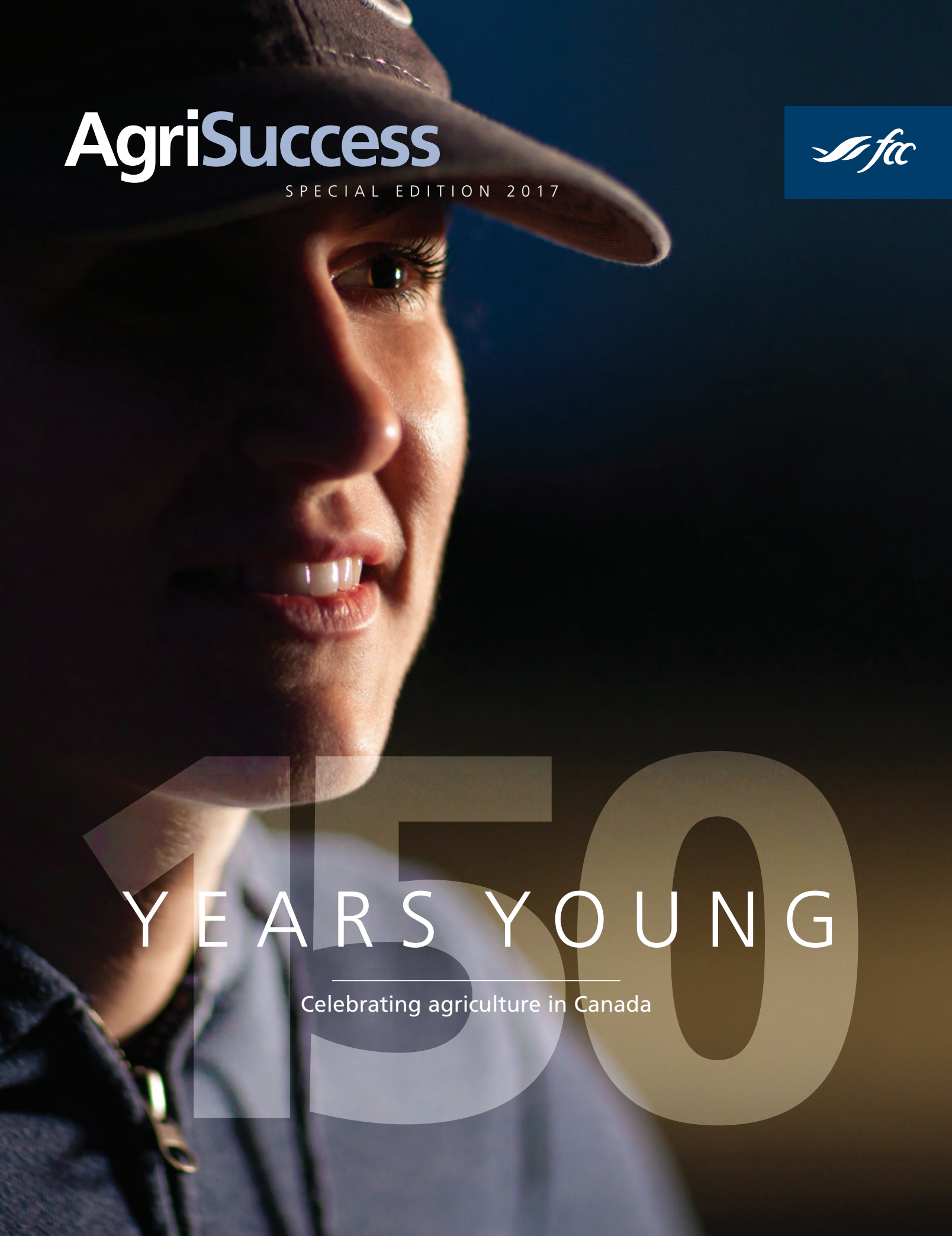


AgriSuccess

SPECIAL EDITION 2017

fcc

150

YEARS YOUNG

Celebrating agriculture in Canada

PASSION, INNOVATION AND RESILIENCE

Canada is one of only a handful of countries capable of producing more food than it consumes, and with this comes great opportunity and great responsibility for our industry.

It's been an amazing 150 years.

The history of Canadian agriculture really reflects the history of our country. We've grown into something truly great – something all of us can be proud of.

Just a few generations ago, hundreds of thousands of people settled across rural Canada with next to nothing and broke the land that today's agriculture and agri-food industry is built on. One such pioneer was a man named Nelson Henderson, who settled near Swan River, Manitoba. He once said "the true meaning of life is to plant trees under whose shade you do not expect to sit." While Mr. Henderson and so many others like him had a vision for the future, I wonder if they ever imagined where those first steps would lead us.

