has a short shelf life, so we need the markets to be there when the produce is ready... It's been encouraging that the proposal came from the co-op, which means the pull is from the consumer. It makes us more confident in the market than if we'd have gone looking for it."

Erlandson grows 70 acres of everything from lettuce and peas to beets and eggplant, all under irrigation in the Outlook Irrigation District south of Saskatoon. He sells almost everything at farmers markets in Regina and Saskatoon, eight per week for most of the summer. He contributed 14 acres of corn to the PFFC deal in its inaugural year while other growers were able to supply 17 different products to FCL through their agreement, including dill, brussels sprouts, rhubarb, beets, beans etc.

While people from Manitoba and Ontario and, well, just about anywhere else in Canada, might be scratching their heads over any level

Continued on page 32

Continued from page 31

of excitement about the availability of fresh produce, this is a big deal in Saskatchewan.

According to 2010 federal government statistics, the farm gate value of fresh veggies was up 24 per cent compared to the five-year average. The total value of the Canadian fresh produce market was \$593 million, and Saskatchewan only accounted for \$2 million of that.

Manitoba, with the huge influence of grower-owned vegetable supplier Peak of the Market, had \$33 million and Alberta \$23 million. So to say vegetables are not a traditional crop for Saskatchewan is an understatement.

But as far back as 1999, reports indicated that vegetable production in Saskatchewan could be profitable and should be developed, particularly through enhanced irrigation projects such as those around Lake Diefenbaker.

Enter Connie Achtymichuk, vegetable

specialist with Saskatchewan's ministry of agriculture. She is a force to be reckoned with, working tirelessly to bring producers together to form PFFC, and helping them approach the province's retailers. She's been instrumental in establishing branding and packaging as well.

"Saskatchewan has natural advantages," Achtymichuk says. "We can grow a good quality crop with very few pesticides."

Achtymichuk saw the potential for producers if they worked together to build efficiencies around transportation, storage, shipping, packaging, quality controls and uniformity. "We are creating a system where none has existed," she says, agreeing with Erlandson about the need to move slowly.

She sees a huge potential for growth. "I don't know if we could have done this 10 years ago because the demand for local food wasn't there," she says. "The timing is very good now in terms of consumer interest."

Ron Welke, associate vice-president of food for FCL, agrees the timing couldn't be better and says the branding helps customers to recognize that the products are locally grown. "The No. 1 reason we got into this deal is because the products are fresh and we are supporting the local economy... it's consumer driven, and the growers recognize that and retailers do as well."

"Dealing with Prairie Fresh Food Corp gives us the ability to do some branding and create excitement," Welke says. "They are growing to the standards we want, so we can commit to making their product available."

Erlandson sees the growing demand for locally grown products as simply better consumer awareness. "People didn't know we could grow vegetables in Saskatchewan. Now they know, and the feedback has been unbelievable."

"Freshness and quality are more important to people. They like the idea of knowing where their food comes from. They like having some communication with the farmer," Erlandson says. "It just makes sense to me that if you can buy a carrot that's grown closer to home, it's going to be more fresh."

Erlandson has shown his commitment to growing local. When a tour visited his farm last spring he was busy building housing for the eight temporary foreign workers he employs on the farm every summer. Like many agricultural employers in the province he says he couldn't operate without them. He also employs six other people to work his booths at the various farmers markets.

PFFC's future might hinge on getting more producers like Erlandson involved in order to build a more constant wholesale supply. Achtymichuk says one of the challenges is building trust.

"In my dreams we would have 60 producers," she says. "But growing vegetables is an expensive proposition. They need to know they've got a market before they invest."

Erlandson agrees. "It's important that communications between producers be wide open. Sharing of information is a really big thing: logistics of growing, storage, agronomy."

Down the road, the group will need central shipping and packing too, but Erlandson is confident. "If we have success on a small scale for a year or two, others will see and hear about it. I'm sure it will be a natural progression to get more producers involved." **CG**



"We started out as small and grassroots as you can be," says Erlandson



Can you develop a thriver's mindset?

These seven steps will help you thrive, not just survive

By Pierrette Desrosiers, work psychologist, business coach and author

We face challenges and disappointments. What is it that determines whether you will overcome these and thrive, or merely survive? Some people have developed a thriver's mindset. They grow during difficulties by leaning into stress, and by relying on special resources.

There is good news, however. Science is showing that everyone has the capacity to develop this mindset.

In agriculture, as in other industries, we all know entrepreneurs who seem to grow, learn, and take the best from every situation. From research and from my experience as a coach, here are seven traits that stand out in these thrivers:

1. They know what helps them thrive.

For every area of their business and personal life, they know specifically what they want to become, develop or possess. This allows them to put their resources, energy, and focus toward those things that will bring them closer to those goals.

2. They balance the elements that are essential for their well-being:

- Career well-being: identifying and using the strengths of yourself and those around you every day, choosing tasks according to these resources.
- Social well-being: having strong, loving relationships (family and friends).
- Financial well-being: effectively managing your economic decisions.
- Physical and psychological well-being: having good health and enough energy to consistently get things done.
- Community well-being: the sense of engagement you have with the area where you live, doing something for a greater cause.

3. They know their big "why."

In addition to knowing what makes them thrive, they also know why they value certain things. They are clear about their motivations. However, not all values and motivations are equally beneficial if your goal is to thrive. Research shows that:

- Intrinsic motivations and values, such as autonomy, self-actualization, harmonious interpersonal relationships, ethics, integrity, and a cause greater than oneself are associated with greater happiness and life satisfaction.
- On the other hand, pursuit of extrinsic motivations and values, such as social success, wealth, recognition, and prestige leave one more open to stress, anxiety, depression, and dissatisfaction.

4. They act according to their values in their daily life. Momentary choices and experiences accumulate to shape our everyday lives, so your micro actions lead to macro results. A small decision in farm management may have a significant impact in the months and years to come.

5. They learn to be intensely focused.

"Attention" has become one of the fastest-growing areas of study in psychology and neuroleadership. It is now recognized as a major issue in a world in which new technologies grow at light-speed rates, bombarding us with choices and making it even more difficult to focus on priorities. Our attention is hijacked by emails, texts, phone calls, and other environmental demands. In addition, there is always another journal, salesperson, or consultant telling you what to think, do, or desire. These demands distract from what is most important in order to thrive, not just survive. How you allocate your attention will substantially determine what you get in life.

6. They persevere in the face of challenge, and they have a positive sense of their capabilities. They know that, with the right resources, help, time, and energy, they can succeed.

7. They have "psychological flexibility." They can switch their attention, changing their goals, deadline, or strategies. They are open to considering different actions to achieve their life goals.

So, in order to develop a thriver's mindset, here are a few interesting questions:

- What is really important in all areas of your life (farm, family, community, etc.)?
- What do you want your life to be like in the next year? In five years?
- Why?
- What are your values? Are you being true to them?
- Do you walk the talk?
- Why don't you do the things you know you should be doing?
- What can you do today to improve?
- What can you learn from your mistakes?

Everyone has the capacity to develop a thriver's mindset. But it does require effort, perseverance and courage. **CG**

Pierrette Desrosiers, MPS, CRHA is a work psychologist, professional speaker, coach and author who specializes in the agricultural industry. She comes from a family of farmers and she and her husband have farmed for more than 25 years. (www.pierrettedesrosiers.com) Contact her at pierrette@pierrettedesrosiers.com.



If the good times are gone

Can your farm survive the next 25 years at this winter's grain prices? It may have to

By Gerald Pilger

Since 2007, grain producers have profited from unprecedented high grain prices. Even this year's record yields and high crop insurance payments have moderated the impact of the recent drop in grain prices.

Most growers continue to feel the good times they have experienced for the past six years are going to continue.

Gary Schnitkey thinks such farmers are wrong, maybe even fatally wrong.

Schnitkey is an ag economist based out of the University of Illinois, and he made his thinking crystal clear in a farmdoc daily release this past fall. Said Schnitkey: "There are good possibilities of (corn) prices being below break-even prices over the next several years."

Schnitkey bases his prediction on skyrocketing production costs. The price required to generate a positive margin on corn in Illinois has almost tripled over the past decade, he says, with the break-even price rising from \$1.67 per bushel in 2004 to \$4.65 per bushel in 2013.

With Illinois harvest prices in the \$4.30 to \$4.40 range per bushel last fall, growers in that state who had not locked in the higher prices that were available earlier in the year, or who had below-average yields may lose money on the corn they grew in 2013.

Most importantly, Schnitkey points out that the outlook for negative margins in 2013-14 isn't restricted just to Illinois, or just to corn. Rising production costs are the reality in all crops and all grain-growing areas.

Nor is Schnitkey the only economist warning of much tighter margins.

In another farmdoc daily in the fall, University of Illinois agricultural economists Scott Irwin and Darrel Good backed up Schnitkey's pessimism.

"Corn and soybean prices at the present time either have finished or are likely to finish what have been, by historical standards, very long runs above average," Irwin and Good wrote. "History suggests that it is quite unlikely that corn or soybean prices will soon experience another long run of above-average prices."

The information presented in these two newsletters is very troubling and all farmers should be concerned for three reasons.

FLAT TREND FOR COMMODITY PRICES

For their studies, the three Illinois economists compared recent grain prices against average grain prices over the last six years. The reason they used such a short period to develop an average was because it has been theorized that beginning in late 2006, the demand for biofuels pushed up commodity prices roughly 75 per cent from the average prices from 1973 to 2006.

Analysis shows that grain prices in that 1973 to 2006 period had jumped 88 per cent over the previous 30 years (1942-72) due to the escalating energy prices in the '70s, high inflation, and strong demand for grains from the Soviet Union.

Furthermore, the post-Second World War prices had jumped 62 per cent over the previous 35 years (1908 to 1942) as a result of the repeal of the price controls imposed during the early years of the Second World War and increased demand in the postwar rebuilding era.

Many economists expected biofuel demand would result in a similar step up in prices. As it turned out, the actual average for the last seven years has been very close to the predicted level. So what growers have seen as windfall prices since 2006 are actually very reflective of the current increased demand for grains, and are actually a step up in the long-term price trend.

What is scary is that if prices follow the historical pattern over the past 100 years, the next 25 to 30 years may see no major upward trend from current price levels.

Can your farm survive a generation of prices at current levels?

RISING INPUT COSTS

While most farmers may be willing to accept today's commodity prices, the problem is that costs have risen as fast or even faster than the price of grain. As a result, the break-even cost of production of an average crop is now within pennies of the current average price of the crop.

Margins have disappeared, and we are right back to the problems experienced in the '80s and '90s.

In Schnitkey's words, "Grain prices have reached a new plateau, but costs have caught up."

There is also a lack of recognition by farmers of why costs have risen. Ask a farmer about rising costs and most will blame seed costs, or fuel, or other inputs over which farmers have no price control.

In reality, much of the increase in costs is the result of management decisions farmers have made in their attempt to maximize productivity.

While it is true fertilizer has gone up in price, the increased fertilizer application rates are an even bigger reason why corn fertilizer costs in Illinois jumped from \$82 per acre in 2006 to over \$200 per acre in 2012. On top of fertilizer, farmers have also increased the use of pesticides and micronutrients.

The amount farmers are spending for new and larger equipment as well as new technology have shot up as well.

Schnitkey estimates at least 30 per cent of today's increased cost of production is a result of higher land costs. Land rents have skyrocketed as farmers compete not only with neighbours, but with foreigners, individual investors, and even investment and pension funds for agricultural land.

Unfortunately, none of these costs are expected to ease in the near future. As long as the sentiment is that agriculture is a safe investment, and as long as agriculture still seems to be booming, demand for inputs will continue to support input prices including land rental rates.

Schnitkey believes any decrease in non-land costs will be slow. Nor does he see cash rent decreasing until farmers experience a prolonged period of losses.

INCREASED VOLATILITY AND RISK

Higher average yields along with higher costs have greatly increased price volatility and risk for farmers. For example, Illinois farmers had an excellent corn crop in 2004 which led to higher input prices in 2005. In spite of the higher investment into the 2005 crop, yields averaged 35 bushels per acre lower and 2005 corn prices were 20 per cent lower than in 2004.

As a result, farmer's profitability dropped about 50 per cent. With today's costs of production having risen nearly three times, the impact of a 35-bushel-per-acre yield decline or of prices falling 20 per cent is much greater.

When the goal is yield maximization, the risks of yield and price volatility are much higher.

"We are back to a period of higher volatility and risk," Schnitkey says.

In effect, farmers have trapped themselves on a treadmill of ever-increasing productivity and cost. Farmers have already achieved the yields necessary to meet the demand from biofuel, thereby effectively capping the high prices they have enjoyed. But to achieve those yields, they have driven up production costs close to the predicted average price they should expect to receive for an average crop. Even a small yield drop or price drop could now result in negative margins.

There is no easy way off this treadmill.

Given this situation, it is more important than ever that farmers base management decisions on minimizing the cost per

unit of production rather than seeking to maximize production. This does not mean simply cutting costs and production, but rather seeking to find the level of production at which cost per unit of production is minimized. For example, it may still make sense to make a fungicide application if the expected bump in yield and quality from applying the fungicide results in lowering the break-even price needed to cover the costs of growing the crop.

It may also still make sense to rent more land even at current rental rates if existing equipment is currently underutilized and you can lower your cost per unit of production by farming more acres without adding more equipment or labour.

Farmers need to remember that the price of any commodity declines to the lowest cost of production over time. The goal in producing a commodity should be to produce as much as possible at the lowest cost per unit possible. Too often farmers just focus on maximizing production rather than the equally important part of the equation, minimizing the cost per unit of production.

After all, if you aren't the person who can produce for less and sell for less, someone else will survive when you can't. **CG**

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Smarter option use for your market plan

By Errol Anderson

There's been lots of talk about grain and oilseed growers who lost money on grain options. But it's a different story this crop year. As a strategy, using put options to protect commodity returns close to their drought-year highs has paid off in spades.

That's because put options act as price insurance. These "puts" place a price floor under your crop, and they do it without imposing delivery obligations.

It's true that you may not end up needing that insurance. If prices stay high, you may simply let your option expire. But remember this. In that situation, the grain in your bin will probably be doing just fine price-wise, and your farm won't be under threat.

If grain prices collapse, however, and you need to exercise the option, it could make the difference between profit and loss for the entire year.

"Put" options guard a price floor while the crop is growing or is in unpriced storage. Put options increase in value as market prices drop.

"Call" options are just the opposite. Call options increase in value when the futures climb higher. They do this by reopening your price ceiling after your cash grain has been priced.

Calls may seem more like price speculation than price risk management. But so is the holding of physical, unpriced grain. Indeed, replacing physical grain sales with call options may be a less risky strategy, especially since grain can go out of condition.

Remember, too, that if market prices drop, there is greater financial risk watching the value of unpriced grain drop than watching a call option premium expire worthless.

But like all things, this pricing tool must be managed. Buy quality, not quantity. One mistake that many growers make is purchasing inexpensive, out-of-the-money options. For example, let's say May canola is trading at \$500/MT. You are storing unpriced canola, but you're leery that canola may break down further into the spring market. May canola \$500 (at-the-money) put options are trading \$15/MT. But you decide to buy May \$470/MT put options for \$5/MT. Should canola break down \$20/MT, the May \$470 put premiums would only appreciate by about \$10/MT. The May \$500 premium would advance by about \$20/MT from \$15 to \$35/MT or more.

If you have a set amount of money to purchase options, it is often better to cut your order down, but purchase better-quality options.

Be wary of time decay. In the last month of an

option's life, the premium can erode quickly. A rule of thumb is to avoid holding options until expiry. If you own a May canola \$500 put and the market slides quickly to \$480/MT, your option premium value is made up of the \$20/MT you are in-the-money (\$500-\$480) plus time value. Your option premium may actually be worth \$30/MT. The extra \$10/MT is "time value." As the option nears expiry on the third Friday of April, this time value will eventually erode and disappear.

Therefore, if you own an option, try to sell or liquidate it two to three weeks prior to expiry.

Also consider using U.S. options to cover Canadian grain market exposure. Options for Chicago corn, soybeans and wheat offer great liquidity, allowing growers to enter and exit trades easily. Minneapolis spring wheat options are less liquid, but they can offer solid price protection for western Canadian wheat growers.

Canola and soybean options are also effective tools to manage price risk. Canola options trade in 20-MT increments. For soybean, one 60,000-lb. contract is nearly the equivalent of one 3,000-bushel rail car of canola. Corn options can be an effective replacement for barley and feed wheat sales. And from a feeder's viewpoint, corn is about 10 per cent hotter in energy than barley in rations. Oat options are also available on the Chicago market, and soybean meal options are an effective replacement for feed pea sales.

Another strategy is to use options to replace poorer-quality grain. Option contracts are always based on the top grade futures specifications. By selling your off-grade grain and replacing with higher-quality options, you are effectively pushing your grades into a higher-value marketplace.

You can use options as a price parachute for your unpriced grain. Plus the grower has no physical grain delivery obligation and there is no risk of margin call. Your risk is limited to the cost of the premium, yet options can inject cash flow more quickly into the farm business, and they can help you clear bin space earlier in the crop year. If traded effectively, options can guard market downside for unpriced grain or reopen a price ceiling after the grain has been sold.

Options are another tool, not the only tool in your tool box. But it is definitely worth your time to get to know them. **CG**

Errol Anderson a commodity broker and author of "ProMarket Wire" a daily cattle and grain risk management report. He can be reached at 403-275-5555 in Calgary or email" prowire@shaw.ca.

CORN GUIDE

JANUARY 2014

WHAT'S AHEAD FOR 2014?

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Contents

JANUARY 2014

	page
Corn losing acreage battle	4
Brave new world of corn	7
From the bin	9
The evolution of vertical tillage	11
The return of strip till	14
New ground	16
Weather group builds network	19
Harvesting on turf	20
Pest Patrol	22

MONEY LEFT ON THE TABLE



No one could grow a decent crop if they listened to as much wild agronomic talk as we listen to in marketing.

The old rule is still true. The curse of farming is that even though it goes in cycles, and always has, wherever you are in the cycle, you can only see reasons why it should stay that way forever.

So when prices are high, all you see are the projections for how fast the world's population is booming, and how hungry for meat China's middle class is getting, and how desperately the world will need ethanol,

A year later, when prices have dropped, all the news is about how productive the world's farmers have become.

I'm being a bit simplistic, but we all recognize the trend.

In agronomic terms, it's as if in one year, you could only take into account all the reasons why your corn yield should be through the roof, like how strong the yields have been in recent years, how open the springs have been, and how statistics show that the rain always eventually comes.

The next year you could only think of all the threats to your yield, like weed pressure, or insects, or bad weather.

Without taking into simultaneous account the good and the bad, you could never grow a crop. In fact, you insist that anyone who offers

agronomic advice be able to prove that they have done just that.

Yet we rarely if ever challenge our marketing and financial management experts to demonstrate whether their advice has been effective.

We shouldn't tar the whole industry. There are exceptions. But by too large a degree, marketing and multi-year planning haven't progressed beyond the 1950s and the launch of worldwide electronic crop updates.

In the interim, technology in every other area of farming has boosted farm incomes, while in marketing it sometimes seems that technology has only upped the speed and the volume of the unhelpful noise.

Farmers by and large have done their part. They have made huge progress in their marketing skills in the last five years. The support industry hasn't.

Not that farmers are blameless. Like anyone else, they're more likely and more willing to pay for the kind advice that they want to hear.

Nor have farmers pushed hard enough for their commodity boards, or even their general farm organizations to conduct meaningful marketing and business management research.

COUNTRY GUIDE will write more about this as the winter progresses. Too much money has been left on the table.

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CO



RN LOSING THE ACREAGE BATTLE

Across the east, farmers like Elliot Lowry are dropping corn from their 2014 plans

By Amy Petherick, CG Contributor

Be prepared to see noticeably less corn in Canada's cornbelt next year as farmers in southern Ontario and Quebec continue to switch acres to soybeans.

The 2011 federal Census of Agriculture documented a 33 per cent jump since 2006 in the number of acres farmers are planting to soybeans, and it isn't at all hard to find anecdotal evidence that this trend will only continue into 2014.

Seed sales reps in Eastern Canada started seeing corn bookings drop significantly early in the fall, and the chill spread at meetings and through social media.

While the trend may have levelled off later in the seed sales season, dealers like Elliot Lowry of Parrish & Heimbecker in Kincardine, Ont., say it won't be uncommon to see growers skip corn altogether.

In fact, Lowry may be among them. Lowry runs a cash crop farm inland from Lake Huron at Ripley, Ont., where he grew 310 acres of corn this year. For 2014, he says, he won't plant any corn at all. Instead, he'll crop 100 acres of wheat, 200 acres of Identity Preserved (IP) soybeans, and 100 acres of white beans. "There's a nice little spread between corn profits versus bean profits," he explains.

Lowry lays out the numbers to prove it. He begins by referencing the Ontario Ministry of Agriculture and Food's (OMAF) Publication 60 for corn's cost of production, since he's always found its numbers comparable to his own end-of-year figures. It lists total expenses for the 2800 CHU conventional corn he would plant on his farm at \$538.55 per acre, and then he would add \$200 per acre for land rent in his area. His yields ranged between 165 and 205 bushels per acre depending on the field, so at an average of 180 and considering the prices he could expect next fall, a farmer in his area is looking at a mere \$756 in revenue and a bleak \$17.45 per acre margin.

By contrast, conventional soybeans cost \$289.85 before land rent, and with offers of \$14 per bushel for IP beans, the average 45-bushel-per-acre bean crop would bring in \$630 in revenue and a tidy \$140.15-per-acre profit.

Plus, he adds, you can get wheat in nice and early when you're done.

"It always depends on how you can manage your equipment time too," Lowry says. "If you don't have to spread out your workload for planting and harvesting, that's going to decide a lot of corn acres at this point."

Lowry says that if he sees his wheat die off over the winter, that's when he'll change his plans for next year to include corn. But for now, soybeans are his darling.

On the Quebec border, soybeans have also come out the clear winner at the elevators this year. Arnold Kuratli operates St. Isidore's grain storage operation, milking 100 head of dairy cattle, and cropping 3,000 acres of land. After growing 100 acres of corn silage, 1,100 acres of grain corn, 1,400 acres of soybeans, 250 acres of wheat, and using the rest of his land for hay this year, he's committing to beans in a much bigger way for 2014. He'll only plant 800 acres of corn, boosting his IP soybeans to 1,600.

"I think we're already at break-even right now with the price of corn and \$200-per-acre land costs," says Kuratli. "The best opportunity to get better corn prices is if everybody lowered their acreage by 25 per cent."

"There's a nice little spread between corn profits and bean profits," Lowry explains

The switch has already helped him cut back his fertilizer, seed and chemicals costs by \$100,000 compared to what he'd paid out by this time last year, and he's locked in a healthy premium.

"If we have about a dozen countries looking for IP beans, I think we should produce them and take the pressure away from corn," Kuratli says. "Producing less for a year or two is the best way to get the markets back to normal, and I'll start with myself to do that, rather than tell someone else what to do or wait on the neighbours."

Just south of Ottawa in North Gower, Ont., with very similar circumstances, Dwight Foster's thinking couldn't contrast more starkly. Foster also runs an elevator, a 2,500-head feedlot, and a 4,000-acre cash crop farm. Foster says there's no doubt it was a win to grow soybeans over corn this year, but he wouldn't tell someone not to grow corn next year. He trusts the markets will balance out again and he

Continued on page 6



"It always depends on how you can manage your equipment too," says Ontario's Elliot Lowry.

Continued from page 5

will probably wait until spring to make his final decision about any swing acres.

"Because we have the feedlot, we need to have a certain amount of corn," Foster says. "The way our rotation works, you can't just stack your soybean acres because the price is a little more favourable than on the corn side."

Next year, Foster estimates he'll plant 2,000 acres of soybeans and 2,200 acres of corn in the 2700-2800 heat unit range. Normally, his rotation includes spring wheat, which is more popular than winter wheat since local winters make "your odds better at Vegas," but he's thankful he didn't get any in this spring. The number of acres they work means there isn't time to do much tillage in the fall, which pretty much commits him to putting soybeans back on corn ground as far as he's concerned.

"If I want to go corn on corn, I've got to pull my disc ripper out and that's going to cost me \$20 to \$30 per acre just to get that ground ready to go back into corn, and then you've got to do your spring tillage," says Foster. "We feel there are benefits to rotating even if maybe the price doesn't always seem favourable."

In Southwestern Ontario, winter wheat is much more of a factor. It's a factor in the 2900-3100 CHU area that Daryl Haanstra

of West Lincoln, Ont., services west of Niagara Falls too. Wheat is absolutely critical on his farm since he's no tilling into heavy clay. Economics are pushing commitments on corn down and soybean sales up, but a poor planting season for winter wheat means there's generally more acreage for both next spring. "We're increasing our bean acres and cutting back on corn acres on our farm, but we did get 250 acres of wheat in because we grew a lot of short day beans," Haanstra says. "The majority of the farmers around here didn't get the wheat acres in that they had hoped to because it was too wet this fall."

Jeff Shea of Shea Ag Ltd. believes his corn sales have remained mostly static largely because the wheat acreage was down. On his own family's farm east of Sarnia, they only got 100 acres of wheat in, so the remaining acres will be split evenly between corn and beans.

"We'll put more beans in and instead of growing all 3000 CHU beans, we'll probably have some 2900 CHU beans on two or three farms to get started a little earlier and get the wheat in that we missed out on this fall," says Shea. But they won't be IP beans, which Shea says they have grown in the past but aren't really set up to store.

Weed resistance comes into the equation too, Shea adds.

"Canada fleabane resistance wasn't a huge problem this year, but you can see that, if we don't get a solution soon, it's probably going to become a really big problem," Shea explains. "If I have a bunch of Canada fleabane that got away on me in a Roundup Ready field, they're not going to dock me my IP premium."

Jason Chyc, not far from Lake Erie's north shore near St. Thomas, Ont., shares the same concerns about resistant fleabane in his area, but the premium's worth it to him to walk his fields in the summer more so he can stay on top of any problems.

That's not something he could have done when they used to be making hay for a herd of dairy cattle but it's a perfect example of how there's no right or wrong way of doing things on your farm when you have a process that works for you. Rotation is a priority on their 1,000-acre farm but instead of mudding in wheat this fall, he's planning a 50/50 split of corn and beans next year. At the end of the day, he respects every farmer's strategy and always looks to learn from other people's decision-making process.

"We have a program, that's what we do every year, and that seems to be paying off for us," Chyc says. "I truly believe a good farmer has a process and they follow that process every year." **CG**

BRAVE NEW WORLD OF CORN

It can feel like the glory days are over for corn,
until you take a harder look

By Ralph Pearce, CG Production Editor

It's easy enough to get pessimistic about corn these days. Just look at Chicago prices, or look at all the news reports from all around the world about the tremendous corn production potential of everywhere from Brazil to Ukraine.

Or you could look closer to home, and get a dose of optimism.

That's what Ken Nixon is doing from his farm at Ilderton, just north of London, Ont. Nixon agrees there's a lot of history working against mainstream crops, especially corn. Farming in an economic climate of \$3.70 corn is a troubling reality, he concedes, especially coming off \$7 and \$8 corn for the better part of a year.

But instead of complete despair, Nixon sees hope and opportunity, particularly when he looks at what happened to Ontario's soybean and wheat sectors over the past 20 years when they faced similarly bleak prospects.

Visionaries including Peter Hannam of Woodrill Farms at Guelph helped blaze a trail for value-added, identity-preserved soybeans, Nixon points out, and through their tireless work, Canada has earned a quality-based reputation and strong premiums for its food-grade soybeans.

Much the same process has evolved for Ontario wheat, says Nixon, who as a director on the Ontario Wheat Producers Marketing Board during the 1990s helped chart the sector's transition out of mandatory pooling into an open market.

It was only 15 years ago that Ontario's wheat acreage was 95 per cent soft white, Nixon points out. "We went from a completely soft white winter scenario and we diversified into hard red springs, hard red winters and soft reds."

There was lots of doom and gloom, Nixon recalls. Millers and bakers — and more than a few farmers — thought that as soon as the U.S. noticed the new competition coming out of Ontario, they'd turn their competitive guns against us and it would be all over.

"Exactly the opposite happened," says Nixon.

Now, the wheat sector in Ontario has diversified and strengthened, and today,

Ontario's mills grind nearly three times more wheat than they did in the 1990s, with a lineup that includes more bread flour than pastry, and a small durum market as well.

Says Nixon, "We've gone from a vanilla, one-wheat system — saying, 'This is what we grow, and the markets will fill it for us,' — to diversifying our production into something closer to what the market actually needs."

Now there's a growing consensus that eastern Canadian farmers need to take charge of their own corn future.

Or does anyone really believe it's practical to think of shifting Ontario's 2-1/2 million acres of corn into sweet potatoes, quinoa and oats?

CORN DRIVES EVERYTHING

Al Mussell believes it's impossible to overlook or replace corn. The crop is too big and too powerful, both on a continental and a global basis.

"It all comes back to corn," says Mussell, senior research associate at the George Morris Centre in Guelph. "In the West, some farmers will use corn futures as their benchmark or hedging instrument rather than barley futures, and they have for years. It's hard to overstate how ubiquitous corn is."

Besides, corn is the world's feedstock, and with the rapidly expanding middle classes in China and India demanding more and more meat, that's enough to assure corn a future market.

Plus, corn has another huge advantage. It's simple, Mussell says. It's "just" No. 2, yellow dent corn — and it can be used to produce quality protein products on a greater scale than any other crop.

"We're going to have a lot more production, but on the other hand, we believe we're going to need a lot more," says Mussell.

Mussell sees no reason to worry about Ontario growers struggling to survive in a market oversupplied by corn grown in Ukraine, South America — or even Western Canada.



Continued on page 8

But he does have some concerns about the scale of Ontario production, and the price of land. It'll be tough to compete on a volume basis with a state like Iowa, which grows 14 million acres of corn, he predicts.

"Iowa is a global player in the market — we are not," Mussell says. "We've got areas that grow corn just as well as Iowa does, they're just not as big."

Ontario will never have the economy of scale of Iowa, Nebraska or Illinois, Mussell says. "So the question you ask then is, if you're a bit player in the corn market, where do you play?"

The other issue is the spiralling value of land in Ontario. "It will have the effect of decreasing a farmer's flexibility and their willingness to try new things," says Mussell. "You worry about this in the context of the potential for five- to 10-million acres of grain corn in Western Canada in the next 10 years."

ECONOMICS AND MANAGEMENT

Grain industry insider Martin Harry believes agriculture has been stuck in a "one-year memory situation" for too long, so the immediate outlook is all that seems to matter.

"It's going to be different this winter compared to last," says Harry, eastern marketing manager for SeCan. "Farmers aren't flush with money the same way because we do not have \$7 corn. In our business, it's a knee-jerk reaction and we're always a year late. Nobody grows a lot of seed because last year, nobody wanted it; next year, everybody will want it and we won't have enough."

Spring will be different too, Harry says. Already there are predictions that the U.S. will boost its soybean acreage, which could be bullish for corn.

Other farmers will look at other options, Harry also believes. He points, for instance, at the call a SeCan dealer in eastern Ontario got from a southwestern farmer this fall who couldn't get his wheat planted because of wet ground. "They want to put in March oats," Harry says. "If they (farmers) can't make it in corn or soybeans, they're going to look at other options. We're going to see white beans and coloured beans at higher prices per pound, and with the harvest conditions, you may see a lot more dry beans. We're going to see a lot more IP

soybeans at \$3 premiums — and we have varieties that are sold out already."

Meanwhile, Larry Martin, principal of Agri-Food Management Excellence, watches how crops are marketed, and he sees much the same mindset that existed years ago, when the price of corn was barely above cost of production. Farmers don't always react when the market provides an opportunity.

Farmers across the country wish they had locked in their grain and oilseed prices last spring. More to the point, however, if you suggest to Martin that the downturn in commodity prices means more farmers will invest in building processing and manufacturing facilities instead of growing corn or soybeans, you'll be met with a healthy measure of doubt.

"I think it would be fantastic to do that, but I'm not sure that mindset is going to come around in my lifetime," says Martin. "That's exactly what we should be doing."

"For most of the last 15 years, we haven't not even invested in the processing industry at the same rate as depreciation," Martin says. "You have to have economies of scale — that goes hand in hand with the market access, and you have to replace labour with capital — you have to have high technology. Therefore you have to invest a little bit more than depreciation, and we're just not doing it."

SHIFTING THE MINDSET

For Gord Surgeoner, in the midst of all the talk about shifting volume production to more value-oriented farming, the danger is that we often lose sight of the opportunities. The notion that "corn is corn" and that it's suitable only for feed, high-fructose corn syrup and ethanol means that we're ignoring huge possibilities.

"If you look at what we grow, it's the feed side of the equation," says Surgeoner, president of Ontario Agri-Food Technologies in Guelph. But to Surgeoner, everything can be changed. We can grow new kinds of corn that make better feed, we can breed livestock that will produce specialty meats and other products, or we can produce whole new classes of industrial or consumer products from corn.

Surgeoner attended the Ontario Economic Summit in October 2013, and was intrigued by Ontario Premier Kathleen Wynne's challenge to provincial agriculture. By 2020, Ontario is anticipat-

ing the addition of 120,000 new jobs as well as a doubling of the export rate of growth and the evolution of the way that value is increased. From Surgeoner's vantage point, that means we'll have to go beyond being the growers of food, fuel and fibre, and become sellers of a process as much as a raw material or a product.

"By 2020, we're going to have these measures in place, and a lot of what we're going to do in science is for our food industry," says Surgeoner. "We're going to automate it, make it more efficient, with better information technology and reduce our labour inputs so that we can compete globally."

It becomes a model not just for a value-added service, but recognition of the knowledge that goes with it. If we come up with solutions relating to food or energy processing, there's a good chance, Surgeoner says, that somewhere else in the world there is someone who needs that solution and is willing to pay for that knowledge and expertise.

It comes down to not only creating a "Canada brand" but also defining real value through the unique properties in a feedstock or a process that saves on energy or increases production, and a finished product that adds value in its performance. Surgeoner points to the University of Guelph's use of plant-based automotive oil in its fleet of vehicles as an example. Although there's a little sticker shock at the 20 per cent premium for the oil, the full analysis shows there's a 25 per cent reduction in the number of oil changes during the course of a year. It also means less wear and tear on the engine, and the people who drive the vehicles have access to them for one or two added days each year.

"We're going to have to be so good, that people say, 'I'm willing to pay for that,' — which requires marketing but also policing," says Surgeoner. "We also have to remember that some of these products may be embedded in a car or an airplane or a plastic box, and we have to get a mindset change that we're moving beyond just the food and feed. In reality, most of it is the feed, but instead of feeding a cow, a pig or a chicken, I'm feeding bacteria, yeast or fungi, and then the livestock. And how do I contract so that those guys are going to buy from me, the Ontario grower, who's nearby? I'll tell you what though, if those companies end up in Texas, we're out of those opportunities." **CG**



From the bin

Shifting market psychology and the evolving nature of the Ontario corn market is making for some complicated decisions for farmers with corn in the bin

By Phillip Shaw, CG Contributor

If there is one constant in agriculture it's change — and nowhere is that more true than in the commodity markets, which are subject to the vagaries of weather around the world.

In 2012 the most devastating drought to hit the United States in modern times sent the price of corn soaring to record levels. Those were heady times for corn and as we looked into 2013 the consensus was that surely they could not last. It's rare for such damaging weather to strike two years in a row.

As expected, in 2013 the U.S. Corn Belt got much more benign weather, renewing corn ending stocks within the United States and around the world.

At press time, the final numbers weren't in yet for the American 2013 corn crop. They will come in January, 2014 with the USDA release of its final report. In its report released on November 8, 2013, however, the USDA pegged corn production at a record 13.989 billion bushels.

The USDA also put the average yield at 160.4 bushels per acre, and corn ending stocks were estimated at 1.887 billion bushels, which weighed heavily on the market.

If you compared to where we are now to a year ago the market environment is strikingly different. Last year the United States produced 10.78 billion bushels of corn with an average yield of 123.4 bushels per acre. This has put a renewed bearish tone on the corn market, with a long climb down from record prices last year. For the Ontario producer with corn in the bin it makes for a

completely different market psychology than we've experienced recently.

In Ontario, the corn crop in 2013 was not quite as good as 2012, but still very good historically. While last year yielded approximately 160 bushels per acre provincially, the 2013 crops may still average 155 bushels per acre. As of the first week of December, some 20 to 30 per cent of the Ontario corn crop remains in the field, with difficult harvest conditions. Overall, 330 million to 340 million bushels of corn is likely to come off these fields, setting up a scenario where Ontario must export its surplus. Export pricing, especially into the United States tends to be at the lowest common denominator price, which makes Ontario corn some of the cheapest in North America.

This means that for the Ontario corn farmer who did not pre-sell corn above \$5 per bushel, and who now has old crop in the bin, a marketing strategy is needed to maximize returns. How should we read the market ahead looking for possible clues to pull the trigger on sales?

With so many bearish black clouds in this market, is there hope for higher-priced futures sales ahead?

One important factor to consider is the cost of storing grain. Sure, there may be some solace for farmers who have their corn safely stored away in their bin. However, just because those bins shone in the late autumn sun doesn't necessarily mean that they should have been filled. There is a cost to those storage bins just as there is a cost to commercial storage. For instance, some local elevators charge for elevation of corn at \$2/MT with .08/day/MT charge on top of that as time goes forward.

A farmer with 500 acres of corn at 180 bushels per acre would produce 90,000 bushels or 2,286 metric tonnes (MT). This

"With so many bearish black clouds in this market, is there hope?"

Continued on page 10



Continued from page 9

would cost \$182 per day to store for a total of \$5,486 per month. The farmer would need to garner an increase of slightly over six cents a month to break even on storage costs. Paying the \$2/MT would add an additional \$4,572 in upfront costs. So with corn in the bin, whether it's commercial storage or on farm storage, these costs need to be considered, although in some ways they are sunk costs as old-crop corn sits in the bin.

Where do we go from here? Much will depend on where you think both the futures and the cash markets will be going into the new year. Much will also depend on your financial position as well as your goals for your farm. Some of it will depend too on your geographic location and your access to different markets, whether that be for livestock feed, ethanol or some other type of end use. These variables need to all be considered before making any blanket statement on what to do with that corn in the bin. What might be an opportunity for some may not exist in other parts of the province.

Some farmers may want to take a position in the futures market. That is entirely a management choice, although it will make the marketing somewhat more complicated. Dealing with the broker or trading by yourself using computer software are all options. Others may decide that a call option is the way to go, hoping that the market will go up, but replacing the physical commodity

"That's a sea change adjustment for Ontario cash corn prices."

with paper. Options can be very complicated as premiums rise and fall. However, they do act as insurance policies for farmers who choose to go there. Options are traded in 5,000-bushel lots. At the time of this writing an "at the money" March corn call option would cost 16 cents U.S., plus brokerage fees of between two to five cents per bushel. Options almost always do serve their purpose, even when they finish "out of the money." Costs and outcomes make for a more complicated marketing decision.

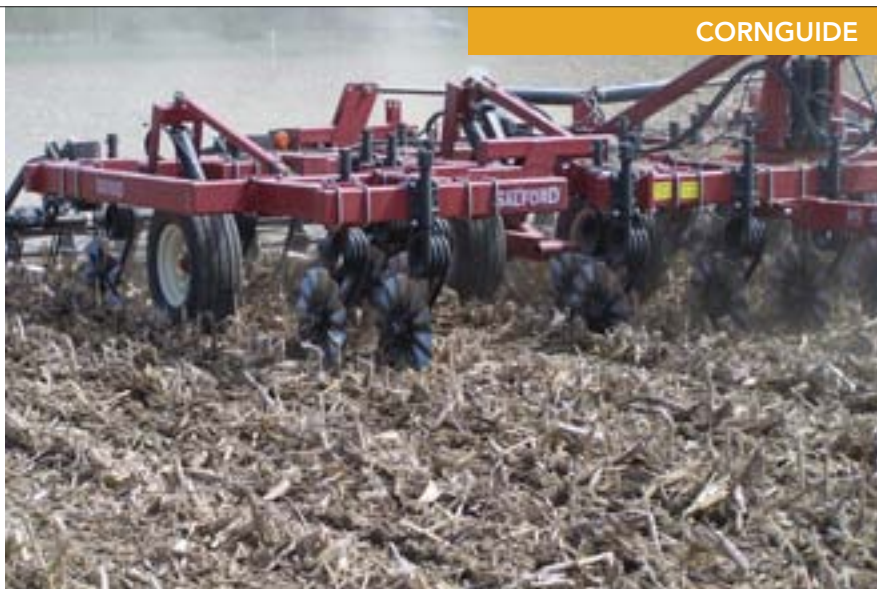
Grain companies use options, points out Brian Cofell, retail grain manager for South West Ag Partners in Chatham, Ont. From Cofell's perspective, once the grain is sold, options can allow the farmer to stay in the market with the possibility of taking advantage of future price opportunities. But Cofell also suggests that if a producer decides to get involved with options, it's important to work with someone who can manage that option for them.

The way forward for Ontario corn producers with corn in the bin also has to be measured against the very structure of the provincial corn market. It is not like it used to be. Historically, Ontario hasn't produced enough corn to meet its needs. Generally this meant a seasonal surplus of corn at harvest time that had to be exported out at

low prices only to be imported back from the U.S. at higher prices in late spring or summer. This was often referred to as "import pricing," where the corn basis went higher reflecting the replacement cost of U.S. corn coming into the province. Many corn farmers across the province took advantage of this seasonal pattern, partly through building their own storage. Marketing plans were done accordingly.

However, since approximately October 2012, Ontario has been a net exporter of corn to the United States leaving producers with an export basis price, which is one of the lowest in North America. This is happening because of the increased per-acre productivity as well as our penchant to plant over two million acres of corn. As long as Ontario producers continue to plant over two million acres of corn annually, and if productivity gains continue, an import basis for Ontario corn will be much less likely. This may change the seasonal tendency for basis appreciation permanently. That's a sea change adjustment for Ontario cash corn prices. Old-crop corn in the bin now faces that unpleasant market reality.

So the road ahead for corn in the bin is in flux. Is there hope? Sure there is, especially if the South American crop gets in trouble, coupled with a production problem in the United States in 2014. Timelines for clues from South America are within the next two months, in the U.S. May to July 2014. USDA reports will serve as flash-points along the way. **CG**



It's how you use your
deep tiller that makes
all the difference in
crop performance

The evolution of vertical tillage

**By Ralph Pearce,
CG Production Editor**

What's vertical tillage? It seems like a simple three-word question, and you'd expect the answer to be just as straightforward. But no matter which farmer, equipment dealer or agronomist you ask, or how many times you ask them, you're likely to get a different answer every time.

In no small part that's because the focus of vertical tillage has evolved over time, affected by everything from advances in corn genetics to the widespread adoption of zero tillage.

Historically, the first vertical-tillage systems were introduced by manufacturers including Aerway, Phoenix, Phillips, McFarlane, Summers, Great Plains and Salford. They could slice the ground and create — as some in the U.S. have referred to it — “tillage for no tillers.”

Then came the late 1990s and early 2000s, when vertical tillage began to be known as “deep ripping.” That practice came to the fore as a remedy for compacted plow pans, with a bid to disturb the soil surface as little as possible. In fact, when watching deep-ripping demonstrations at trade shows such as Canada's Outdoor Farm Show, it was surprising to see just how much of the surface remained relatively intact, including any residues.