And while the industry looks vastly different than it did back then, some things remain the same. Like their forebears, today's farmers and agribusiness operators are passionate about the land that sustains them and the food they produce. They're remarkably hardworking and innovative. And the amazing resilience that characterized our first farmers has been passed through the years.

What a great foundation for the next 150 years!

Perhaps more than ever, the world needs Canadian agriculture. Consider this: an article in *The Economist*[1] notes that in the next 40 years, humans will need to produce more food than they did in the previous 10,000 put together. Canada is one of only a handful of countries capable of producing more food than it consumes, and with this comes great opportunity and *great responsibility* for our industry.

There will also be challenges – and Canadian farmers will need to summon the same resilience and innovative spirit they inherited from previous generations.

One hundred and fifty years ago, agriculture was a foundational industry for a fledgling Canada. And for all the changes our country has experienced since Confederation, the importance of agriculture remains unchanged. So what will the industry look like 150 years from now? I can't begin to imagine. But I couldn't be more excited to be part of it right now.

Michael Hoffort
President and CEO
Farm Credit Canada

CANADA 150

1 *Barbarians at the Farm Gate*, The Economist, Jan. 3, 2015

Journey through the last 150 years of farming – from horses to automation, dust bowls to zero-till – just to name a few

1867-1900s

The prairie provinces are divided into townships, sections (640 acres) and quarter-sections (160 acres). Homesteaders can claim a quarter section for $10, if certain conditions are met.

1872

The Central Experimental Farm is established near Ottawa, Ont. (The city has since grown around it.)

1886

Farmers moving hay into a barn

51.2%

of "gainfully occupied males" work in agriculture.

1891

Dominion Experimental Farm in Indian Head releases Marquis wheat. Rosthern-area farmer Seager Wheeler wins first prize with it at the New York Land Show in 1911, and the agriculture world takes notice.

1909

1920s

New equipment is introduced

1918

Plowing, discing, and planting are still largely done with horses.

1919

The first combine harvesters arrive in Western Canada (so named because it does the combined jobs of cutting, threshing and separating grain from chaff).

Mid-1920s

1920s

International Harvester offers direct power take-off, or PTO, installed at the factory. Live PTO (one that continues turning if the clutch was engaged) came in 1946. Before this innovation, implements were ground drive, had an independent engine or used belts on the tractor.

1921

1930s

Drought in Canada

The mechanization of the '20s meant tillage – lots of it – and the drought of the '30s left soil prone to erosion. Additionally, wheat prices dropped to rock-bottom levels. The drought gave rise to research into shelter belts, improved summerfallow practices and fall cropping.

1930s

First tractors with rubber tires are available.

Early 1930s

Peter Pakosh files a patent for the grain auger in Toronto.

1945

1957-1980s

Cattle show at Canadian National Exhibition, Toronto

1957

Chicken production quota is introduced in B.C.

1961

Supply management is established for the dairy industry.

1970

Quebec's UPA (Union des producteurs agricoles) is formed, becoming a united voice for all farmers in the province.

1974

20%

Interest rates top 20%, putting stress on farm families.

Early 1980s

1990s

Zero-till seeding and conservation tillage all gain in popularity for cereal crops in the West and for soybeans and wheat in the East. Several Saskatchewan-based manufacturers, including Conserva Pak and Bourgault, are world leaders in equipment design.

1990s

AgLeader sells 1,500 GPS-enabled yield monitors that the company's founder, Al Myers, started developing in 1986. Knowing where yield variations occur across a field lead to variable-rate input application and better management practices.

1995

Release of the first herbicide-tolerant canola variety

1995

First robotic milkers are installed at a farm in Woodstock, Ont.

1999

2000s

Quebec implements a quota system for its maple syrup production, and accounts for over 90% of all maple taps in Canada.

2004

Monopoly powers of the Canadian Wheat Board are removed.

2012

Canada's biggest crop comes when favourable weather conditions across the country – and especially in the West – lead to bumper yields across all crops in every province.

2013

UAVs (unmanned aerial vehicles) gain in popularity.

2014

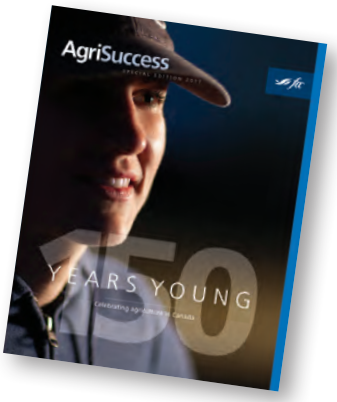
Today

Autonomous tractors for commercialization roll out at farm shows.