Although he acknowledges that defi-

nitions and practices have changed in the past 10 to 15 years, Leo Guilbeault has always used vertical tillage to manage his residues. Farming about 2,000 acres near Belle River in Essex County, Guilbeault has been no tilling for 25 years, and part of that evolution goes back to the day when no till was exactly that, you left all of the residue on the ground after the harvest.

“The problem with that is that after a few years, you got too much residue, and it wasn't breaking down,” says Guilbeault, who's been using a Salford RTS unit for 10 years. “With these new corn hybrids and soybean varieties that are giving us more consistently high yields, you get a 200-bushel corn crop or even a 50-bushel soybean crop, it leaves a lot of residue and it's just not breaking down quick enough. So the spring stays too cold and wet because there's too much residue covering the ground.”

Using the system he has in place, Guilbeault says his soil organic matter content has increased substantially, and he's done the comparisons with soil tests from 20 years ago versus those done this year. But he also notes that the stronger stalks that have become testaments to the work of plant breeders and the seed companies have

Continued on page 12

become something of a bane to farmers. He adds that he's helped strengthen the stalks as well, adding boron and sulphur to his fertilizer mixes and keeping the plant healthier.

"But with the RTS, it does a good job — two quick shots of that and it mixes enough soil with the residue to help with the breakdown process," says Guilbeault.

In the past couple of years, soil health and residue management have taken more of a centre-stage position in vertical tillage discussions. This has happened for a number of reasons. Most importantly, research evidence has begun to mount that suggests much of the deep ripping wasn't being done properly. In many cases, the shanks and shovels were simply lifting the soil profile and dropping it back in place, causing reconsolidation without providing a solution.

One former equipment dealer pointed out that if a farmer didn't diagnose the problem by digging a soil pit and properly identifying the existence and location of a plow pan layer, he was

opening up the surface and letting air and moisture in to infiltrate the soil, but didn't do a good job of managing crop residue. It left it unanchored on the surface of the field, and there was the risk that the tillage operation would cut it into pieces small enough to be carried off the field by wind and water.

"This is where the second generation came in, that not only did we have to cut up the residue, we also had to anchor the residue so that it wouldn't move," says Hosking. "What they were trying to do in the first place was start the decomposition process a little faster, trying to handle those increased yields that we were getting and of course, the Bt stalks that were so much tougher to cut in the first place. By anchoring the stalks, it accelerated that decomposition process, so I think where VT is now is that it's known for residue management."

But it wasn't just residue management that needed to improve — some of the early designs had issues with how they moved soil around in the soil profile, creating unintended consequences.

"The other thing we worried about

Today, adds Hosking, growers have to be a lot more creative to overcome the residues they're helping to create. If growers are rotating their crops, he says, it's difficult to plant soybeans into the corn-stalks left behind by improved genetics but also the longer growing season.

"We can talk about stalk chopper, and that really was the first thing that a lot of guys tried to work with, but that created such a mat, it wasn't any better to plant into," says Hosking. There are some growers who will use the stalk chopper as a first step, and then mix it in using vertical tillage. "But if you're just going to leave that all on top, that's not the answer."

The genetics are a large part of the need for change, but the quicker pace and the sense of urgency in the field is also having an impact. According to Roger Murdock, in charge of North American distribution for Ingersoll Tillage Group, farming larger tracts of land often presses farmers to "get the job done" faster. And that means dealing with higher speeds.

"What's needed in that case is a more aggressive disc blade to process the residue, but you also need a disc blade that will hold its edge," says Murdock, who is based in Indianapolis, Indiana. "Anybody can come up with a new blade, and after the first 50 to 100 acres, everything looks fine, but it's when you're into the thousands of acres that you need to keep that edge to handle that residue that it really matters."

Murdock makes that distinction in light of the trend he's seen develop in engineering designs for optimum speeds. Not long ago, that meant a range of four to eight m.p.h. But today, those same disc blades need to withstand speeds of eight to 12 m.p.h., with some influence on speed coming from smaller, more compact farming operations in Europe.

"It's not only the residue. If you hit a rock at four m.p.h. or you hit a rock at 12 m.p.h., there's quite a difference," says Murdock. "There's a lot that has to be done in metal technology to be able to keep it from shattering or cracking, plus there's friction that's involved, as well. Each one of our products that we have is unique to each one of our original equipment, and it's not just to give them product differentiation, it's also to give them the optimum performance. Whether we change the concavity, it's still very specific to that individual's specific machine."

**"After a few years, you got too much residue,
and it wasn't breaking down."**

— Leo Guilbeault, Essex County

more likely to fail in his bid to remediate compaction. Without a soil pit, the depth was more of a guess, and in one case that this dealer witnessed, the farmer's tractor wasn't powerful enough to pull the implement at the required depth, and he wound up burying and damaging the rear wheels.

The other factor that's played into vertical till's recent evolution is increased corn yields. The genetics have improved substantially in the past 10 years, and advances in agronomy and the use of seed treatments have enabled growers to plant earlier with longer-season hybrids. That's left farmers to deal with tougher, somewhat greener stover, and that's driven the equipment manufacturers, agronomists and researchers to make necessary adjustments to what defines vertical tillage.

Steve Hosking, a product specialist with equipment-maker Sunflower Manufacturing, suggests we've now reached a new generation of vertical tillage.

Hosking believes the first phase ran its course because it did a good job of

with deep ripping was letting that nice fine soil drop down into those trenches," says Hosking. "Your nice ground at the top was going beyond where you'd be able to utilize it, and you were basically turning your fields upside down."

In the early days many fields also had a history of lots of tillage — at times bordering on recreational — which in turn created hard, compacted pans that needed to be broken up, but required some heavy-duty equipment to do the job right.

"The other thing that came into play there was the horsepower required to do (deep ripping). And if you don't have tilled ground, some guys believe that it was a great way to get rid of compaction. But if they managed their practices differently, as far as not getting on the ground (too early or too wet) to create that compaction in those conditions, or changing tires or reducing truck traffic or restricting them to certain areas, they'd only have to rip those areas that were compacted," said Hosking.

Part of what Jim Boak finds both interesting and challenging is the interchangeable nature of the terminology used in describing various forms of tillage. Vertical tillage came to mean deep ripping, which then became synonymous with the Turbo Till (so some other brand-name unit) and now it has become associated with implementation of surface residues.

"My first comment is that vertical tillage is — plain and simple — the vertical movement in the soil," says Boak, national sales manager at Salford Farm Machinery, near Ingersoll, Ont. "Anything else is conventional tillage, but what's happening is our language skills don't lend themselves to getting it right. It's similar in that we have made a distinction between no till and conventional till, where one is right and one is wrong."

Boak believes the same thing is happening with vertical tillage and conventional tillage, where one is considered right and the other is wrong. In his opinion, it's not about which one is correct, it's about soil and residue management, and it's about understanding

"Not only did we have to cut up the residue, we also had to anchor the residue so that it wouldn't move."

— Steve Hosking, Sunflower Manufacturing

what your farm needs and what matches your philosophy and soil, and then choosing the right tool. These are just tools, he stresses. A researcher in Kansas may be working on the best approach for soils in that state — or an agronomist might be working on solutions for an Essex County grower — but the farm outside of Guelph may need a configuration or combination of treatments that's completely different.

"One of the things I'm seeing happening, with the tools or this group of tools, is that they all get labelled as vertical tillage," says Boak, adding that farmers will run their tools too shallow, whether the stalks have been chopped or not — two or three inches deep. "And they get this wonderful black look on top, yet when you dig down, that soil is full of residue."

Soil, says Boak, digests plant matter in

much the same manner as a human stomach digests food. Feed it right and it functions according to expectations. Feed soils poorly and there's a greater risk of doing more harm than good. If you're not considering the impacts of air and water passage through the soil profile, or expecting the top two to three inches of soil to do the work of six, you're going to be disappointed, not only planting into poorly decomposed residues below the surface, but also with the yields and the resulting soil conditions.

"This is the other thing that separates vertical tillage from shallow non-vertical tillage. In true vertical residue management, you are digesting most of those residues on the surface," warns Boak. "If you are simply mixing residues in the top two inches, you're just putting those residues into the seed bed." **CG**

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Strip till's return to Eastern Canada is built on the availability of RTK technology and the ability to elevate the planting zone and add a fertilizer application in the spring.



The return of strip till

Progress is slow,
but RTK is helping... a lot

By Ralph Pearce,
CG Production Editor

Do you remember more than 10 years ago, when researchers and extension staffers were doing all they could to make strip till a reality? Back then the practice — also widely referred to as zone till — showed a lot of promise, but there were also a lot of headaches.

The key was the challenge of incorporating dry fertilizer and tillage in the fall, then coming back the following spring to try to visually line up the planter over the berm and deliver the seed and nutrients into the prepared ground. While the people interested in this technique worked hard at it, they were never able to show an economic benefit, no matter how much it seemed like the technique should have delivered that bonus.

Since the turn of the millennium however, there have been myriad advances in agronomy, technology and knowledge. Sometimes it's a bit dizzying to keep up. Consider that the past 14 seasons have seen the advances such as the widespread adoption of Bt hybrids, Refuge-in-a-Bag convenience, stacked trait technology, higher planting populations and densities, and full-season hybrid genetics.

Now, precision ag is helping to push the limits even further with variable-rate planting, enhanced seed singulation and a growing awareness of the full benefits of real-time kinematics (RTK) technology. The science is complex, but the basic concept is simple. RTK delivers greater positioning accuracy. It's a complex process that takes a GPS signal, interprets the wave carrying that signal and refines a location to within a fraction of a centimetre, and it's this GPS accuracy that can deliver agriculture inputs exactly where they need to go.

Thanks to the latest enhancements with RTK, strip till is making a comeback, primarily in the northern tier states such as Minnesota and Wisconsin. In that region, the practice is finding favour with growers on lighter soils and marginal ground who are looking to do less tillage but also want better fertilizer placement. Although it can be accomplished successfully on loamy or heavier soils, the window for such a fall practice is more limited both by weather and harvest conditions. If growers miss that fall application opportunity, chances are they'll just default to conventional methods in the spring.

Now, despite the differences in weather, harvest timing and management practices, the strip till trend is also making its way back into Eastern Canada. Agronomists, advisers, dealers and extension personnel are monitoring its uptake, as well as the opportunities to make the most of the trend. Tony Balkwill of Nithfield Advanced Agronomy, has seen an increase in grower interest in strip till in the past five years, and he believes more growers will be adopting it in years to come.

In Balkwill's experience, it's a matter of showing the farmer — by way of a good soil sampling — where the highs and lows are, and instead of applying something on a "straight rate" basis, trying more of a prescription application with the strip till. It's the same amount of fertilizer, Balkwill says, it's just being moved to those spots in the field where it's going to be the greatest benefit, and the application method is incorporated with minimum tillage. Once farmers see the difference that such precision makes, they seldom go back.

"You get some innovative guys doing it,

and good farmers pick it up, then a neighbour, and away you go,” says Balkwill, who cites two primary factors for its increasing interest. “We have great equipment options with planters, to be flexible in conventional, mid-till and no-till situations, all on one rig. So if we fall strip till, we assume there’s a slight no-till situation. If we come in the spring, because a lot of those rows may have some trash on them or have firmed up a little bit, you need to address that so you don’t get hair-pinning. So guys can slow down with the planter, make sure they have a good seed depth and a good bed so that they’re not just punching a bunch of cornstalks down into the trench. There’s been a lot more availability of just add-ons to make a planter into whatever you want.”

In the U.S., the recent uptake has come primarily because growers are looking for opportunities to accomplish more with a single pass. Fall strip till is more prevalent in the Midwest, particularly with the popularity of getting on fall anhydrous, and the Balkwill says he knows of a number of custom dealers in the U.S. who are now offering strip-till services to help ease the bottleneck that can come later in the season.

ON THIS SIDE OF THE BORDER

In Ontario and across Eastern Canada, the return of strip till has been somewhat slower. But the arrival of RTK technology has been arguably the biggest factor in grower interest, on either side of the border. Still, there are several “cultural” differences between strip-till practices here and those in the U.S., and according to Greg Stewart, OMAF’s corn industry lead, the biggest factor is the preference for fall nitrogen applications in the U.S.

“Don’t forget the fall nitrogen factor that still plays on what’s perceived as strip till,” says Stewart, referring to growers in the Midwest. “It’s based on the idea that they’re going to go out and put down fall anhydrous anyway, so they’re thinking, ‘Let’s make it into a strip-till operation while we’re putting fall anhydrous out.’ Here (in Ontario), we don’t have that springboard to come from, which has always been a big driver of the fall strip-tillage phenomenon in certain areas.”

In the U.S., integrating fertilizer and strip till almost always translates into the combination of fall nitrogen along with the tillage practice, Stewart explains. In Ontario, it means bringing dry products and integrating dry fertilizer (particularly phosphorus and potash) into the strip. That can be done in the fall, but

Stewart’s personal preference is to apply them in the spring.

“If you thought you needed to do a fall pass, well maybe you were going to do that anyway,” explains Stewart. “But then, heaven forbid, if you need to touch up that strip in the spring again, well now you’re at two passes. And then what happens if you realize that you used to just broadcast all of your fertilizer before, and you can’t do that now, particularly with nitrogen, so you’re going to have to move from broadcast nitrogen to side dress nitrogen. So where are the savings in this strip-till system (with three passes)?”

Stewart adds that there’s interest from those growers who wanted to be doing some form of conservation tillage, but didn’t like the idea of working in no till, and the use of RTK certainly continues to feed into that notion.

“And I personally believe there’s more appetite for trying to make the fertilizer-strip-till combo work,” says Stewart. “We have an increasing amount of gear that could bring that together, so that would be another component — that desire to try to amalgamate the fertilizer and strip till.”

WORTH MORE RESEARCH

Both Balkwill and Stewart are looking at research projects coming in the spring. In November 2013, Stewart received approval on a two-year study that will tackle the idea of new designs on strip-till equipment, with an eye on improving or streamlining operations in the spring, including the use of fertilizer blends and in particular, poly-coated urea.

“That’s so the risk of burning the seed with just straight urea can be eliminated, and then after that we can test the GPS for the contour ability, and that’d be a system we’d really like to sink our teeth into,” Stewart says. It’s a lot to consider — spring strip till with one pass, plus fertilization in one pass, and even do it all on the contours and then be able to plant. Then there’s the variety of options in terms of equipment, including fall versus spring, applying fertilizer in the fall versus applying it in the spring. “But this is a targeted approach that digs into making it a system that is spring only, all fertilizer only and GPS driven, to see if we can’t put a package together that gets more people looking at it.”

With Balkwill’s project, he’s hoping the spring of 2014 will bring an opportunity to test strip till on soybeans. It’s well accepted that strip till is regarded as more of a corn-planting technique, but Balkwill believes stripped soybeans may work too.



“I personally believe there’s more appetite for trying to make the fertilizer-strip till combo work.”

— Greg Stewart, OMAF

“We’re going to be stripping our 30-inch beans to see what kind of response we’ll get,” Balkwill says. “They start with a bunch of variable-rate seeds with soybeans, and we’re actually dropping the populations down to (a range between) 100,000 to 190,000 in one field, and we’ll put in low populations in rich soil, and we limit moulds and growth, and we’ll get dry-down with a bit more even maturity.”

Balkwill adds that the yields have been consistent and the economics have been better, so some farmers are considering dropping their seeding costs a little bit. He’s eager to see how the crop responds to all of these management parameters with the strip-till layer under the soil surface. Soybean roots, he says, are more passive, which means they don’t go down into the soil very deep, and to get the added penetration and moisture conservation and nutrient setup that comes with a strip-till regimen is something he believes is worth testing. And he thinks strip-till soybeans will become something that more growers try to incorporate into their operations.

If there’s a hurdle to overcome with strip tilling soybeans, it’ll be the setup into 30-inch corn rows. Balkwill says that some growers are looking at running 15s on either side of 30-inch corn rows. Or some that run 30-inch corn and 20-inch soybeans may just move their soybean rows two inches either side. **CG**



Corn and soybeans are
in the West
to stay

**By Ron Friesen,
CG Contributor**

NEW GROUND

Picture a summer scene in rural Iowa with lush fields of corn and soybeans growing side by side every year.

Now imagine that same scenario on the Prairies, where wheat and canola currently dominate.

Impossible? Not if seed companies have anything to say about it.

Earlier last year, Monsanto Canada announced a bold new 10-year, \$100-million initiative aimed at achieving a twentyfold increase in corn acreage in Western Canada. Also last year, DuPont Pioneer officially opened a 6,600-square-foot office in Saskatoon dedicated largely to delivering new technologies in the shape of early-maturing corn hybrids and soybean varieties.

What's going on here? Are we really ready for corn and soybeans in Western Canada?

The answer seems to be yes. Modern agronomics now make it possible to grow soybeans and corn commercially in

parts of the Prairies, something unheard of a few decades ago. Besides, economics may mean there's no choice.

"In the last two weeks, I have been in a couple of conversations in which the opinion was expressed that within 20 to 25 years, wheat could be a marginal crop on the Canadian Prairies, with soybeans and corn having taken over a large percentage of the acreage," Murray Fulton, a University of Saskatchewan ag economist told a national agricultural policy conference in Ottawa last year.

"The reasons for such a prediction are clear enough. Wheat yields have not risen nearly as fast as those of corn, or even canola. And they are not expected to catch up any time soon," Fulton said. "The problem is a lack of research."

It's small wonder, then, that agribusiness giants are investing heavily in developing corn and soybean varieties suited to growing conditions in Western Canada. The question is, can



"It would have been much different if we had gotten a killing frost in mid-September, which can be common."

— Dennis Lange, MAFRI

they do it? After all, Manitoba and Saskatchewan are not Iowa and Indiana. What works there doesn't necessarily work here, mainly because of climate.

"We're limited on maturity in Manitoba. That's probably one of the reasons we try to stay away from growing just those two crops. We grow a wide range of crops to spread out our risk," says Dennis Lange, a Manitoba Agriculture, Food and Rural Development farm production adviser for pulse crops.

That said, the recent growth of soybean acreage west of Ontario has been little short of remarkable.

According to the Manitoba Agricultural Services Corporation, (MASC) growers in the province insured 1,005,940 seeded acres of soybeans in 2013, nearly double the 545,897 acres planted in 2011. Manitoba is now the second-largest soybean-producing province in Canada, ahead of Quebec and behind Ontario.

Also remarkable on a smaller scale is the advance of soybeans in Saskatchewan. According to Saskatchewan Agriculture, the province grew 68,000 acres of soybeans in 2012, compared to just 10,000 acres in 2011. In 2013, for the first time, Statistics Canada included Saskatchewan soybeans in its annual spring seeding report. It estimated the province's farmers planted 170,000 acres of soybeans and harvested 165,000 acres. Almost overnight, Saskatchewan has become Canada's fourth-largest soybean producer, ahead of Prince Edward Island.

As for corn, most of the Prairie crop is grown in southern Manitoba. Here, too, the increase is significant. MASC insured 400,070 acres of grain and silage corn in 2013, almost twice as many as the 202,797 acres insured in 2011.

It's a long way from those 400,000 acres to the eight million or 10 million acres Monsanto thinks could be devoted to corn in Western Canada by 2025. But the feeling is that, as soybeans continue to expand, they could pull corn along in their wake, and vice

versa. When you talk to experienced growers in the United States, they insist that corn and soybeans are a natural rotational fit.

"Studies show us that corn yields are higher following soybeans," says Ed Anderson, an Iowa Soybean Association senior director. "The advantage of a soybean-corn rotation centres on yield. The positive impact is probably due to several factors. Soybeans break disease, insect and weed cycles and provide nitrogen for corn the following year."

Is he right? It depends.

Certainly corn and soybeans are higher-value crops than wheat and barley. But the notion that soybeans, which fix their own nitrogen, leave enough residual nitrogen in the soil to help a rotational crop of corn, a heavy N user, may be overstated. Lange says nitrogen fixation in the root nodules is mainly for the benefit of the soybean plant itself, not for future crops. Some studies suggest residual N from soybeans satisfies as little as five per cent of a following corn crop's nitrogen needs.

As well, a drawback to growing soybeans and corn in rotation is that both are Roundup Ready crops. Now that glyphosate-resistant weeds are starting to appear in Western Canada, additional herbicides may be necessary to control resistant volunteers. Lange recommends inserting cereal crops in the rotation to break up continuous glyphosate use and limit the risk of resistance.

"We have a lot of different options in Manitoba to grow a wide variety of crops to help with crop rotation and herbicide resistance," Lange says.

Machinery is a factor too. The overlap is limited. Corn is exclusively a row crop and soybeans certainly can be. So the same row planter can be used for both. But Lange estimates about 60 per cent of Manitoba's soybeans are solid seeded, so a first-time grower is unlikely to buy a planter. Soybeans and corn also require



"Wheat yields have not risen nearly as fast as those of corn."

**— Murray Fulton,
University of Saskatchewan**

Continued on page 18



"We wouldn't be investing \$100 million over the next 10 years if we didn't think this was a realistic possibility."

**— Mike Nailor,
Monsanto**

Continued from page 17

different headers for combining, and a grain dryer is almost mandatory for a corn grower, because the moisture content of harvested corn has to be lowered from 20 per cent or more in the field to 15 per cent in the bin. Soybeans, by contrast, require only occasional drying.

But the main concern is the weather. Part of the reason why soybeans (and, to a lesser extent, corn) have exploded in Manitoba over the last few years is that growing conditions were favourable enough to produce decent crops. But the fact remains that these are late-season crops and farmers' luck with them could change very quickly.

Lange remembers 2004, which was cold and wet all summer, followed by frost in August. Provincial soybean yields that year averaged eight bushels an acre. Even under normal conditions, soybeans require timely rains at the right point in August to fill the pods. Although soybeans are fairly drought tolerant, dry conditions at the wrong time can turn a potential bumper crop into a mediocre one.

Early frost is another risk. Manitoba soybean growers dodged a bullet in 2013 when July turned unexpectedly cool and some crops were still green in late September. Fortunately, a killing frost stayed away, especially in western and northern areas of the province where some producers grew soybeans for the first time. But it was a near thing.

"At the end of the day, it would have been much different if we had gotten a killing frost in mid-September, which can be common," Lange says.

As for corn, the stakes may be even higher. Grain corn can take 100 days or more to reach full maturity. The average number of frost-free days in agro-Manitoba ranges between 100 and 120 (fewer in some regions, more in others). Manitoba corn growers well remember 2009, when frost hit a crop that was close to maturity and cool, wet weather followed. Crops turned mouldy, thousands of acres went unharvested and producers became embroiled in a dispute with MASC over crop insurance coverage.

Pam de Rocquigny, a Manitoba Agriculture, Food and Rural Development cereal crops specialist, lists other factors to consider before expanding corn acreage. Corn requires a fair amount of moisture, while it can get pretty dry on the Prairies, especially farther west. Corn is also a high-residue crop, de Rocquigny says, so methods would be required to manage that residue within a no-till system.

For their part, however, breeders are confident they can overcome the barriers that western Canadian growing conditions occasionally throw up.

"From a business point of view, absolutely," says Mike Nailor, Monsanto Canada's corn and soybean business lead, when asked if these two crops could become a viable rotation in the West.

"We wouldn't be investing \$100 million over the next 10 years if we didn't think this was a realistic possibility."

The secret lies in breeding corn hybrids with earlier relative maturities (RMs) suited to the diverse geography and climatic conditions of Western Canada. The earliest-maturing corn product currently on the market is rated at around 2,150 crop heat units (CHUs). Monsanto expects to release a hybrid for the 2015 crop season with a CHU rating of 2,100. Further improvements in maturity could deliver products in the 2,000 CHU maturity range.

"Provided we can get to a 2,000 heat unit product, we're quite comfortable that 90 per cent of the time it's going to be able to mature," Nailor says.

Corn and soybeans are only the latest contenders for space in a constantly changing Western Canada. Farmers are growing crops today that would have been unimaginable a few decades ago.

So it's not a stretch to say that corn and soybeans may gain a commercial foothold on the Prairies, just as canola and pulses have done before them.

Despite these advances, however, crop watchers like de Rocquigny feel traditional crops will continue to dominate.

"There's going to have to be a whole production package created in terms of how producers include corn or soybeans in the rotation," de Rocquigny says. "I don't think they will ever displace wheat or canola. I don't think we'll be an Iowa." **CG**

Weather group builds network

This simple, inexpensive device may help Ontario's farmers finally get the weather data they need

By Ralph Pearce, CG Production Editor

It's a funny thing. For something so important, there isn't much of a system in place to measure precipitation in Ontario, or to track it or predict it. Environment Canada meteorologists are continually refining their ability to predict temperature trends over a five-day period, for example, but they aren't able to do similar calculations for rain and snowfall with anything approaching the same accuracy.

The same can be said for measuring rain and snow levels. Part of what makes this country great also makes it difficult to collect precipitation figures in a straightforward and standardized method. Much of that challenge relates to cost efficiency. From a government perspective, it's easier to centralize five different cities under a single weather-recording station than spend money to site a station in each centre. Environment Canada's London weather office is an example of this, with information and forecasts for four additional outlying centres — Strathroy, St. Thomas, Woodstock and Stratford. That arrangement fails to take into consideration various microclimates, be it the region's "Tornado Alley" between Windsor and Toronto, or Stratford and Strathroy's locations inside of the local Snow Belt region in winter.

A volunteer observer program new to Ontario hopes to improve the quantity and quality of precipitation monitoring in the province. The Community Collaborative Rain, Hail and Snow Canada network (CoCoRaHS), launched in autumn at Canada's Outdoor Farm Show, is seeking recruits interested in helping measure daily precipitation.

The program, administered by Chatham, Ont.-based Weather INnovations Consulting, is run entirely online through its website, www.cocorahs.org/canada, including everything from observer training, entry of measurements and access to all observational data — which is made available to any and all interested. The one aspect of the program that is not technical is the measurement equipment itself. The primary unit is a simple, good-quality graduated cylinder, along with a set of specifications and guidelines that provide

standard measurements and a routine that participants can follow. Are they as sophisticated as automated data-gathering centres? Not at all, says Karla Jackson, who's in charge of client services at WIN. But they provide a benchmark, and a more standardized method of gathering precipitation data. That in itself is a step up from the simple units sold commercially at department stores and garden centres.

"And with this system, everyone's trained, everyone's doing the same thing, the same steps, and it's a start in making sure the data is consistent," says Jackson. "With these manual units, they're less expensive, they can be anywhere, and they help fill a void where the automated stations can't."

The CoCoRaHS network was developed following severe flooding that struck Fort Collins, Colorado, in 1997. That effort has been building in the U.S. since the late 1990s. This latest effort to bring Canadian participants into the network simply strengthens its offerings.

At present, Jackson notes that the Ontario network has enticed participation from interested individuals as well as select conservation authorities. Province-wide agencies and groups are also being solicited to join in.

"We have a few keen volunteers already, and that's basically come by word of mouth," says Jackson, adding that they're hoping to enlist interested parties to take part in a pilot project. "Right now, most people are looking at it for monitoring flood regions, but it's also good at monitoring the drought impact on agriculture and on streams."

The next stage of the recruitment drive includes getting farmers interested in the network. Obviously, there's a significant benefit to enlisting the help of farmers to join the collective. More stations mean a wider, more detailed database to monitor precipitation levels which could affect on-farm management decisions.

COST AND EASE

Of course, the advantages to joining the CoCoRaHS network include the cost

and the convenience. The cost is \$70, and there's a short training session and some layout specifications that can vary according to where a person lives. For instance, in developed areas, the pole to which the gauge is attached must be a certain height off the ground (in rural areas, it can be positioned closer to ground level). In rural or more wide-open areas, the gauge has to be positioned a set number of feet away from surrounding trees. If there's a hedge along one side or surrounding the property, the gauge has to be a distance roughly equal to twice the height of the trees, to reduce the effect of drifting snow in winter.

"It's very easy. You put it in your backyard, or somewhere that you would check regularly," says Jackson, noting that the training ensures everyone follows the same procedure for properly reading the rain gauge. "They're all the same four-inch-diameter rain gauge, and everyone's using the same equipment and reading it the same way, and we want to make sure that everyone is reporting in at the same time, where they're usually reporting between 5 in the morning and 10, so that keeps it consistent and easier for getting the data out."

The information is accessible to anyone. It isn't necessary to participate in the network to benefit from this resource, although the more participants, the more data gathered and the greater the value. Jackson adds that winter is the time for farmer meetings and workshops, so getting the word out to the agri-food sector is about to take on greater urgency.

"Right now, we're just trying to get more support sponsored in Ontario," she says. "And in the next few weeks, we're going to be promoting it actively among agricultural groups. But the primary interest at this point has been from a water management perspective — namely the conservation authorities."

For details on joining the CoCoRaHS network, go to www.cocorahs.org/Canada.aspx. You'll find more information on this resource, including frequently asked questions, guidelines and costs. **CG**



Harvesting on turf

When Raymond Durivage drives his Lexion 585R combine into a cornfield, he knows he's in for a smooth, worry-free ride. The two front tracks ensure excellent flotation. But that's not all. The combine is also rolling on turf, with a thick green mattress of ryegrass between each corn row that provides for less compaction and better traction.

That great feeling of harvesting on turf is shared by a growing number of elite cash crop farmers across Quebec. The trick is simple. You broadcast annual ryegrass when your corn is at five or six leaves, it germinates, goes dormant for most of the summer and explodes in the fall when the corn leaves die and the sunrays reach in.

"As farmers, we are not used to letting other plants grow through our main crop," says Durivage, who farms less than an hour southwest of Montreal. "We have to learn to see things differently. Some plants grow well together and there can be a synergy."

Durivage has been experimenting with early-seeded annual ryegrass since 2009. Field-size trials on his farm have demonstrated that seeding at the four-leaf stage works best. Agronomists involved in cover crop research in Quebec recommend seeding between the five- and six-leaf stage, in order to prevent overgrowth and competition for water and nutrients.

Early seeding of ryegrass in corn is a great idea, says Ontario Ministry of Agriculture and Food soil management specialist Anne Verhallen. "It's about the only way of getting a cover crop into corn. With combines working well into November, the season is not long enough to seed after harvest."

Verhallen met Durivage along with Plant Products agronomist Daniel Brière at a cover crop conference in Des Moines two years ago. She convinced them to give the same talk at the Midwest Cover Crop Council meeting last February in London, Ont.

In the United States and on scattered farms in Ontario, establishing cover crops in corn usually involves using a helicopter or a plane, or driving in the field with a highboy seeder at tassel. What the guys from Quebec were suggesting was mind boggling. To those who like a clean, weed-free field, it's pretty hard to imagine seeding it with a "good weed" four to six weeks after planting corn. In the U.S., this could void a farmer's crop insurance.

Durivage and Brière were used to travelling to the U.S. and to Ontario to learn about the newest trends in corn and soybean farming. Now, they were the ones teaching the cash crop giants how they could improve their soils.

Quebec farmers have solved the corn cover crop puzzle. They grow grass under the canopy

By **André Dumont**,
CG Contributor



Grower Dominique Gauthier and his farm-made cover crop seeder.

PHOTOS: ANDRÉ DUMONT



Raymond Durivage's disc seeder can broadcast ryegrass on 150 acres in a day.

Ryegrass after a corn silage harvest on erosion-sensitive farmland in Quebec's Eastern Townships.

"The reason I invited Raymond to speak is because our growers are frustrated at always having American speakers whose techniques don't transpose well in our climate and our soils," Verhallen says. "If what the guys just south of Montreal are doing works, it could work here, where we have similar heat units."

According to Verhallen, Durivage's presentation in London got a lot of people excited. A handful of growers in southwestern Ontario gave a shot to ryegrass early seeding last spring. Verhallen set up strip trials just outside the Canada Farm Show site in Woodstock. The wet weather around the six-leaf stage made seeding a little complicated, Verhallen says, but most growers were successful.

There are a number of benefits to an early-seeded cover crop like ryegrass. On erosion-sensitive hilly terrain, it provides excellent soil protection after a corn silage harvest. Ryegrass also helps build and maintain soil structure, while providing safe storage for unused nutrients.

Brière has been promoting ryegrass for almost five years. He says those who try it are always very impressed. "In the fall, their harvesting equipment no longer leaves tracks in the field. Those who do fall or spring tillage are telling me the ground is so soft they can drive their tractor in a higher gear."

HIGHER YIELDS

When ryegrass survives the winter, surface tillage or a pass of glyphosate will eliminate it. By then, its biomass has stored unused N, P and K from the previous season and absorbed a significant part of nutrients from fall manure applications. According to literature, ryegrass biomass can store 15 to 60 nitrogen units. Test results in Quebec were more in the range of 15 to 20 units of nitrogen.

Durivage has calculated that the season following ryegrass in corn, his soybean yields were about six bushels per acre higher, probably because of nutrient recycling and better soil structure.

In Saint-Théodore d'Acton, near Saint-Hyacinthe, cash crop and egg farmer Dominique Gauthier seeded ryegrass in 430 acres of grain corn last year. "We adopted no till 20 years ago and we are now mastering that technique," Gauthier says. "We needed a new challenge and with ryegrass, I think we can still improve our soil structure."

Gauthier is looking at ryegrass like an addition to his corn and soybean rotation. "Dairy farmers have (three or four years of) alfalfa in their crop rotation. If we want to have corn yields that compare to theirs, we need to use cover crops like ryegrass between our corn rows."

There are a number of ways to seed

ryegrass in early-stage corn, from the farm-made cover crop tool bar to Durivage's Kverneland Exacta TL precision disc spreader. According to Brière, ideal seeding rate is 20 to 25 pounds per acre. Lower rates can also give good results, but because the seed remains on the soil surface, germination rate is usually around 50 per cent.

Weed control is the tricky part. Glyphosate can be used to start the season with a clean field, but a residual herbicide must also be used around corn-planting time. It turns out that on Durivage's and other growers' fields, BASF's Integrity does a fine job, with no negative effect on ryegrass germination four to six weeks after being applied.

A BASF representative stressed that this application is off label and therefore isn't something the company can currently recommend. However, preliminary trial results are showing that Integrity does not affect ryegrass growing between corn rows.

A few weeks after germinating, the ryegrass goes dormant when the corn canopy closes in. Water and nutrient uptake remain minimal. When sunlight penetrates the canopy again in the fall, ryegrass grows extremely fast, scavenging leftover nutrients and soaking up rainwater. Some growers believe ryegrass helps to cope with wet fall weather, providing for dryer ground and a lot less mud on combine tires. **CG**

Game plan

How to tackle glyphosate-resistant Canada fleabane

What's the best strategy for defeating one of your toughest competitors, glyphosate-resistant Canada fleabane?

I will dedicate three columns to this important question, since it requires a different strategy for each crop.

Let's start out by digging more deeply into one of the more common statements being made about the management of Canada fleabane, namely, that it can be controlled easily in the fall or before planting in the spring with aggressive tillage.

I'm guilty of making this statement, but with experience I have found it to be both true and false. Tillage will work if

"Tillage will work if fleabane rosettes are small, about 7.5 cm (three in.) in diameter, and there are only a few of them."

fleabane rosettes are small, about 7.5 cm (three in.) in diameter, and there are only a few of them. However, your success controlling fleabane with most tillage implements will decline as the rosette gets larger in diameter — more than 12.5 cm (five in.) — or even if the rosettes are small but they are in a cluster.

A tillage demonstration this past year illustrates these points. Prior to working the field, I took photos of the size of fleabane plants and their root structure. As you can see in the first image, the smaller rosette has a much smaller taproot with hardly any secondary roots, while the larger rosette has a much larger taproot with more secondary roots. The vertical-tillage implement was very effective at uprooting the fleabane rosettes but the larger plants and clusters of smaller plants held on to a significant amount of soil.

When I returned to the site one week later, the small and sparsely distributed



The contrast in root mass of a small Canada fleabane rosette (l) compared to large one (r).



One week after tillage, the root systems of the larger and smaller but clustered plants were able to hold soil and survive (r) compared to small and sparse populations that were dead (l).

rosettes were dead, while the large and small clustered rosettes were healthy with new root growth entering the undisturbed soil. The contrast in results is shown in the second image.

The bottom line is that your tillage operation will have to do a good job at removing root-to-soil contact. Otherwise the chance of regrowth is high. This is more easily accomplished in fields with

lower weedy plant densities and when the rosettes are small.

In the next #PestPatrol, we'll look at the options for successful control in cereals.

Have a question you want answered? Hashtag #PestPatrol on twitter.com to @cowbrough or email Mike at mike.cowbrough@ontario.ca.



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*Based on five trials at three different Ontario locations in 2011. Trials were conducted comparing weed control with pre-emerge herbicides in corn. Trials were funded in part by the Grain Farmers of Ontario. The assistance of OMAFRA through the OMAFRA/University of Guelph Partnership is also acknowledged.



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Our experts are grown locally

Nourishing new farmers

This Manitoba couple is helping today's homesteaders rediscover the skills they'll need on the land

By Rebeca Kuropatwa

As the farming population gets older, rural communities are struggling to keep themselves vibrant. Now, a growing stream of wannabe homesteaders are actively looking for patches of ground to call their own, plant their roots, and become involved locally — growing their own food and feeding others from their land.

Transitioning from city dweller to rural resident takes more than just the capital (although the capital, of course, is increasingly substantial).

Often these new arrivals have tremendous passion to succeed, but lack skills that were once a given on every farm.

Seeing this gap, Adrienne Percy wanted to bridge it and help people from all walks of life, bringing back the knowledge and tools critical to anyone with homesteading aspirations.

Percy worked for many years as a journalist, covering a wide range of rural and agricultural stories before working in the grain sector.

In time, however, she learned that her passion lay in connecting people with the food skills they needed to live happy, vibrant and fulfilling lives.

After many years teaching traditional food skills (such as fermentation) to hundreds of people around the world, Percy launched Traditional Foods Teacher Training, inviting those with similar passions to learn and share these skills with others.

Continued on page 38





Percy says more and more urbanites are getting serious about buying their patch in the country.

Continued from page 37

Percy, her husband, Trevor, and their two young children (aged 6 and 9) live on a 320-acre homestead called “Nourished Roots” located near Fraserwood in Manitoba’s Interlake region, close to Gimli. In addition to teaching traditional foods classes, Percy blogs about the family’s farm life.

Last June, Adrienne and Trevor, along with friends, Kris and Mike Antonius, hosted the first ever DIY (Do It Yourself) Homesteader Festival on their farm.

The festival drew over 350 people who selected from more than 27 workshops hosted over the course of the day.

About the farm and the festival, Percy says, “It’s a salve for the over-city’ed, over-technology’ed soul. It’s a place where you’ll feel your lungs expand and your pulse slow down... and the stars shine impossibly bright in the dark night sky.”

Though the family has a large homestead, they don’t yet sell any of their produce, although they do plan to add goats and rabbits to their farm mix soon. “My husband Trevor and I, and our children, steward the farm,” says Percy. “We have a flock of laying hens to supply our egg needs and a large vegetable garden. We also do a tremendous amount of foraging out here. The bush here is an absolute goldmine of food and medicine.”

The commodities they do currently offer are information, education and a good dose of inspiration.

“We chose to move out to the country so we could grow our own food, ensuring our children grow up with some of those vital skills, and share what we learn with others.”

Percy is aware of many others who share this same dream, and she personally knows families who are seeking farm property to purchase and others who have already made the same leap that Percy and her family have.

“The people I speak to tell me they’re looking to reconnect,” says Percy. “Many speak of feeling it’s time for a change, but they also don’t know where to start. That was part of the reason we came up with the DIY Homesteader Festival concept.”

The festival bridges the divide between those who have already walked the path (i.e. “currently practising essential or sacred healing and food skills”) and those still considering taking the first step.

“These are folks who yearn to dig their hands into the earth, to experience fresh eggs, to make their own medicine, and to be able to preserve a bountiful harvest,” Percy says.

Before the Percys made the leap to homestead living, the bulk of their knowledge was in the realm of food — what is good quality, sustainable food and how to preserve and prepare it. “We liked

puttering in our backyard vegetable gardens and had taken a workshop on backyard chickens.”

Percy had just completed a two-week permaculture intensive through the Harvest Moon Society when she came across the land she and her family now occupy.

When they first made the leap to homestead life, the Percys found it to be a very steep learning curve, experiencing their share of joys and tears.

“Our first year on the farm taught us the importance of patience and good design,” says Percy. “Where and how things are located and built can make all the difference between feeling like things are flowing or feeling completely overwhelmed.”

The Percys were happy to have moved onto a property that had neighbours and nearby homesteaders and farmers who were happy to share their experience — something they found to be crucial for a positive transition. “We love the community here,” says Percy. “They’re amazing — both the folks with deep roots and the newbies.” Whether the Percys needed to borrow a pound of butter or to find out where to buy hay, they have found their neighbours to be both helpful and supportive.

Festival and the local RM council (comprised of several farmers).

“We all have something to learn from each other,” says Percy. “Our family would be just as likely to learn something really important from someone with a large farm operation as we would from someone living on an eco-farm or homesteading.”

For now, the Percys plan to continue homesteading, perhaps adding new ideas and experiences to the operation each year — whether that be with an orchard, growing some grain or running cattle.

“Our dream is to share this with others by offering classes and workshops,” says Percy. Over the past year, they have run classes on building a cob (earth) oven, wild foraging for food, and reclaiming traditional food skills (like fat rendering and fermentation).

“We know so many people who are an amazing wealth of experience. We’d love to connect those teachers with folks wanting to learn, and also to continue offering our own classes, like Traditional Wisdom, Modern Kitchen (traditionalwisdommodernkitchen.com/course/).”

“It’s a salve for the over-city’ed, over-technology’ed soul,” say homesteaders Trevor and Adrienne Percy

“There is also a strong online community of small farmers or wannabe small farmers, which is an incredible resource,” says Percy. “I guess that’s why we often call ourselves ‘modern homesteaders,’ because we’re just as likely to seek answers from our online community as we are to call up our neighbours who live just down the road.”

The Percys have also been enjoying the strong support they received for the DIY Homesteader

Looking ahead, Percy says, “You may see a fantastic workshop space and cabins out here, so we can accommodate those wanting to reclaim important traditional skills in food and farming. What could be better than a farm retreat, where you get to dig your hands into the soil and breathe the freshest country air you can imagine?”

For more information about the DIY Homesteader Festival, visit www.nourishedroots.ca/. **CG**

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Time to suit up

These five questions based on enterprise risk management can prepare you for the big game

By Kaleigh Brinkhurst



It's no revelation that farming is an increasingly complex venture. As the economy continues to demand growth regardless of our turbulent business environment, and as regulations change and as global warming remains the proverbial "elephant in the room," farmers face multiple decisions that have the potential either to bankrupt the family farm, or to make it highly successful.

Businesses are becoming increasingly risk oriented, including financial lending institutions. Yet as banks scour their books with microscopes to identify risks within their portfolios, farmers can and arguably should do the same.

Now is the time to get to know the world of enterprise risk management (ERM), especially since it can help you access necessary credit products and develop strategies to ensure your competitive advantage.

ERM is a developing field of risk management that looks to eliminate the fragmented silos and negative perceptions towards risk that occur in traditional risk management. By utilizing a more holistic approach, ERM enables leading businesses to manage their risks within an integrated framework.

Utilizing ERM has not yet become commonplace within every business. In fact, it is just emerging among top non-farm businesses, which is all the more reason why farmers should consider stepping up and to begin implementing structured ERM practices.