2016

Archival photo credits (chronological in order shown above)

Experimental farm (greenhouse), Topley Studio/Library and Archives Canada, PA-027902; Farmers moving hay into a barn (1895-1910), Bartle Bros./Archives of Ontario, C 2-0-0-0-1753; Farm tractor (with an Oliver plough) during the tractor demonstration at Cobourg, Ont. 18 Sept., 1918, John Boyd/Library and Archives Canada, PA-071145; Planting with a dual seeding machine (1919), Reuben Sallows/Archives of Ontario, C 223-3-0-0-4; Percy Gallaway and combine, Canadian National Railways/Library and Archives Canada, R231-1156-3-E; Typical tobacco field, Leamington, Ont., Canada Dept. of Interior/Library and Archives Canada, PA-943210; Dust Storm, Provincial Archives of Alberta, A3742; Topsoil deposited along roadside in eastern Saskatchewan, Provincial Archives of Alberta, A5658 (originally owned by Library and Archives Canada); RCAF 252 - 1930 Fordson Tractor with cutters, Canada Dept. of National Defence/Library and Archives Canada, PA-063584; Saskatchewan pool elevator, Frank Royal/National Film Board of Canada Collection/National Archives of Canada, PA-159653; Leslie M. Frost, C.N.E., Toronto, Ont., Alexandra Studio/Library and Archives Canada, PA-052455; A youngster collects eggs during the one-hour after-school chore period on the Fairbridge Farm School, Jack Long/National Film Board of Canada, Photothèque/Library and Archives Canada, PA195658; New Holland Autonomous Tractor, Courtesy of New Holland



With pride in agriculture and a positive yet realistic outlook, AgriSuccess is dedicated to helping Canadian producers advance their management practices. Each edition aspires to present content that is:

- *engaging*
- *motivational*
- *innovative*
- *actionable*

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IN THIS EDITION

CANADIAN CROPS BATTLE FOR ACRES

BY KEVIN HURSH AND PETER GREDIG

Canola, once dubbed the Cinderella crop, is now queen of Canadian field crop production, commanding more acres and a higher value than any other grain or oilseed. How did canola surpass wheat in a nation that once prided itself on being the breadbasket of the world?

Many factors are part of the decision-making matrix as farmers choose what crops to plant. The crop needs to be adapted to the region and the farming practices. It has to fit into the rotation. But above all, crop choice is governed by economics and profitability.

That, in turn, is linked to demand.

Homesteaders flocked to the Canadian Prairies in the early 1900s, attracted by the promise of free land and a settlement policy designed to fill Britain's need for wheat. Wheat was king for decades, and remains a major crop.

Few would have guessed, in the early '70s – when rapeseed was transformed into canola by Canadian scientists – this upstart crop would eventually surpass wheat, creating a revolution in the agriculture of Western Canada.

The harvested area of canola first exceeded 10 million acres in 1993. Then came genetically modified, herbicide-resistant varieties, followed by hybrids and canola with specialty oils. In the last five years, around 20 million acres have been harvested.

The first time average yield exceeded 30 bushels per acre was 2005. Now, average yields are typically in the high 30s, and the Canola Council of Canada is aiming for an ambitious 52 bushel per acre average by 2025.

Many factors are part of the decision-making matrix as farmers choose what crops to plant. The crop needs to be adapted to the region and the farming practices. It has to fit into the rotation. But above all, crop choice is governed by economics and profitability.

Worldwide demand for canola seed is strong, and it competes well with soybeans. Still, a strong and expanding domestic crush industry helps provide price strength and demand stability. The Canola Council website lists 14 major canola crushing facilities in the country, including two in Ontario and one in Quebec.

Nearly half the country's canola seed is crushed domestically, with most of the resulting oil and meal going to American markets.

Brian Innes, vice-president of government relations for the Canola Council, points out that biodiesel production has also become significant, referring to a recent USDA report estimating production at 400 million litres in 2016 and forecasting 550 million litres in 2017.

"The main feedstock for Canadian-produced biodiesel is canola oil," Innes says, "with the largest plant being ADM in Lloydminster, Alberta."

Can canola remain on top?

But just as canola wrestled the throne from wheat, other contenders may steal acres from canola in the years to come. If canola has become queen, the new prince would be pulse crops.

Canada now accounts for about 35 per cent of the world pulse trade and is the world's largest exporter of peas and lentils. In 2015, Canada exported six million tonnes of pulses worth more than $4.2 billion.

Fixing their own nitrogen, pulses are a great sustainability story, and North American consumers are discovering the nutritional attributes – and increasing their consumption. However, the huge demand from India and China has been the major reason for the dramatic increase in Canadian production.

Soybeans and corn?

Long a staple in Ontario, soybeans have made major inroads in Western Canada, particularly Manitoba. With varieties that require lower heat units and fewer days to maturity, Manitoba's soybean area has exploded to 1.6 million acres, making it the province's third-largest crop after canola and wheat.