By asking five key ERM questions, farmers can take control of their meetings with the bank and ensure that their farm is profitable despite the sometimes chaotic environment in which they operate.

QUESTION #1: Why should you use ERM?

Taking risks is inescapable if you are to thrive and become a leader in your industry. ERM will allow you to optimize your risks and visualize the impacts across your entire farm. Traditional risk management separates and analyses risks in isolation despite the fact that risks are dynamic and interconnected. Key advisers such as your farm's banker and accountant focus on credit and market risk, but you need to become the risk manager who integrates all of your farm's risks so that you can take advantage of the opportunities and manage the threats that emerge throughout your entire operation.

This process forces you to think about your farm's purpose, its goals and then your role within it. Many businesses will jump into implementing an ERM framework, which requires significant resources, but

few will actually know why. As with anything, if you rush and implement a strategy like ERM before clearly identifying the problem, you will likely waste a lot of time and money and be no better off.

As the owner and likely main operator of your farm, it is critical for you to know why you use ERM, going beyond the generic, "I use ERM to optimize my risks." Get personal. Identify specific reasons why ERM is tailored to you and your farm's specific needs. For example:

- a. I need to manage the risk of expanding my operations.
- b. Can I manage the risk of staying in this product market?

Once you have the reasons for ERM clearly identified for your own farm, it is time to move on to Question #2.

QUESTION #2: What is your risk appetite... seriously?

Let's clarify what risk appetite means. Risk appetite is simply the amount of risk you, as a farmer, are willing to take on. Some farmers have a high risk appetite while others are very risk averse. A combination of your personality, business model and time horizon will impact the development of your risk appetite.

Risk tolerance, on the other hand, focuses on the risks that you are not prepared to take or the risks you need to protect yourself from.

The chances are excellent that your banker has asked about your risk appetite. They likely showed you a list of expected returns, volatilities and time horizons, and either you identified as a high risk taker or not, but you didn't think much more about it. In order to effectively manage your farm's enterprise risk, you need to fully understand what your risk appetite is, on a holistic level.

Ultimately, it is your risk appetite that can significantly impact how you manage your farm.

It is true that farming is a riskier venture than most others due to the involvement of many uncontrollable factors. However, the specific actions and decisions made by a farmer can determine whether the farm as a whole has a high or low risk appetite.

When you answer about your risk appetite you need to think about those past experiences. How comfortable were you making decisions regarding the unknown, investing



money in a brand new piece of equipment, or switching to a new feed ratio based on research from your local agricultural college? Were you comfortable with the potential losses, or more excited about the potential gains associated with your decision?

Being thoughtful and honest about your true appetite for risk will serve you well as you proceed into the third question.

QUESTION #3: What are your farm's real risks?

This can be a tough question. It is easy to look back on a situation and identify why an event led to an unpredictable outcome. However, it is harder to foresee the things that might predispose you to disasters. In order to effectively manage your farm's risk you need to look holistically at its operations, its financing and the external environment.

The specific risks that your farm is susceptible to likely differ from any other operation, even your neighbour's. While some risks may be shared, you cannot copy and paste a risk assessment from a manual to your farm. Even so, there are some general areas that you should understand in order to capture the major risk areas.

The first important stage of identifying risks is to understand your farm's operation on both the macro and micro levels. You need to understand what makes your farm tick, what it relies on, and who you rely on to get the day-to-day work done and ensure a profitable season. Understanding your product, whether it is canola or fluid milk, while critical to being able to ensure steps are taken that optimize production, is not enough. Each step and resource in the process needs to be considered to identify which are critical.

By identifying the critical resources and parts of your overall production process you can take the next step in determining what the actual risks of failure are, and whether the risk presents an opportunity to add value or is likely to result in a negative event.

Financial risk is a very important part of managing your farm's enterprise risk, but there is a lot of advice out there on financial risks, financial hedging and insurance in order to reduce the negative effects of a downturn in commodity prices; therefore, this article will not dive into these aspects in great detail. That said, an awareness of your own financial risks is a key part of your overall risk profile.

External environmental risks are generally events that you cannot control. However, they are not to be feared and thought of as only negative. By following this question-based framework, you can help your farm prepare for predictable changes in the environment, whether they are market based or unpredictable weather events. Ultimately you can reduce the negative impacts from such events or even profit from an opportunity that many farmers will only see in a negative light.

Lots of farmers are keen to see the impact that the new Canada-Europe trade deal will have on their operation. External events such as these should prompt you to re-evaluate your risk management and consider what new opportunities might be available to make your farm more competitive. Within what many consider a negative change, opportunities exist to develop niche products and value-added goods so that your farm can be profitable within a competitive marketplace.

Continued on page 42

Continued from page 41

QUESTION #4: How risky are these risks?

This is the question everyone wants answered. Unfortunately, there are no easy answers. There are models available, depending on your skills with statistical software, that can help quantify your risk. There are also more intuitive ways that allow you to at least tell the big risks from the little ones. You probably know them already and it is simply a matter of using this knowledge in a structured manner that benefits your decision-making.

An excellent tool is scenario analysis. Scenario analysis allows you to ask the “what if” questions. By simulating disasters, you can confirm your critical processes and create risk mitigation plans for them. In addition, as you consider different scenarios, certain process steps will arise again and again. The more frequently they appear, the greater the inherent risk they represent. By considering both the impact of failure, and its frequency in scenarios, you can begin to quantify overall risk.

Another benefit of scenario analysis is that scenarios can become recognizable. By simulating scenarios, you will enhance

your ability to anticipate problems before they happen, giving you time to implement your Risk Mitigation Plan.

You can also prioritize your farm’s risks by using risk maps. Risk maps allow you to visually present the risks associated with your farm’s various management and operational practices by illustrating the impact associated with each decision. The idea is to rank your farm’s risks and then plot the frequency on one axis and the severity on the other to create a visual aid.

If your farm has many risk priorities, it is important to select the ones that are most cost effective. Make sure the money budgeted for risk management is being spent on areas that optimize your risks. Sinking all your risk resources into financial risk management will not manage risks that expose your farm on an operational or market side and will leave you unable to take advantage of opportunities within these areas.

Lastly, good knowledge in scenario planning will come in handy when your banker asks, “What if this happens, can you afford the payment? How will this impact your cash flows? Have you accounted for this?” You need these answers, and scenario planning moves you from being a reactive farmer trying to catch up to events, to being a proactive farmer who knows how best to prepare for them.

QUESTION #5: Is your farm becoming more or less risky?

By running scenarios, you can identify key events that may present a risk, good or bad, to your farm. Once you have identified what the triggers are, you need to keep an eye out for them.

Unfortunately, risk is not constant. It is necessary to ask these five questions before each major season: planting, harvesting and winter. By setting up triggers that force you to re-evaluate processes and decisions, you will ensure you proactively manage your farm’s risk profile and identify changes that may impact your future risk decisions.

Your farm likely isn’t collecting the level of data that major corporations analyze. However, you should be actively managing your financial statements, logistical plans and operational inputs/outputs. The data you do have is key to being able to identify trends that may lead to a trigger for a scenario you have projected.

The data you are collecting needs to be able to help you understand whether your farm is becoming more risky or not.

Your banker carefully monitors your cash flow statements, financial ratios and trends when determining whether the bank is able to lend more capital to your farm. By being proactive, your ERM will enable you to utilize your farm’s data so that it

helps you recognize trends and make decisions which ensure you are optimizing your risks and key financial metrics. Ultimately, you want to know whether the bank considers your farm a high- or low-risk enterprise. ERM can help you do this.

Your ERM plan should ensure you have the data and observations to identify internal changes, and you also need to be able to identify external changes. This means staying up to date with your community, country and globe. Whether it is through networks, newspapers, Internet sites or discussions with your banker, the more aware you are of the environment around you, the more easily you can identify risks that lead to either negative effects or profitable opportunities.

Monitoring risk requires you to ask the right questions on an ongoing basis. The five we have addressed are a starting point that will help you holistically manage your enterprise risk.

We all know the farming world is changing — it is no longer just about producing a quality product. In order to compete within a global market where changes occur daily, you need to be flexible and prepared to answer tough questions from customers, contractors, retailers and financiers.

ERM enables you to manage your farm so that you can be proactive in optimizing risks to ensure long-term financial sustainability. As bankers become more risk adverse, don’t let their suit and tie deter you from discussing your farm’s operations and enterprise risk management. It is time for you to suit up and show how your enterprise risk management makes your farm a competitive player within the business environment. **CG**

As a Dalhousie MBA 2014 candidate, Kaleigh Brinkhurst completed her corporate residency at Scotiabank. Later this year she will be joining Scotiabank’s commercial Alberta Agricultural Banking team. Brinkhurst also possesses a B.Sc. agriculture economics from the Nova Scotia Agricultural College. Article adviser is Richard Nason, associate professor of finance in the faculty of management at Dalhousie University.

More resources

For more information on scenario planning, risk maps and ERM practices refer to:

- THE RISE AND EVOLUTION OF THE CHIEF RISK OFFICER: ENTERPRISE RISK MANAGEMENT AT HYDRO ONE — By Tom Aabo, John R S Fraser
- <http://www.poole.ncsu.edu/erm/index.php/articles/entry/strategic-scenario-planning/>, check out the resources tab
- www.mindtools.com, search scenario analysis, risk impact/probability chart
- “A Practical Guide to Risk Assessment” by Price Waterhouse Coopers

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YOU WANT TO FIRE DAD?

There's almost always a better solution, says our panel of experts. Try these strategies to get everyone living happily together again

By Amy Petherick

It's a movie standard. When the mob turns angry, they start wielding pitchforks. Whether it's a monster that incites them or an invading army, when the local population goes berserk, and when they suddenly get transformed into nightmarish creatures of violence, the first thing they reach for is the nearest farm implement.

It's a scene that resonates on thousands of farmsteads along all the country roads that crisscross Canada, where working closely together with family under stressful conditions can teach all sorts of lessons about rage.

No one pushes your buttons like a spouse, sibling or child. And heaven help those who get caught up in double-trouble, where an angry boss is also a parent.

Or maybe worst of all — what if the disgruntled employee, or simply the guy who can't seem to play along with the team, is also your elder. Do you dare fire Dad?

Even if you can financially afford to, experts resoundingly urge caution. "Solve the problem," they say. "Don't pour fuel on it."

Whether you're the new king on the block, or whether you're an heir stuck in a seemingly endless cycle of waiting, leave the pitchfork alone, they say. Instead, use these tools to help your parents invent new roles for themselves on the farm.

1. USE THE FUTURE IN YOUR FAVOUR

It is always easier to talk about unpleasant situations before they become reality, which explains why Dr. John Fast, founder of Family Enterprise Solutions in Waterloo, Ont., suggests families talk about re-inventing roles long before change is necessary.

Have discussions about the physical and mental skills that are required to perform certain jobs well, and talk about what should happen if any family member loses these abilities. Most important, start having these kinds of conversations when everyone is in good health, generally in their 50s, says Fast.

In fact, adds Art Lange, farm adviser at Sherwood Park, Alta., Mom and Dad should start exploring new, less physically demanding interests before their roles on the farm start to change, and they should also start cultivating more off-farm connections and goals.

"Then, when they can no longer be so active in it, the farm won't still be their whole reason for living," Lange says.

But since many farmers never really retire, Elaine Froese, a farm family coach and succession planner in Boissevain, Man., says it's also important to clarify how Dad's role will shift, and what his new purpose needs to be. "Dad is not going to let go of power and control until he has something better or more exciting to move forward to," Froese says, "So I think it's up to the next generation to be really creative in making something fantastic for Dad to move forward to."

Perhaps this means your farm can finally expand on its marketing strategy with your father able to dedicate his focus and expertise to it in a way that there was never enough time for earlier in his career. Or maybe a tangled woodlot gets some long needed attention, or maybe some windbreaks get planted around the farm, helping your father rediscover his earlier interest in trees.

In fact, Froese says this is a moment in the farm's life when there can be great opportunities to seek win-win scenarios, where everyone feels fulfilled and gets to contribute value to the farm.

2. KEEP ASKING FOR ADVICE

One strategy that Art Lange highly recommends is to slow the farm's decision-making processes down to create more time for discussing issues and to keep everyone included. He suggests making it a regular practice to have two meetings before moving forward with major decisions. Use the first meeting to explore the idea and select a point person to conduct a thorough investigation of options available, and then have a followup meeting where the family makes the final decision together.

"Even after the control of the farm has been transferred, ask Mom and Dad for input," adds Lange. This ensures the older generation knows that their opinion is welcomed, even if it isn't necessarily followed. Be particularly mindful in the case of decisions which can come down to personal preference, such as the purchase of a tractor, warns Elaine Froese. "A lot of fathers just want respect for their opinion," she says. "They don't need to have the final say. They just need to be consulted."

3. OPEN THE TREASURY

Fast urges farmers not to wait until their kids are in their 40s or 50s to help them get established as sound financial managers. The farms and farm families that do well, he says, are the ones where the parents help the next generation build up some equity as quickly as possible. "Help them put a down payment down on a 100-acre farm in their 20s so that they can go to the bank in their 30s or 40s and cut a deal to give the parents some cash," Fast recommends. "It means less risk for the parents and fewer control issues later on."

Lange also sees how money and control work hand in hand. One of the first questions he always asks new clients is if the first generation is sharing signing authority for the farm. If not, he gently suggests the second generation be given some control of the chequebook as a positive step towards a full transfer of the reigns.

The rights and responsibilities that come with acquiring farm equity do need to be outlined by a good shareholder's agreement, of course, but this too offers everyone some security in moving through conflicts.

Froese adds that it's normal for the older generation to be more risk averse when it comes to debt management, so some measure of conflict may be inevitable. But, she says, consider it a red flag when all your fights are starting to be about money.

4. PROFESSIONALIZE THE FARM

Few family businesses do performance evaluations well. Instead, says Fast, it should be common business practice to have regular, at least annual, checkups for key employees and family members to help everyone achieve their full potential in their chosen area of work.

"If they were working any other job, they would get performance reviews, they would be put on a development program, and they would grow in their managerial capacity," Fast says. "Why aren't you treating them like other good employers would treat their best employees?"

Froese suggests taking a non-threatening, formal approach to these discussions, starting with an attitude of listening, and not being judgmental. "Dad, what would you like me to do differently?" is a really good question," she says.

Froese also recalls an article she posted to her website in the fall of 2013 called "What to do when things don't work out," and how it inspired a troublingly high volume of feedback.

Some of her "signs that it's time to go" which hit home with so many young farmers include losing sleep for more than a year, stomach pains or headaches, a rockier relationship with a spouse or children, uncontrollable emotional outbursts, repetitive conversations with friends about work, a drain on financial resources, suffering from abuse, or ineffective outside interventions.

That said, Froese has also seen clients suddenly realize that Dad's unwillingness to change didn't have anything to do with what had or hadn't been done, it was just that their perceptions of reality would never align. This realization then freed them to just let the conflict go and get on with the business of farming.

"What I want farmers and fathers to discover is that things can go pretty bad, pretty fast, but it's the persistence of it never getting better over months and years where people lose hope," says Froese. "If you want to have healing and restoration of a situation that's really gone in the wrong direction, look at your model of forgiveness." **CG**

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THE VALUE PLAN

What's next for John Deere? Vice-president Luke Gakstatter talks strategy, marketing, and why he thinks you'll buy green

By Scott Garvey, CG Machinery Editor

It takes belief to get into senior management at Deere & Co. But of course, Deere focuses on belief at every level. Belief is the very essence of its marketing plan, which is to get farmers to believe that sitting at the controls in a green cab is exactly where they deserve to be.

Now, that belief is at the core of a new marketing campaign that you're going to hear a lot about.

"We're continuing to invest in solutions that will strengthen our position in all customer segments," said Luke Gakstatter, John Deere's sales and marketing vice-president for ag and turf as he addressed dealers at the company's recent new-product launch in Columbus, Ohio.

"Differentiation has been fundamental to our success, and this will continue," Gakstatter says. "Moving forward, delivering distinctive value must continue because that's what wins customers. And here's the critical piece: distinctive value is what lifts us above pure price competition."

To keep the green brand uniquely attractive in its

on dealers' lots, match them with proprietary in-house technology solutions, and thereby offer better value to farmers for their machinery dollar, making any extra expense simply a good investment with a payback.

"We add a distinctive value through integrated technology," Gakstatter says.

Looking to provide equipment that allows producers to farm smarter — and more profitably — rather than beefing up the high end of their tractor's horsepower has been at the heart of Deere's market strategy for a couple of years now. The in-house FarmSight digital products are central to that.

"Not only have we revamped our entire product line," Gakstatter says, "we've added capabilities to our machines and the way we support them. We really have positioned ourselves for delivering distinctive value."

One of those new capabilities is the addition of wireless data transfer. Deere's Wireless Data Transfer feature enables wireless communication between the brand's GreenStar™ 3 2630 display in a machine and MyJohnDeere.com or a producer's farm management information system.

"John Deere has a simple position when it comes to data management," says Kathy Michael, product manager at John Deere's Intelligent Solutions Group in a press release. "We want our new data technology to provide value to the customer, we want to be transparent with customers on data usage, and we want the customer to be in control of their data choices."

"Packaging that (technology) up in a way that can truly benefit our producers is a direction John Deere has been on for some time," says Gakstatter. "It's a direction we're going to continue to move towards."

Farmers have been telling everyone who will listen that their farms are producing huge amounts of data, but no one seems to be out there helping them put all that data to work, Gakstatter says. "That's what this is all about. How do we make that (data) valuable? How do we take that technology and put it into real solutions that make things easy for the producer?"

And it isn't just farmers in North America that Deere believes will need easy, high-tech solutions. The company expects demand for advanced technology to soon grow even in parts of the globe



customers' eyes, and also to allow the company to minimize the dent that any lower-priced or lower-technology competition can make on its bottom line, the theme for the new equipment and products introduced in Columbus centred on the tag line, "Delivering distinctive value."

Skeptics may think this is code for using marketing hype to create a perception of being a premium product in order to justify higher price tags. Not so, asserts Gakstatter. He says Deere can't just ride the reputation of the leaping deer on its emblem to higher profits through higher-priced products.

Instead, executives at Deere's worldwide headquarters believe the firm can put superior machines



Luke Gakstatter, vice-president, agriculture and turf sales and marketing, addresses dealers and media members during John Deere's new-product launch in Columbus, Ohio, in August.

After the official presentation of new machines, dealers leave the stands to walk behind the stage and mingle with the new-equipment and -product specialists.

that haven't fully mechanized yet. After spending three years as Deere's former president of operations in China, Gakstatter has personally seen a trend toward hyper-mechanization there, too.

Gakstatter says he has had a front-row seat on the rise of the middle class in China, and he has seen the revolution that's happening there. "In some cases it's just the adoption of mechanization," he says. "But in others, it's the adoption of new technology and really using some advanced technology. It's just amazing to watch how quickly things are changing in agriculture across China today."

But continuing to provide products that keep advancing the state of technology in agriculture, no matter where it's done, is expensive. "We continue to spend a significant amount of dollars day in and day out on research and development," Gakstatter says. "I think the current number is around (U.S.) \$3 million, every day."

Even with the development and introduction of new equipment that offers opportunities for producers to realize extra value, Gakstatter makes it clear company management realizes it can't provide that added benefit to customers

completely on its own. "It can only be done through the power of our partnership with our dealers."

But Gakstatter believes corporate direction also makes a real-world difference. "There are three value drivers we always keep in mind," he says. "These are performance, uptime and cost of operation. If you think about the products and solutions we're introducing, I truly do believe they embody those values. We're bringing these products to market with more integrated technology. And there's the cost of operation; they're more efficient. That's really important for us."

"Dealers continue to ask, what does the future hold in terms of new products?" Gakstatter says, responding to a question from a reporter. "What's coming? What can we expect to see in 2014, 2015 and 2016? I think dealers are always interested in what's coming in the future and in the overall state of the (ag equipment) business."

But management at Deere isn't always all that eager to spill the beans on planned new equipment introductions, or to talk candidly about long-term corporate expectations.

"The bottom line is we've had a very good first nine months of the fiscal year. (2013). The last quarter we just reported results on record earnings," Gakstatter says. "We're going to finish the year strong. It's going to be a record year for John Deere. That's what we have to say about 2013. Stay tuned for 2014."

"Overall when you take a look at agriculture long term, when you grow from seven billion to nine billion people (globally), we're looking at a pretty healthy business for the next few years," added Barry Nelson, Deere's media manager.

But the main message Gakstatter and his staff wanted to get out during the Columbus event was the company will continue to position the green brand as a leader in the industry. It will do that by pursuing what it sees as a unique perspective on farm productivity with its equipment and technology offerings, giving farmers a reason to look beyond just the sticker price of machines and services.

Says Gakstatter: "We look at this as an opportunity to continue to add value to our producers' operations, with hard iron solutions, with technology and the use of data, to truly provide distinctive value." **CG**

And at number one...

New technology is driving more interest in precision agriculture. But like any new system, this one comes with a learning curve and some common mistakes.

Here's one precision ag specialist's top 10

By Ralph Pearce, CG Production Editor

If you've been around a few years too, you'll no doubt remember the first appearance of yield monitors on farms, complete with little coloured maps. They were, we were told, the future of farming, something that would revolutionize the way you do business. You also no doubt remember that the progress proved more evolutionary than revolutionary.

The technology was promising, and proponents were right that it was going to open a lot of doors. But there was a learning curve that had to be negotiated as farmers and crop advisers gathered enough information to make use of this new technology. Eventually it did begin to prove itself, and canny farmers and advisers began to manage zones in their fields, rather than simply making blanket applications. But even with these improvements it was still an inexact science, since the original GPS systems weren't accurate enough to guide you back to exactly the same spot season after season.

Over the past five years a second wave of technology has emerged, using a new system known as RTK. Real Time Kinematics uses the GPS signal as a starting point. Then it interprets the wave of that signal itself using some pretty complicated black box stuff, with the end result that the grower can repeatedly find the very same location, with accuracies within one centimetre.

That quantum leap in accuracy has kicked off a whole new wave of zero-till adoption, this time based

on precision planting and variable rate technology. Like the last wave, however, it's proving important to take an occasional pause to sit back with your adviser and take a hard look at how you're using the technology.

It's in this climate that Tim Norris, chief executive officer of Ag Info Tech, has been making the rounds of farm meetings, including a workshop sponsored by the Innovative Farmers Association of Ontario. The presentation from Norris was titled "Top 10 Precision Ag Mistakes... and How to Correct Them," borrowing, as he says, from the format made popular by late night talk show host David Letterman.

In Norris's 17 years of experience working with precision ag technology, he's seen a lot of mistakes, some made repeatedly, and often because growers fail to keep their eye on an end goal. To put it into perspective, Norris estimates that the basic technology, such as yield monitors, is used by 70 per cent of the growers in his area of Gambier, Ohio, northeast of Columbus.

"Now, are they using it properly? I'd say about half of them are," he states. "With precision systems on corn planters, I'm going to say about 40 per cent of growers are planting with clutches, maybe 30 per cent of the planters are variable-rate....Variable rate I think has been rapidly adopted, but the actual varying of rate with a prescription is very slow, and that's an area that will be adopted shortly, and at a fairly rapid pace."

TOP 10

10

Thinking you can't operate the technology: Successful adoption starts with the right attitude, and when addressing any new technology, a grower must have an end goal in mind.

Part of the secret in overcoming a feeling that you can't operate new systems is to take advantage of available resources, and learn more. Get some training, print off the manual, check the

Internet for online videos, and ask the dealer for help.

"And try your equipment before you need to go to the field," says Norris, adding to keep in mind that staff aren't always available at a time when you think they should be. "Our outlet has eight or nine employees fielding 200 to 300 calls per day. They aren't ignoring you — they're busy."

09

Buying because of convenience: Often, growers simply accept the precision ag system that comes with the tractor or the sprayer without a lot of thought about whether it will do the job they need it to do.

“Think about everything you want from a new system, now and possibly in the near future,” says Norris. “You need to ask detailed questions about the equipment’s capabilities, and make sure it’ll really work for you.”

In the uptake of precision ag equipment, some farmers are accepting the technology without necessarily understanding its capabilities or complexities. Others are looking to improve their efficiencies and seeking specific technology.

08

Allowing data overload: The volume of information available from today’s farm machinery is staggering. The grower may have books of yield maps, the fertilizer dealer can provide soil test results and the seed dealer can work off the grower’s yield maps. There are also maps of soil types, field notes — there’s so much information about different aspects of a farm.

“Focus,” says Norris. “Think about what you want to learn. Then start small and work on what you need that’ll be the easiest to benefit from.”

Start with the raw data, get a GIS system or get someone to co-ordinate that information. If you’re not getting the information you need or want, ask for it. You may not be able to make use of all of it, but there will come a day when the technology enables you to drill down through the layers of data, and obtain meaningful information to help you learn and incorporate it into your management plans. Above all, stay involved in the process and record everything you can.

07

Giving that information away: In some cases, Norris has asked the grower, “Where is the raw data?” and too often, the answer is, “I don’t know.” It’s one thing to allow a dealer access to your maps. It’s another thing to hand over a stick drive without backing it up on your computer. That information belongs to you and it’s your responsibility to keep it. Drives fail, computers crash and files can disappear. Have a plan to back up your data regularly, then follow through.

06

Starting without a plan: Always have an idea of where you want to go. Then you need to develop a plan to help reach that goal. Norris says he sees a grower invest in a light bar, but then it doesn’t have the capability to do swath control or use RTK or auto steer. And just because it’s cheaper doesn’t mean it’s better.

“Start with a learning plan at the same time as you start with your overall plan,” he says, stressing the need to know the limits of the system being purchased. “If you think you may want to do something in the future, make sure your system has that capability.”

05

Allowing multiple field and product names: Too often in a grower’s database, there are two to five different names for the same field. In one case, a father might name a field “Home 1,” the son might designate it “Home1” and an employee tags it as “H1.” It’s the same field yet it’s recognized as three separate fields by the GIS.

“Start with an empty GIS database, and name the fields the way you want them named,” says Norris. “Also, make sure that you have good field boundaries for every field. Some GIS systems have a ‘spatial sort’ feature, which will look at the data and see what field it belongs in, based on the field boundaries.”

Once the GIS is fixed, create set up files for displays. There are several GIS systems that will allow you to create set up files for your precision ag displays. And some companies can offer a service to do all of this for you.

04

Not calibrating, or calibrating improperly: Calibration has been an issue for decades with growers. There have been presentations on calibrating planters and sprayers. And now calibration is part of precision ag systems as well, including yield monitors that must be calibrated each year and for each grain type.

“Calibration loads should be equal in size between three and five thousand pounds,” says Norris. “And loads should be harvested at consistent grain flows. Don’t let the combine clean out more than once on a calibrated load, and do at least one test load. Bad data in equals bad data out.”

While you’re at it, says Norris, calibrate your planter drives to avoid incorporating VRA seeding only to realize it’s not calibrated and is adversely affecting your stand. The same is true with the planter’s point row clutches. Make sure its measurements are in place and set to manufacturer’s specs. Then test it on an area of your field to see if they shut off when they’re supposed to. Don’t forget your sprayers too — the flow meters and auto swath settings need to be checked, including flow control, PWM (pulse width modulation) standby and minimum flow. If you’re not comfortable doing these calibrations, hire someone.

03

Waiting to start collecting data: Once your crop is harvested, if you didn't collect that data, there's nowhere to find it.

"I've seen too many people say they're not ready for VRA so they want to wait on installing a yield monitor, or they have a monitor but no GPS," says Norris. "Yet most growers say they wish they'd started collecting data sooner."

02

Choosing the wrong dealer: It sounds simple, but Norris mentions that he often has customers who've purchased equipment from a dealer who can't service what they sell.

"Check out the dealer before you buy any equipment from them," he says "This equipment is highly technical and can require a lot of service at times."

Make sure your dealer has a Certified Crop Adviser (CCA) or an agronomist on staff. Ask if they offer installation, training and phone support. Find out if they can come to your farm for service in-season and if they have loaner displays to keep you up and running.

01

Forgetting good agronomics: It's another of the obvious notions, but Norris has seen growers implementing a practice just to be doing "the latest and greatest."

"If you do implement a practice, make sure you leave test strips so we know if we benefitted the operation," says Norris, who cites an example where he started using infrared sensors. "And I questioned the way that the sensors were applying nitrogen. The sensors wanted to put little or no nitrogen on the best corn and the most nitrogen on the poorer corn."

At the time, Norris believed that was the wrong approach, so to test his theory, he created a formula to try the exact opposite. He even went to growers and asked them for their opinion, and they sided with his view of applying more N on the best corn and less N on the poorer corn. But did it make agronomic sense?

"We did 11 trials, and I was wrong every single time," says Norris. "If we would have varied the N just for the sake of varying N, we would have cost our growers a lot of money. But without the question and the test, we would not have known."

So the learning continues where precision ag systems and technologies are concerned. Despite any learning curves or misgivings about the technology, Norris notes that it all comes down to a matter of value. Whether the farmer is actively seeking it out or the equipment dealer is including it on the latest purchase, the electronics have to work for the farmer.

Says Norris: "Auto-steer is a technology that the grower kind of just got, but variable rate sampling and variable rate fertilizer spreading and seed clutches, those types of things must be driven by their value. **CG**

Precision in the field

If there's one lesson that Steve Redmond says he's learned from his experience with precision agriculture, it's to take full advantage of the technology. Whether it's the use of clutches on planters or variable rate seeding or fertilizing, or even the proper use of yield monitors, farmers have to buy in to the process, completely.

"The precision ag sector is something where you can't cut corners," says Redmond, who's the precision agriculture specialist with Hensall District Co-op. "There are ways to use this technology and you can't short-cut it, you can't not do a proper management zone. And you have to have the yield monitor on your combine calibrated."

Redmond was at an Innovative Farmers Association of Ontario workshop when Tim Norris, chief executive officer of Ag Info Tech, made his presentation, and he came away from that day's proceedings realizing that Norris was on the right track with his recommendations and directions, particularly where his duties with HDC are concerned.

From Redmond's vantage point, when it comes to using the technology, farmers have to learn to walk before they can run. Equipment manufacturers have done their part, incorporating the hardware and software into tractors, combines and sprayers. But Redmond recalls a report several years ago that stated farmers were using less than five per cent of the available capabilities. He now sees farmers who are working with the technology, familiarizing themselves with it — and then coming to him for advice on how to do things such as variable rate potash.

There is the belief, adds Redmond, that the manufacturers are investing the money to install these systems, and since it's unlikely they'd make such a move without a return on that investment, more farmers are beginning to explore its potential. Having said that, Redmond adds that this technology isn't for everyone; if you're not willing to take the time to set the management zones, to calibrate the equipment and slow down, it isn't going to work the way it's supposed to.

"The yield monitor is going to tell us whether we're making money," Redmond says. "Whether we're variable rating nitrogen or plant populations, there's a lot of measurement that has to happen here, so if you're not willing to do a plot and have your yield monitor calibrated, that doesn't do it. You need to take measurements across the whole field, and once we get it figured out, you won't have to slow down."



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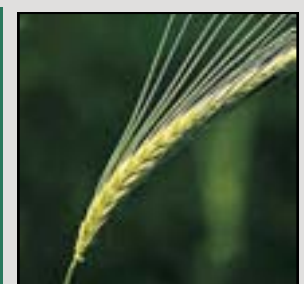
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Leading edge

State of the art solutions are just around the corner for the vexing issue of field variability

By Gord Leathers, CG Contributor

The name of the first precision farmer is lost to the sands of time, but it was likely the neolithic one who stood in a field with a seed sack, looking at the black patch on the ground and thinking, “No matter what I do, this patch doesn’t seem to produce anything. Perhaps I’ll save the seed and let that spot grow hay, and the animals can eat the fodder.”

Now, modern precision farmers boot up a computer and look at the data displayed on their prescription map. Then they check it against several years of GIS-based yield data, and look up the price of inputs, especially that one that’s a little more expensive this year because of oil prices. Finally they compare potential yields against the commodity futures, and they say to themselves, “No matter what I do, that one patch doesn’t seem to produce anything. Perhaps I’ll save the seed and let that spot grow hay, and the animals can eat the fodder.”

All those farmers are dealing with the same problem. Just because one part of the field yields well doesn’t mean other parts will behave the same way. Every acre has its own quirks because of a multitude of variables from one corner to the other. These things will affect how groups of plants will grow and how much they’ll produce, and you can see it almost everywhere.

“If you look at natural forest variability, you’ll find patches of conifers in amongst deciduous, and then there’s a great big open field where no trees grow,” says Mike Duncan, professor of precision agriculture at Niagara College in Niagara-on-the-Lake, Ont. “I see exactly the same kind of variability in a farm field.”

Farmers have known this for as long as they’ve been working land, but the marriage of the combine-mounted yield monitor to the Global Positioning System (GPS) really brought it home. Now we could see, in detail, where the land was productive, and new software allows us to quantify it and map it. Several years of data produced

the prescription map, and precision agriculture really came into its own.

“Precision farming has come a long way from being just field monitoring and trying to find out where the high spots and low spots are,” says Raj Khosla, professor of precision agriculture at Colorado State University. “Farmers can really make a difference in their decision models, and they can increase their efficiency, produce more and increase their bottom line.”

The first, and probably the most widely adopted part of precision agriculture is the autosteer system that holds the tractor on a prescribed course while it works the field. The computer is better at fine steering and maintains the course without succumbing to cab fatigue. The tractor moves in perfect, straight lines. Advances in computers and software also helped position seeding equipment more accurately, cutting down on skips and overlaps so a lot less seed and fertilizer went to waste. The next step was the ability to monitor levels of both inputs and yield.

“When the system began to go in place, somebody figured out that if they can position a combine and put a yield monitor on it, you can get a spatial representation of the yield,” Duncan says. “So the combine collects all its material, they measure the yield, sometimes with a pressure plate, sometimes by weighing the grain as it’s going through, sometimes optically.”

Now the farmer has two major pieces

“Newer machines are almost becoming like an inkjet printer.”

— Mike Duncan,
Niagara College

information — how much seed and fertilizer were placed in each part of the field, and the corresponding yield. With a few years of observation, farmers can get a very accurate picture of how efficiently the land takes the inputs and produces a crop. The next big question is what to do with that data.

“People get these spatial variability maps of their yield and you can see the variability from way back in the past until now,” Duncan says. “One of the farmers I know has long experience on his land because his father farmed it before him, so he knew what he was doing with it. He spent four months in the dead of winter building an Excel spreadsheet to help him take advantage of the variability.”

His spreadsheet actually analyzes the profitability of variable rate application. He broke his fields into 40-foot units, and now he can plug in the variables that he can tweak. The spreadsheet tells him the best inputs for each cell, as well as the optimum rates. Duncan gave one example of the spreadsheet at work where a blanket application might cost \$250 per acre while following the spreadsheet could bring it down as low as \$195 per acre as an overall average. Then he took the next step.

“He was also a wizard with machinery so he took his sprayer, which is a mono-output sprayer, and turned it into a three-output sprayer,” Duncan laughs. “He loads his fertilizers in three different levels and he applies different amounts in each of these 40-foot cells within the parameters of what the spreader can do. I mean there’s errors all over the place, but he was one of the first ones doing it and



he's one of the more successful farmers in his neighbourhood because his truck is bigger, his silos are bigger, his combine is newer and so he's doing good business."

Errors always lead to greater understanding if they're analyzed and corrected. In a perfect world this would lead to what Duncan calls the holy grail of precision technology; providing the farmer with a prescription based on the variability in each field. This would give the grower him the option of tweaking the inputs high or low to take advantage of the fact that the field produces differently in different places. Of course having the map is only the first part of it. Having the machinery to apply different inputs at different rates on to small units of land is the other.

One of the cardinal tenets of agriculture is to get as much yield for as little input as possible. This is good for the farmer's pocketbook and it's good for the environment. Although predicting the future is a dangerous game, there are different types of technology under development that could help farmers fine-tune their operations to do exactly that over the next few generations.

"Newer machines are almost becoming like an inkjet printer," Duncan relates. "When you drag it across the field, it deposits what you want, and the program that does that is actually an image."

The potential is there for a multi-product spreader to move across the land. With instructions from the software, it could change the products it drops as it moves from one cell to the next. If the previous records show that this patch of ground tends to hold a bit more water, then it might even change the type of seed to another variety that copes better with a wetter soil. It could also plant intercrops where corn comes out one side and beans come out the other, each with its own fertilizer, varying the rates with the conditions. The other big frontier is in real-time sensors that can feed information to a cab-based computer that would help vary the inputs according to what's needed.

"Sensors that were once available only on satellites or aircraft are now handheld or tractor mounted," Khosla says. "They're looking down at the crop canopy so when you're driving your tractor at five miles an hour, three or four seconds later your sprayer rig is where the sensor was. Using the algorithms in the computer in the cab, it translates the information the sensor collected into how much input needs to be applied."

One of the pioneers is Greenseeker.

Greenseeker is a tractor-mounted optical sensor that reads red or near-infrared light and correlates this to crop performance in relation to nitrogen. As the sensor passes, it relays information to a computer that tells the sprayer whether a supplemental shot of nitrogen is needed. There are other things it can do with the right sensor.

For example, plants under stresses, such as insect attack or fungal disease, release volatile compounds that are detected by other plants. The Bioinstrumentation Laboratory at the University of California, Davis is developing sensors that can detect some of these compounds. A tractor-mounted sensor that reads early stress can translate it into action as the sprayer passes. It could deliver a specific dose of a specific pesticide to the place where it's needed. It's spot spraying on a large scale that could lead to a fundamental shift in the way we manage diseases, weeds and insects.

This is reactive management, solving a small problem on the spot before it becomes a big problem. In the past, farmers have engaged in predictive management, hedging their bets based on their experience and gambling on the weather.

"We're going more into predictive plus reactive management," Khosla says. "I think the technology is out there that you can manage up to six product lines, a couple of them could be pesticides and four of them could be fertilizer. The whole idea is that you reduce the number of trips that you take through the field and the sensors are an additional pair of eyes that you have mounted on the tractor."

This kind of real-time, field-level scrutiny would generate huge amounts of data, and this is another major frontier for precision agriculture. Data serves no real purpose unless there's a way to interpret it and translate it into some kind of action. The software for this is complex and daunting, requiring the expertise of a GIS technician, a cartographer, an agronomist and a machine specialist.

"I carry around a little thumb drive and I have a directory where I've been doing data processing, and three farms with 15 years of data each is a gigabyte so far," Duncan says. "Then, somehow you have to crunch all this data and the CPU cycles required are staggering."

"We have technology that will deliver what you want, where you want, when you want and how much you want," Khosla concurs. "What we're working on is the science. Do we have the science that helps us? These sensors are looking down at your



"These sensors are looking down at your crop but what do these numbers mean? It's not a done deal. We're not quite there yet."

— Raj Khosla,
Colorado State University

crop, but what do these numbers mean? It's not a done deal. We're not quite there yet."

Futurists had predicted all manner of things, from flying cars to moon bases before the turn of the 20th Century. Sometimes they do get it right and the field of computers and data processing has more than exceeded our wildest expectations. This really has brought profound changes to the way we manage any business, and that goes for one as complicated as farming.

It's quite possible that the future precision farmer will be hunched over the computer in the den watching the screen as it flashes data from the robot tractor in the north section a couple of miles away. The readout will say that it's seeding canola into the long strip and giving it a prescription shot of fertilizer with the rate varying according to the soil tests. At one point the inputs stop and the cutters lift from the soil because they've hit that one small patch.

"No matter what we've done that one patch doesn't seem to produce anything, but it does well under hay so it's perfect for animal fodder." **CG**

The pesticide jungle

Keeping it all straight isn't easy in the modern era of pest control

Weeds, diseases and insects. Every year these stand between you and a bumper crop. Controlling them was once a straightforward exercise, but that era has long passed. The proliferation of pesticide brands, genetically modified crops, residue management and pest resistance has thrown a monkey wrench into the picture. With over 1,500 pesticide brands registered to control over 1,200 pests that attack the over 800 crops grown across Canada, creating crop-by-crop pest control strategies has evolved into one of the more complex exercises on most farms.

My goal as a new contributor to COUNTRY GUIDE is to provide clear, up-to-date, and unbiased information about pest control, the pest control industry and how it has an impact on Canadian farmers. With so many choices it's easy to become confused by splashy brand names, twin-packs and what is often touted as new technology. I'll help sort it out in plain language and provide my opinion on its relevance for Canadian agriculture.

I was raised on a small dairy farm and spent virtually my entire career in agricultural pest control. After 27 years with Syngenta (and its predecessor companies Novartis, Ciba-Geigy and Green Cross), I purchased half of Engage Agro, a leading distributor of pesticides for fruit, vegetable and specialty markets. After selling my interest in Engage, I started a number of small agricultural companies, of which the best known is Savvy Farmer, Canada's only electronic pest control database and decision-making software to provide farmers with information to make better and more cost-effective pest control decisions. I am passionate about pest control and about helping farmers make good pest control decisions. That's why I accepted this little challenge to write articles about pest control for COUNTRY GUIDE.

My goal is to keep readers abreast of interesting new brands and new

active ingredients. Each month, the PMRA (Pest Management Regulatory Agency) registers between 75 and 100 new brands or revised labels, making it almost impossible for farmers or retailers to stay current on what is available for pest control. Many of these new registrations tend to be old chemistry with new names, or twin-packs of two or more existing chemistries. Others involve truly unique technologies — the real gems.

For access to those "gems," we rely on the big chemical companies to invent and develop novel chemistry and hopefully in the future, some high-performance biopesticides. Therefore, for this first article, I decided to paint a quick picture of the pest control industry as a whole, since it tends to be a good bellwether of the greater agricultural economy. The good news is that this industry is very healthy with virtually all major companies reporting solid sales gains, strong profits and heavy investments in new technologies.

While there are well over 100 companies involved in bringing pesticides to the market, the "Big 6" (see chart) account for nearly 75 per cent of global sales. Love them or hate them, growing a profitable crop would be a lot more difficult without the "Big 6." These six multinationals invest billions every year into new pesticide technology, and are the same players that will be bringing novel GM crops to your farm. While there are many who lament the idea of a few major players having so much control of agriculture, we'd better get used to it, since it is unlikely to change anytime soon.

The pesticide business is not for the faint of heart or anyone with shallow pockets. Developing a new pesticide is a tedious, 10-year process costing hundreds of millions of dollars. And before making a decision to start developing a new pesticide, these companies undertake exhaustive market analysis to predict how their customers (you) are going to fare in the years ahead. They see a bright future. The industry predicts global pesticide sales will grow from \$50 billion today to over \$70

billion in just five years. They are betting that global food demand will continue to prop up crop prices, which in turn will continue to support the increased use of pesticides, which then will justify higher pesticide prices. While the path to prosperity will have a few potholes along the way, if you trust the market research of the big companies, there are some very good days ahead for the pest control industry and therefore for agriculture in general.

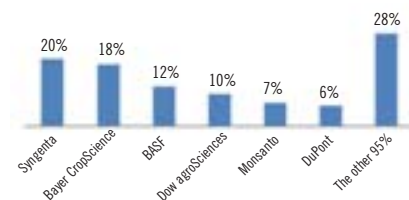
Yet, as with any industry, there are always challenges to be tackled, and in upcoming articles we will delve into the pest control issues that are most likely to have an impact on us. The ones that keep the CEOs of chemical companies awake at night include weed resistance, bees, government regulations, generics, GMO crops and anti-pesticide groups dedicated to eliminating pesticide use. Each of these stories is constantly evolving and we will try to bring perspective to each topic as new information surfaces.

Of course, writing this column is more interesting if I am addressing topics that are of special interest to you. If you would like to know more about any pest control topic, let us know. **CG**

Warren Libby is president of Savvy Farmer, a web-based service for farmers and crop protection dealers. He previously held leadership positions in several crop protection companies and is the former chairman of CropLife Canada.



GLOBAL PESTICIDE INDUSTRY MARKET SHARES (est. 2013)



Do you have a crop protection issue you'd like Warren to write about?

Send any suggestions to
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Thrive in 2014

This is the time of year to look ahead. The CFFO has a dual role of dealing with current issues and looking ahead to the challenges and opportunities that farm families will face in the future. Are there ways to make the world we live and work in a better place for all of us?

The landscape of rural Ontario is changing rapidly. During the last few years, over a half million acres of hay and pasture has been converted to annual grain and oilseed crops. The CFFO is asking what impacts these changes have on long term soil health and the other species that we share the environment with. Will we be able to maintain and improve the organic matter content and productivity of our soils? Will pollinators adapt and thrive without the biodiversity that was traditional in Ontario agriculture? Will our rapid adoption and dependence on new technology have some unintended consequences for those other plant, insect and micro-organism species? The CFFO is working with the Sustainability Chair at the University of Guelph to research these issues and is looking for guidance from this research. We want our children and their farm families to have the same or better opportunities than we have had. Being good stewards of all of our resources – land, water and air-is the legacy we will pass to our children.



Last month, Premier Kathleen Wynne challenged the agriculture and food industry to become the engine of growth and prosperity for the Province. The agriculture and food industry already challenges the automotive sector as the largest sector in the Ontario economy. In Ontario we have some of the best farm land in the world, a very desirable climate and a resourceful and talented farm population. To rise to the challenge we will have to use all our resources to their potential. We will have to welcome new technology and incorporate new operating techniques. We will have to do so under the watchful eye of our urban cousins while

providing safe, nutritious food, sustaining the environment for future generations and assuring the welfare of our farm animals. We are confident that the farm families of Ontario are up to the challenge.

We are very optimistic about the future of agriculture in Ontario. These are opportunities around every corner. Yes, there will be challenges, but farmers of Ontario love a challenge and will channel their resources to meet those challenges and enjoy the gratification that comes from achieving success. May we wish you and your family every success in the year ahead.

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FIELD NOTES



Stretching flag-leaf timing

It's one of the baselines of cereal crop agronomy — protect the flag leaf, because protecting the flag leaf equals protecting yield potential.

BayerCropScience's Troy Basaraba told a recent Agronomy Summit meeting of crop advisers that another variable frequently enters this equation — whether or not the application could also be delayed long enough to also protect the emerging head.

Basaraba told crop advisers that one of the questions they've been looking at is whether there's an optimum time to apply fungicides, and whether or not the flag-leaf timing is critical for best protection.

It's a question the company has been working on through its strip trial program at farms throughout the Prairies, and the simple answer is there's not a clear-cut answer.

Its best fit seems to be in years where disease pressure is present, but not at its strongest. The flag leaves might get a bit of spotting under these conditions, but they largely survive and do their vital job of photosynthesis.

The key to making this work is quite straightforward, Basaraba said — good crop scouting that tracks exactly what's happening and being ready to treat the crop as necessary.

Says Basaraba: "What we're talking about here is Agronomy 101 and Scouting 201. Are you seeing disease? How heavy is this pressure? Are you going to want to wait that extra seven to 10 days?"

Mutant maize

An insect-ravaged corn plant that is picked clean of most of its leaves means a major breakthrough for researchers working on western corn rootworm at Purdue and the University of Illinois.

This \$1 billion-a-year pest hits growers in the pocketbook by feeding on plant roots and pollen and silks. Occasionally, they will feed on corn leaves as they wait for silks to emerge.

With the newly discovered mutation, however, biochemical and physical changes in the corn seem to encourage the worms to eat away at the leaves.

"Up until the discovery of this mutant, people thought, well, maybe there's nothing in the corn leaf that this

beetle likes to eat," says Guri Johal of the University of Illinois. "But this mutant tells us that probably there's something in the corn leaf that prevents the beetle from eating it — there's maybe an active mechanism that keeps this beetle typically from eating."

The discovery could give scientists and farmers a new strategy against the pest. In recent years, the pesky insect has threatened to evolve some resistance to Bt traits as well as to crop rotation in major corn-producing states like Iowa and Illinois.

One idea is that farmers could plant the mutant plants along field boundaries to lure the beetle. They would then focus on controlling the insects there, reducing the rootworm population over time.

No better disease package

There's a perception out there that our currently available cereal varieties have a stronger disease package — but the facts don't necessarily agree with that ideal.

Andy Tekauz knows a thing or two about cereal plant diseases. He spent his entire career working on them at the soon-to-be-defunct Cereal Research Centre in Winnipeg.

Tekauz recently retired from his long-time position with Agriculture and Agri-Food Canada, and while cleaning up his office he began thumbing through old lists of recommended varieties from the Manitoba government.

"I'm a bit of a hoarder," Tekauz conceded with a chuckle during a recent presentation. "So I had about 40 years of these things on file."

While glancing through them he noticed something that runs counter to conventional wisdom. Ask most people and they'll tell you that today's varieties have much better disease resistance than earlier strains. But if you look at the official documents, a bit of fiddling around with terminology aside, the ratings are actually quite stable over time.

Cracking open the MANITOBA SEED GUIDE publications, he demonstrated that in 1974, most of the common spring wheat varieties enjoyed good disease ratings.

Rolling forward 10 years saw a lot of changes, mainly with older varieties showing lower disease resistance, but newer ones like Katepwa were better adapted, thus maintaining the overall disease package as they took over acreage.

Another decade on, in 1994, new wheat classes like CPS were appearing, and some of them had not yet had a disease resistance package developed, but the spring wheat classes continued to show good resistance, again with some new varieties.

By 2004 a new column had been added for a challenging new disease — fusarium head blight — but again there was little change in the overall disease ratings available, although older varieties continue to be replaced by new standard bearers that were better adapted to changing disease populations.

Today, with the 2013 crop in the bin and the 2014 season looming, Tekauz says there still isn't any evidence of a wholesale advance in disease resistance in spring wheat, or any other crop. Rather, it's been a case of incremental improvements just barely staying ahead of Mother Nature as she continues to develop new variations on established diseases in the face of selection pressure, or of plant breeders racing to develop new varieties that cope with newly emerging disease.

Says Tekauz: "Overall, however, there really hasn't been all that much improvement in our disease resistance." **CG**

RUTTING SEASON

There aren't any great options to fix your rutted fields. But here are the best — and the worst

By Ralph Pearce, CG Production Editor

Too hot, too cold, too dry, too wet. There's pretty much never a Goldilocks moment for farming anywhere on the planet, and when those rare moments do emerge, they never last.

It makes for challenging times for growers who have to balance the immediate needs of the operation, such as spraying crop protection products, or harvest operations, against things like water-logged fields.

That was the situation Ontario farmers — and in particular, growers in mid-western Ontario — found themselves in during this past fall. They were fighting to get their soybeans off, the winter wheat planted and corn harvested.

In late October growers got an early preview as an early snowfall came, though the snow disappeared quickly — only to be replaced by three weeks of heavier-than-normal rainfall for southern Ontario.

The figures from Chatham, Ontario's Weather INnovations confirm just how wet it was came in the middle of November. Between September 1 and November 11, the region bounded roughly by north Huron-north Perth-north Waterloo, as well as most of Wellington and Dufferin counties received more than 225 mm (nearly nine inches) of precipitation.

Other parts of the province saw between 373 mm and 480 mm of precipitation for the same period.

Overall, it means there's a mess in fields throughout the region, and farmers are now coping with the impact of driving on saturated soils and tilling out the resulting ruts, something that's causing a fair amount of concern.

For many agronomists and farm equipment dealers, the answer comes down to one word: plowing.

"Plowing is the only way, right now," says Rick Allen of Podolinsky Equipment, near Petrolia, Ont. "And you're going to see some guys attempting to plow (before the end of the year). And next spring, if they don't, then they'll be out tickling it with a little vertical tillage."

Allen says that disc ripping or vertical tillage ceased in his area in late October, despite farmers still having corn in the field — as much as 25 per cent by the middle of November.

"The soil's like rubber," says Allen, citing soil condition as the primary reason most growers are steering clear of any tillage. But there are some who are determined to try. "I was out with a grower in his combine, and he told me that he had 250 acres to plow, and he's going to plow them, and that's it."

Mervyn Erb also sees little option for growers but to plow the ground to alleviate the ruts.

"The heck of it is, if the guy's going to rent some ground, he has no idea how

it was beaten at harvest time," says Erb, an independent certified crop adviser (CCA) from Brucefield, Ont., north of London. "He'll rent it with snow on it, or he'll rent it once it's plowed. But he'll have no idea how badly punched up it is or how tough it is."

Erb echoes Allen's assessment about the lack of opportunity for vertical till in the fall, saying it's "just too gummy." Yet he notes that into November there were still a lot of farmers on their fields mold-board plowing. Disagree with that as he might, he acknowledges that it may be the lesser of several evils.

"If they can't combine, they're out plowing, and I'll tell you what, this clay land is coming up real leathery," says Erb. "It's wet, we've tramped it all, and there are buggies in the field, and when you plow it over, you can see the shiny marks from the traffic, and everybody's hoping that the frost and the melt and the thaw and the rain will turn that back into mellow ground. I don't know if it'll quite happen like that, but I don't see a lot of choice."

Farmers in most of southern Ontario — except for the northern part of Oxford, perhaps — are limited in their ability to do much spring plowing. Erb says some have tried some form of vertical tillage in the spring, but the tougher clay soils make that a very difficult row to hoe.

"You turn all these root balls of corn over, and as soon as you pull that root ball out of the ground, you have a rock, and it's full of wet, gummy soil and your planter just bounces all over the top of those things," says Erb. "You're better off doing nothing. Now, spring vertical till is fine if you did a fall vertical till. It'll be softened up enough and opened enough in the spring, it'll actually do a nice job of finishing it off. But only doing a spring vertical till is a wreck." **CG**

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Many contractors grew up in the drainage business and most have spent time in the trenches where they come face-to-face with problems that must be solved quickly and effectively. This practical experience is a huge asset.

To be licensed, tile drainage machine operators must take a primary drainage course that allows them to install drains under supervision, and then having that experience, take an advanced course that allows them to work independently. The license-related courses are intensive and demand competence – in surveying, drain system design for efficiency at the least cost, the science around soil and water interactions, hydrology in the drainage system, environmental concerns as

associated with cropland drainage, drainage law, and equipment adaptation (weaknesses and strengths; for example, where lasers are required and where GPS can improve work productivity and quality). The objective of cropland drainage is to create the proper balance between air and water in the crop root zone and to do this while conserving as much water as possible to carry crops through summer drought.

After a candidate demonstrates a high level of classroom competence through exams he (or she) must prove ability in the field with the operation of drainage equipment. Drain installation accuracy and design competence must be proven before an operator license is issued.

The drain installation equipment that contractors use must be certified by OMAF as capable of maintaining proper grade and depth.

Licensed contractors usually provide valuable services such as assisting in obtaining necessary permits, providing a detailed map record of drains installed and providing a work guarantee. Licensed tile drainage contractors also have the experience necessary to quickly locate existing tile drainage systems.

Many contractors are also licensed to design and construct agricultural erosion control structures for surface water management. Once again, this includes intensive classroom work. They must understand the role of soil management, the design principles and place for surface water control structures, and understand

the association and integration of surface water and sub-surface drainage systems. The objective here is to reduce soil erosion and improve water quality beyond the farm.

LICO contractors engage in continued professional development activities, through summer tours and drainage days, and by attending seminars and training sessions that are associated with their winter conference. Typical topics include First Aid, Work Place Safety, Highway Regulations, Drainage Regulations, safety around utilities, drain problem solving, drain water quality and the relationship between cropland drainage, soil erosion and nutrient loss.

LICO members, through their organization, have funded considerable research in the interest of reducing negative impacts that agricultural drains may have on nutrient loss or the environment.

The goal of a LICO contractor is to improve soil productivity in a responsible and efficient way without causing downstream damage.



License courses are intensive.

Photo courtesy of Andy Kester, OMAF.



A certification sticker must be affixed to the drainage machine.

Photo courtesy of Sid Vander Veen, OMAF



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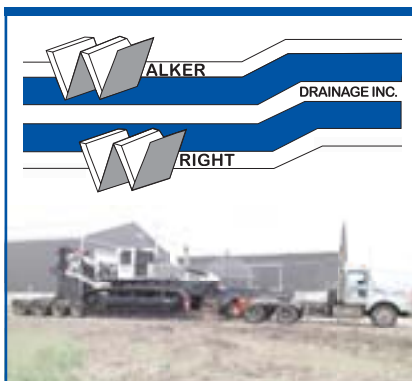
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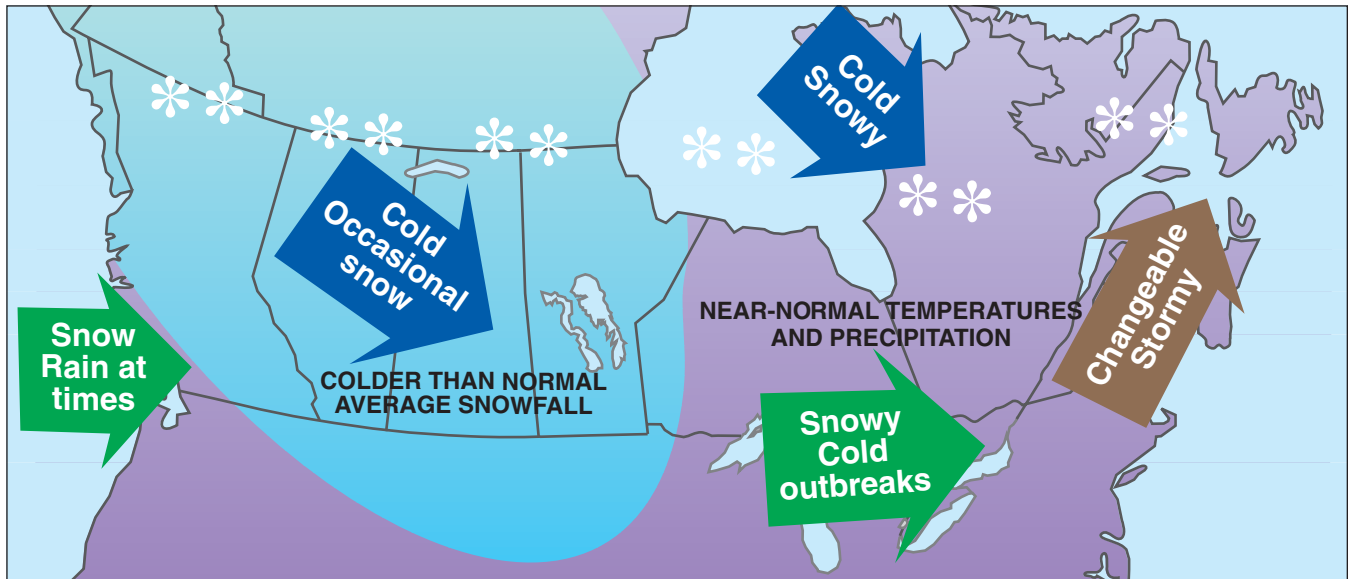
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ONTARIO

Jan. 19-25: Cold air prevails with a few higher wind chills. Fair overall but expect snow on a couple of occasions with heavier snow squalls at times near large lakes.

Jan. 26-Feb. 1: Mostly fair with seasonal temperatures but a couple of colder days bring snow and blustery winds. Very cold with light flurries in the northern regions.

Feb. 2-8: Expect a few bright days this week with temperatures fluctuating from mild to cold. Windy at times. Snow on a couple of days, heavier near larger lakes.

Feb. 9-15: Occasionally unsettled as mild, fair days interchange with heavier snow. Chance of rain in southwest regions. Blustery. Continued cold, flurries in the north.

Feb. 16-22: Occasional thawing in southern areas with variable temperatures. Snow or rain on a couple of days. Windy at times. Periodic heavy snow in the north.

QUEBEC

Jan. 19-25: Cold temperatures dominate on many days with higher wind chills. Slight moderation brings snow, heavier near open waters. Settled and very cold in the north.

Jan. 26-Feb. 1: Temperatures lean to the cold side under fair skies but a few milder, blustery days bring snow and drifting. Continued cold with flurries in the north.

Feb. 2-8: Bright skies interchange with snow, chance heavy in places. Risk of rain in the south with minor thawing. Temperatures vary. Often windy. Snowy in the north.

Feb. 9-15: Unsettled on two or three days with snow or rain in southern areas, changing to heavier snow in the north. Variable temperatures with some thawing in the south.

Feb. 16-22: Milder air and thawing exchanges with colder outbreaks under windy conditions. Fair but heavier snow on a couple of days, mixed with rain in the south.



ATLANTIC PROVINCES

Jan. 19-25: Seasonal to occasionally cold with some higher wind chills. Often fair but snow on two or three days, heavy in a few coastal areas. Risk of rain in the south.

Jan. 26-Feb. 1: Mild, fair days will interchange with colder, snowy ones. Windy from time to time. Chance of rain and heavier precipitation in a few localities.

Feb. 2-8: Weather systems bring changeable conditions ranging from fair and cold to snowy and mild with some thawing. Chance of coastal rain. Windy at times.

Feb. 9-15: Unsettled and stormy at times as disturbances move through with blustery winds, occasional heavier snow mixed with rain in the south. Changeable temperatures.

Feb. 16-22: Milder air and thawing temperatures on a few days this week. A couple of colder, blustery days result in periodic snow, mixed with rain in southern areas.

January 19 to February 22, 2014

NATIONAL HIGHLIGHTS

A cold weather pattern is emerging in Western Canada as cold arctic winds combine with the short days of winter. Occasional snow, blowing snow and high wind chills will also form part of these harsh conditions. Nevertheless milder southerlies and longer days will brighten the bleak weather outlook later in February. Meanwhile a series of weather systems racing from southwest British Columbia through the northern United States and on into Eastern Canada will bring occasional stormy sessions to those areas. Precipitation should run close to or a little heavier than usual in these regions with a few heavy snowfall events through the period. Alternating cold and mild spells will accompany these disturbances, although temperatures overall are expected to average out to near normal.

Prepared by meteorologist Larry Romaniuk of Weatherite Services. Forecasts should be 80 per cent accurate for your area; expect variations by a day or two due to changeable speed of weather systems.



Leeann Minogue is the editor of GRAINEWS, a playwright, and part of a family grain farm in southeastern Saskatchewan

Putting a price on land

Just how much is a dream worth anyway?

Before he got on the road to the terminal with his third load of canola, Dale stopped at the house for a warmer pair of socks. “Damn heater,” he was muttering to himself. He’d taken the grain truck to town to get it fixed last year, but it still wasn’t throwing out enough heat to keep the cab warm enough to haul canola at 20 below.

He could have waited a few days, but with even colder weather in the forecast for the rest of the week, Dale rooted through his sock drawer for the battery-powered electric socks his daughter Trina had given him for Christmas a few years earlier. “She thought these were a gag gift,” he muttered as he found fresh batteries and pulled the socks on.

In the closet by the garage door, he found some Hot Shots to shove into his gloves. “I don’t know what makes these work,” he’d told his wife Donna when he brought them home from Canadian Tire. “But they should keep your hands warm if you’re going to cross-country ski for hours at a time.”

Donna wasn’t skiing this weekend. She’d gone to Saskatoon with their son Jeff, his wife Elaine, and their two young children. Donna was going to

babysit while Jeff and Elaine saw the new machinery at the Crop Production Show and went to some farm meetings.

With his father Ed out in B.C. spending time with his sister and the rest of his family in Saskatoon, Dale was home alone. “Someone has to look after the dog,” he’d said. Their outside dog couldn’t be trusted to stay around the farm for more than a day or two with nobody home to give him attention.

His wife had tried to convince Dale to leave the dog at the kennel. “The last time we did that, Donna, the kennel bill was damn near as high as the bill at the Saskatoon Inn. We might as well have gotten him his own room.” Dale didn’t remind her that when the dog had come home, he’d been so worn out that he’d slept on the shop floor for three days straight and hadn’t eaten right for a week.

So the rest of the family had headed north early that morning with Jeff saying, “It’s not a good trip to Saskatoon in January unless you have to feel your way down No. 11 highway in a blinding whiteout and maybe stop and spend the night

at the Davidson motel.” And Dale was home alone, hauling canola.

On his first trip to the terminal, Dale had stopped for a coffee with Brian Miller and Don Brown. They were talking about a farmer 30 miles north of the Hansons who’d just sold his land.

“Eight quarters. All at a thousand bucks an acre,” Brian explained.

“They say there was an investor from Alberta,” Don filled in. “No way anybody could pay that much without outside money.”

“With land prices this high, I don’t know how I’m ever going to buy enough acres to get my kid out of the oilpatch,” Brian complained.

“What’s Jim going to do?” Dale asked.

“Buyer says he’ll hire him. Jim won’t know anything’s changed, except he’ll have a pile of money in his bank account and he won’t have to make any decisions. Jim never liked making decisions anyway.”

The men laughed and Brian told a story about Jim that they’d all heard two or three times before. Dale finished his coffee and went home for the next load.

The afternoon went by slowly. The temperature fell. The truck radio crackled and quit, causing Dale to curse Jeff. “I told him to get that radio fixed.”

He was already so angry with the heater and the radio, it barely bothered him when the seal on the door went and he realized he’d have to fix that too.

With each load Dale hauled, the coffee had Jim’s sale price \$50 an acre higher. By three o’clock it was up to \$1,100 an acre. Could that be true? That was a foothills-in-Alberta price. Not a southeast Saskatchewan price. If Jim could get that kind of price for his light land, surely the Hansons could do at least as well. Even accounting for exaggeration.

“Even a thousand an acre,” Dale thought to himself, shaking his head. He couldn’t stop multiplying their 8,000 acres by that ridiculous price. That would be more than enough to set up himself, his son, and his daughter for the rest of their lives. Never mind what they might get out of the machinery and buildings.

On a hard, bitter January morning, Dale’s phone buzzed. It was Elaine. What next?

The Hot Shots had long worn off. Dale rubbed his hands together to keep them warm as he drove. Thinking.

Cold, dark winters. Gossiping neighbours. Not to mention the sheer amount of work it took to keep the place going. Dale was going to need a full week just to get this one grain truck back in shape.

And it wasn’t all gravy. A flood. Then hail. The Hansons had just lived through two years of bad luck in a row. That couldn’t continue. Or could it?

How long would these high land prices last? Grain prices were falling daily, and all the market know-it-alls said the prices were going even lower. Even overseas investors would see that. Wouldn’t they?

Just then, Dale happened to drive by a roadside billboard featuring the smiling face of a local farm realtor, with his phone number in giant, shiny numerals.

Dale rubbed his hands together, thinking. Was it fair to chain the next generation to a weight like this? His two grandchildren were too young to know the difference, but maybe the day would come when they would curse their ancestors for leaving them a low-income work prison, rather than a million-dollar trust fund. He could give them a legacy they could use to get the best education money could buy. Or start the business of their dreams. If he didn’t sell, was he a stubborn old man, clinging to the past?

The realtor’s phone number rolled through Dale’s vision as he struggled to open the shop door. After a grueling tug of war, he opened the door and got the truck inside for the night. Then he looked down and realized that his hand had pulled his phone out of his pocket. Dale pictured the realtor’s face — \$1,100 an acre?

Before he could dial, Dale noticed a text message alert on his phone screen. He jabbed his finger at the tiny screen to open the message.

Elaine had sent a photo of Dale’s three-year-old grandson, Conner, standing on the steps of a new John Deere combine. The kid’s grin was wider than his face, and he was pointing up at the cab. The message under the photo said, “Conner can’t wait to drive one of these.”

While Dale was putting his phone back in his pocket, the dog managed to grab one of the gloves out of his other hand and was running across the snow-packed yard, looking back to make sure Dale was going to play chase. “Damn dog,” Dale muttered, zipping his pocket closed, with the phone inside. **CG**

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Healthy food for busy farm families

As Virginia Woolf wrote, “One cannot think well, love well, sleep well, if one has not dined well.”

By Helen Lammers Helps

They call it arsenic hour. It's that time of day when the parents are back in the house, but before dinner is served. Everyone is tired. Everyone is hungry, and there's an emotional meltdown waiting to happen, either to you or the kids.

It's no wonder we so often resort to processed or take-out food to bring order to this chaos. Unfortunately, those processed foods often contain artificial preservatives, colours, refined flour and too much sugar and salt, says Christine Gingerich, a wellness coach based in New Hamburg, Ont.

Gingerich is the author of the healthy lifestyle and cookbook, *OPTIMAL YOU — GREAT-TASTING RECIPES & POWERFUL LIFESTYLE STRATEGIES TO ACHIEVE OPTIMAL HEALTH*, and she assures us that with a little planning, it doesn't take that much more time to cook and bake from scratch instead of buying prepared foods.

For people who want to eat healthier and feel better, the biggest change they can make is to eat more whole foods, says Gingerich. When grocery shopping, she avoids buying products that have ingredients she can't pronounce. She also tries to start each dinner with a healthy serving of salad made with fresh ingredients and her home made salad dressing.

Each week she makes up a batch of a couple of different kinds of salad dressing, often using her Garden-of-Eden recipe (see more of her tips at www.edenlifestylecoaching.ca).

Down the road in Chatham, Ont., registered holistic nutritionist Ashley Srokosz agrees with Gingerich on the importance of eating whole foods. “It's about going back to how people used to eat... to eating food that will nourish you,” Srokosz says.

After spending the past five years helping time-crunched families develop healthier eating patterns, Srokosz has found that many of her clients already know what they should be eating, but just don't know how to fit meal prep and cooking into their jam-packed schedules.

“Dinner is the last thing on their minds... they're just trying to get through the day,” says Srokosz.

One of the most useful things you can do is to plan your meals in advance, says Srokosz. Gingerich agrees: “You don't want to come home from work, open the fridge and think ‘what do I make.’”

Srokosz advises taking a half-hour to plan what you'll serve each night for the next week or two.

It doesn't have to be difficult, says Gingerich. “Every family should have a good assortment of tried and true recipes,” she says. Make a list of any ingredients you'll need to buy and keep track of items you've used up to avoid having to make multiple trips to the grocery store.

Keeping your pantry stocked with healthy staples such as canned beans, canned tomatoes, brown rice and lentils means you will always have the makings of a healthy meal on hand, says Srokosz.

Srokosz considers her crock pot to be an indispensable tool. Most of the meal prep can be done the night before, she explains, and then dinner is ready when you come home from work.

When making batches of soup, stew or casseroles, Srokosz makes extra and freezes them in meal-size quantities. This is also a good way to save money because you take advantage of things on sale, she adds. Gingerich also likes to store some leftover meals in single-size portions in the freezer for convenient lunches. (Find more Srokosz tips at www.lovetheyoueat.ca.)

When Gingerich sees ground beef or chicken on sale, she buys 10 pounds and cooks it all at once, freezing it in two-pound packages. “It's so handy to have the pre-cooked meat on hand. I just toss it in the slow cooker with some canned tomatoes and chopped veggies and I have a soup.”

Be sure to label and date all items for the freezer so you know what you've got and can use it up in a timely manner, Gingerich cautions.

A food processor with grater and slicer attachments is another good time-saving tool, adds Srokosz. If you're already chopping vegetables, it doesn't take much longer to chop enough for extra meals. If you know what you're having for each din-





ner that week, you can chop enough vegetables for the whole week. Then store the vegetables in separate labelled containers to make it easy to use them.

While it's good to have family favourites, Srokosz advises stepping outside of your comfort zone sometimes.

Despite Srokosz's passion for healthy eating, however, she doesn't aim for perfection. Instead, she says, set healthy targets you can achieve.

There may be times when you resort to ordering pizza, but with a little planning and organization, this can be the exception rather than the rule. Says Srokosz: "I try to eat healthy 80 per cent of the time." **CG**

Moroccan-style chicken with prunes and quinoa

A variation on a traditional Moroccan tagine, this delicious dish makes the most of the bittersweet combination of prunes, honey and lemon. The addition of garlic, oregano and a smattering of black pepper completes the flavour profile. Traditionally, this dish is served with couscous, but I've used quinoa, which is every bit as tasty and more nutritious.

Makes 8 servings

Tips:

If you are marinating the chicken overnight, refrigerate the prune mixture.

Some quinoa has a resinous coating called saponin, which needs to be rinsed off. To ensure your quinoa is saponin-free, before cooking fill a bowl with warm water and swish the kernels around, then transfer to a sieve and rinse thoroughly under cold running water.

Works in slow cookers from 3-1/2 to 6 quarts

1-1/2 cups	chopped pitted prunes (375 mL)
1-1/2 cups	water (375 mL)
1 tbsp.	liquid honey (15 mL)
1 tsp.	grated lemon zest (5 mL)
4 cloves	garlic, minced (4)
1 tbsp.	dried oregano leaves, crumbled (15 mL)
1 tbsp.	grated lemon zest (15 mL)
1/2 tsp.	salt (2 mL)
1/2 tsp.	cracked black peppercorns (2 mL)
2 lbs.	skinless bone-in chicken thighs (1 kg) (about 8 thighs)
2 cups	chicken stock (500 mL)
1/4 cup	freshly squeezed lemon juice (50 mL)
3 cups	water (750 mL)
1-1/2 cups	quinoa, rinsed (see Tips) (375 mL)

1. In a bowl, combine prunes, 1-1/2 cups (375 mL) of the water, honey and lemon zest. Cover and set aside (see Tips).
2. In slow cooker stoneware, combine garlic, oregano, lemon zest, salt and peppercorns. Add chicken and toss until evenly coated with mixture. Cover and refrigerate for at least one hour or overnight.

3. Add chicken stock and lemon juice to stoneware and stir well. Cover and cook on low for five hours or on high for 2-1/2 hours, until juices run clear when chicken is pierced with a fork. Add prunes with liquid. Cover and cook on high for 30 minutes to meld flavours.
4. Meanwhile, in a pot over high heat, bring 3 cups (750 mL) of the water to a boil. Reduce heat to medium. Add quinoa in a steady stream, stirring to prevent lumps from forming and return to a boil. Cover, reduce heat to low and simmer until tender and liquid is absorbed, about 15 minutes. Set aside.
5. To serve, spoon quinoa onto a plate and top with chicken mixture.

Make ahead

This dish can be partially prepared before it is cooked. Complete steps 1 and 2. Cover and refrigerate overnight or for up to two days. When you're ready to cook, continue with steps 3 through 5.

Excerpted from HEALTHY SLOW COOKER: MORE THAN 100 RECIPES FOR HEALTH & WELLNESS by Judith Finlayson © 2006 Robert Rose Inc. www.robertrose.ca
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Restless leg syndrome — more common than you think

By Marie Berry

Restless leg syndrome is just what it says it is. It is a feeling that your legs are restless, or that you want to move, accompanied by sensations such as creeping, burning, aching or itching.

Often you notice restless leg syndrome when you are still, for example in bed, and you will find that movement will alleviate the feeling. However, when you are in bed, you probably want to sleep!

It is thought that restless leg syndrome is under-reported because you don't notice it during the day, and you are able to fall asleep in spite of the irritation. About one in 10 Canadians are bothered, with more women than men affected, as well as more older people and those with a family history.

Children with hyperactive conditions and adults with sleep apnea often experience restless leg syndrome, as do pregnant women and dialysis patients.

The exact cause is not known, although it is thought to involve a malfunction in the nervous system, specifically with the nervous system chemical dopamine. While there are no specific medications for restless leg syndrome, drugs that affect the nervous system and especially dopamine are often useful. Drugs such as the dopamine agonists that are more commonly used for Parkinson's disease are the drugs most often used, for example Sinemet, pramipexole, and ropinirole.

Sometimes, medications used for seizure control, for example carbamazepine or gabapentin, reduce symptoms, and pain relievers or sleep medications may help you get a good night's sleep.

Unfortunately, you will probably need to try several medications before you find the most effective one or combination.

Restless leg syndrome can sometimes be caused by other conditions such as osteoarthritis, rheumatoid arthritis, varicose veins, anxiety, obesity, diabetes nerve damage, fibromyalgia, breathing problems

such as emphysema, and chronic headache. Obviously, treating these other conditions will reduce restless leg syndrome. Some drugs, for example antidepressants, antipsychotics, calcium channel blockers, antihistamines, decongestants and water pills, may worsen restless leg syndrome, so asking your pharmacist to check your medication history is a good idea.

Walking will relieve the symptoms, as will kicking, flexing, or massaging the legs. An easy stretch for the legs is to stand about an arm's length away from the wall, rest your palms on the wall, and slowly lean towards the wall then push back keeping your heels flat against the floor. Five to 10 repetitions are needed.

Good sleep hygiene will help minimize the symptoms. This means a regular bedtime routine along with a cool, dark, comfortable bedroom. A hot bath before bed, wearing long socks while sleeping, and stretching before bedtime may also help.

Your lifestyle can also contribute to restless leg syndrome symptoms. Smoking, alcohol consumption, caffeine intake, poor diet especially iron or folic acid deficiency, stress, fatigue, and even cold exposure are all associated with more symptoms.

If you are bothered by restless leg syndrome, keep a diary of your symptoms along with your activities and diet. You may notice something that you are doing is associated with worsening of symptoms.

Restless leg syndrome is often described as the feeling of running in bed, and you certainly won't be able to rest well. If you do experience these disturbances, don't dismiss them as a normal part of aging or as just bothersome. Get them checked out. Treatment will help you sleep better!

Marie Berry is a lawyer/pharmacist interested in health and education.

If you take heart medications, you certainly want to get the most from them while using them safely. Next issue, we'll take a look at some safety tips for heart medications to help you live a long and healthy life.



"The clock of life is wound just once." The speaker, Harold Empey, is not a preacher or a motivational speaker. He is a retired business executive. His seminars called Just in Case help people plan and organize before the inevitable moment of death. He holds up an alarm clock to open the discussion.

Harold's remarks on "decluttering" catch my attention. Will I ever read the books I have accumulated? I have records that have not touched a turntable for years. What should I do with the 12 cowboy hats I wear only occasionally?

"Don't have a garage sale. Your time is worth more than 10 cents an hour." Harold is full of suggestions. "Give your stuff to charity," he advises. "Give your most valued possessions to your family and friends while you are alive. You will have the pleasure of seeing their joy in receiving. You will be rewarded with joy in giving." All of us have something we can give. Each of us can leave the earth a little better for having been a temporary resident.

Most of the people at the seminar are middle aged and elderly. I reflect that something happens to people in our age bracket. We ask, "What have I done with my life? What do I want to do with my remaining years? What kind of legacy do I want to leave behind?" Country music singer Michelle Wright warns, "You get one time around, one roll of the dice." We have one life to live. We might as well make the best of it.

"How many of you have written your obituary?" Not many hands go up. Harold's advice is, "Do it yourself. You know your story. If you don't write your life history, it might be written by someone who hardly knew you."

Alfred Nobel, the inventor of dynamite, read his own obituary. It happened by accident. When his brother Ludvig died, a newspaper ran a long obituary believing it was Alfred Nobel who had died. The obituary highlighted his invention of dynamite and stressed how important it had become for military application. Dynamite and Nobel were responsible for increasing destructiveness in war. The newspaper described him as "a man who had made it possible to kill more people more quickly than anyone else who had ever lived."

Nobel read his obituary while alive and it horrified him. The newspaper article highlighted his great wealth, but did not mention his personal qualities, or his convictions about life. Nobel realized he was leaving nothing behind to demonstrate his values and beliefs. He set up the Nobel Prizes for literature, peace, economics, medicine and the sciences. His gifts changed his legacy. When you hear the name of Alfred Nobel, do you associate it with dynamite or the Nobel Prizes? The people we mourn the most are not the richest or the most famous, or the most successful. They are people who enhanced the lives of others.

Life is made up of many turning points. Sometimes it takes a shock to help us view life from an eternal perspective. Something as simple as holding up an alarm clock motivates us to think more deeply about the meaning of life.

Jesus taught that the way to receive the gift of life is to share it with others. Blessings come by giving. Insecurity encourages us to hold back. Jesus advises kindness, generosity and compassion.

Words attributed to Winston Churchill put it this way: "We make a living by what we get. We make a life by what we give."

Suggested Scripture: Luke 6:38, Acts 20:35

Rod Andrews is a retired Anglican bishop. He lives in Saskatoon.

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Owly Drysdale 1927-2014

Dan Needles is the author of "Wingfield Farm" stage plays.

After 17 years, this marks the final episode of Petunia Valley. It has been a historic run in Canadian publishing, full of warm-hearted laughter mixed with occasional tears, and we wish Dan, and illustrator Rick Kurkowski, every success in their new projects... The Editor

We lost Owly Drysdale this week. They found the old cattleman on Monday morning lying in the doorway of his barn, a rope in one hand and a syringe full of penicillin in the other. He was 86.

The usual sentiment expressed at the wake was that it was a mercy he dropped in his tracks because he would have made a terrible patient. Owly only sat down for his meals and the rest of the time he walked. He was famous for the phrase, "If you want to talk, you're going to have to walk."

Owly did a lot of walking in his life. He walked down from Hall's Hill into Port Petunia just after his 16th birthday and talked his way into the Canadian army in March 1944. Then he walked across France and Holland with the 3rd Canadian Division through the Falaise Gap and into the awful winter campaign to free the Channel ports.

His entire platoon was captured by the Germans in February 1945 and held for about a week before their captors turned them loose and let them all walk back to the Allied lines. Then Owly walked on to Berlin.

Owly's army jacket with the Division's distinctive grey shoulder patch hung beside the urn on a little table set in front of the chancel steps in St. Stephen's-on-the-Drumlin church, a place he never entered in his adult life. The jacket looked ridiculously small in comparison to the big-shouldered man we all remembered.

I don't think I ever saw Owly in the Legion and he only told me one war story in the 30 years I knew him. The day he was captured, his platoon was holed up on the second floor of a stone house watching a single German tank make its way up the street. The plan was to stay quiet and let it go by, but nobody thought of explaining that to the new guy who had joined them the day before. Before anyone could stop him, the recruit went to the window and fired a shot that bounced off the tank's armour like a piece of popcorn. The tank promptly returned fire with a single round that obliterated the ground floor of the house. The Germans shouted at them to surrender or

take another round and they took the first option. I remember thinking this was very sportsmanlike of the Germans, but Owly said, "They had no food and they wanted our rations." All he ate for the next 10 days was a handful of frozen carrots.

Owly came home to the farm on Hall's Hill and never left the country again apart from one bus trip to Nashville in the 1970s. He didn't like it. He kept 30 Shorthorn cows and a lot of dogs on a 200-acre pasture farm that had a reasonably good perimeter fence but fairly casual interior arrangements. His nose was broken more often than the four-minute mile and he walked with a limp

he got from falling off a ladder in 1947. That limp might have gone away if he hadn't either fallen off a ladder or been kicked by a cow every single year for the next half century. He never saw the point of spending money on a cattle squeeze when you could just reef a steel gate to a stout rail fence with a chain and shove a crowbar behind the cow.

Even in his 80s he could walk into the barnyard and pop a magnet down a cow's throat with a lunge worthy of D'Artagnan the French musketeer. I always loved to watch him mesmerize a cow long enough to pop one burst of pinkeye spray in its eye and hear him laugh as it galloped to the other end of the farm. A week later he would get the other eye.

Owly's last request was to be cremated and "dropped down a posthole on the farm." His son Ted, a retired machinist from the city, invited a few neighbours out to the farm the day after the funeral to say a final farewell. We trudged to the highest treeless drumlin overlooking Petunia Valley and, as a group of puzzled cows stood bum-first to the wind and watched, we performed the committal service. Some of the ashes actually made it into the hole but most of them swirled up into the grey sky overlooking Petunia Valley and were gone.

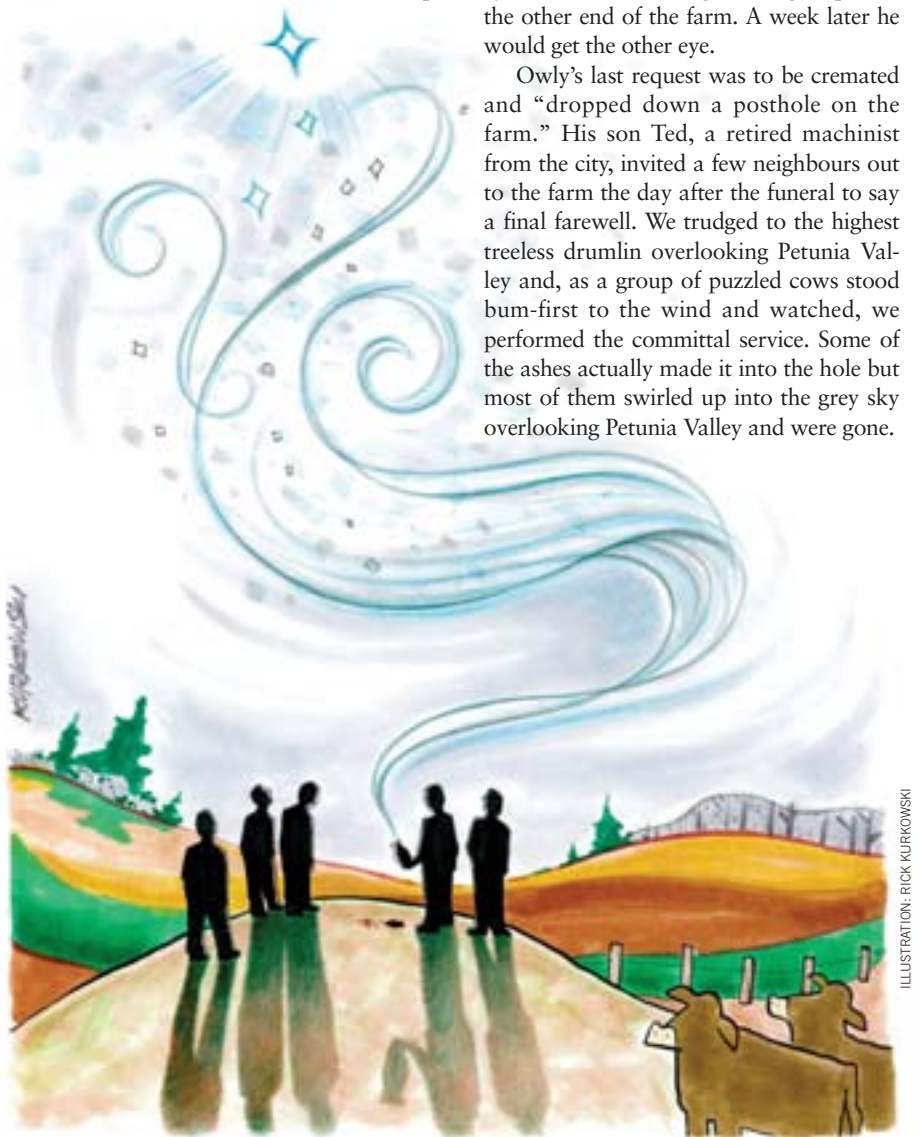


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*Manufacturer's estimate of power (ISO) per 97/68/ED.



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