Major seed companies are betting the years ahead will bring millions more soybean acres west. They also believe corn will capture millions of acres, arguing that once new varieties can reliably generate high yields with a lower heat unit requirement,

"All commodity groups believe they will win the acreage battle."

corn becomes more profitable than other options.

That has certainly been the experience in other regions including North Dakota, but long-time market analyst Chuck Penner of Leftfield Commodity Research isn't so sure.

"All commodity groups believe they will win the acreage battle," Penner notes. He points to massive world production of corn and soybeans as the reason prices are often soft. Will Canadian farmers want to compete in these high-volume markets, or will they opt for higher-value, more specialized crops?

Back in 1990, Penner points out, one-third of Western Canada's acreage remained fallow each year. With the practice of summerfallow all but discontinued, there's no reservoir of land to bring into production. If the acreage of one crop increases, acres must drop on another.

Same crops, different markets, in central Canada

The favourable climate and soils in the productive areas of Ontario and Quebec enable incredible crop diversity. Ginseng, processing peas and sweet corn, tender fruit, vineyards, dry edible beans – an enormous range of crops are possible. And while there are many examples of successful niche and small-acre crops, the big three in central Canada are still corn, soybeans and wheat.

In Ontario, these three crops account for five million to six million acres, and many growers remain committed to a corn-soy-wheat rotation where possible. From 2005 to 2015, Ontario corn acres ranged between 1.5 million and just over two million acres. Over the same period, soybean acres ranged from a little over two million to just over three million. Wheat acres are more of a wildcard, ranging from a low of 600,000 to over 1.2 million.

In Quebec, wheat is less of a factor as the feed market drives demand for corn and soybeans. Corn acres ranged from 872,000 to 1.1 million and soybeans between 657,000 and 852,000.

These numbers are small relative to Western Canada, and seemingly insignificant when we consider U.S. acres planted last year: over 90 million of corn and over 80 million of soybeans.

If wheat acres drop and corn or soybean acres spike, it's usually due to wet weather in the fall preventing timely seeding of winter wheat, notes Grain Farmers of Ontario marketing manager Todd Austin. "Trends in acres grown for the major crops have remained relatively steady," he says.

While the major crops and acres grown haven't changed dramatically, productivity gains in the past 10 years have been significant. Not long ago, per-acre yields of 200 bushels for corn, 50-plus for soybeans and 100 for soft red winter wheat would have been record yields for many growers. Today, they represent legitimate yield objectives – and many growers aim well beyond.

FAST FACT From 1965 to 2002, canola yield grew on average by 0.18 bushels per acre per year. From 2003 to 2015, average yield growth jumped to 1.3 bushels per acre per year.

Where is the extra production going?

Diversity in demand has been key for growers. "For corn, without ethanol and other industrial users like corn sweetener, we'd have a significant oversupply," Austin says.

For soybeans, as much as one-third of eastern production is in identity preserved (IP) production systems. These non-genetically modified soybeans are grown on contract for products like soy milk and tofu, and fetch a premium that varies year to year.

"Our growers have a great reputation for being diligent in segregating IP from crusher varieties and meeting high standards for end users," Austin says. The U.S. and South America dominate the commodity soybean market, with China buying as much as two-thirds of global production.

Demand for eastern wheat is split roughly three ways, with domestic millers and feed-and-seed markets taking about a third each. The remainder goes across the border to U.S. millers. "We're a small-volume wheat producing area, but we're always looking for new markets as trade barriers start to come down," Austin says.

Commodity or specialized markets?

The factors at play for grain growers, in the short term, will continue to include filling demand for ethanol production to meet the federal government mandate for ethanol in gasoline. "Energy markets are tough to predict in the long term, because they're less about supply and demand, and more about government policy," Austin says. He also suggests that a favourable exchange rate will continue to help maintain local cash prices and stimulate exports.

In the longer term, Austin sees potential for demand for eastern corn, soybeans and wheat to continue to evolve away from a commodity mindset and more toward filling demand for specialized products or ingredients.

"IP soybeans are a good example of adding value beyond commodity prices; we may be able to do more of this for all crops. It appears food processors are responding to consumer demands for enhanced food safety, perceived health and environmental benefits, and sustainable production practices. Canadian growers should be prepared."

Ethanol, industrial use and IP opportunities have spurred a dramatic increase in on-farm storage, letting farmers participate in the "just-in-time delivery" nature of these markets. This storage capacity also sets growers up to participate in specialty production systems.

Lastly, new genetic editing techniques hold great promise in delivering output traits that will benefit the food consumer. It remains to be seen how dramatically or quickly gene editing impacts corn, soybean and wheat production in Central Canada, but it is possible we'll see some very different versions of these crops in the coming years. ■

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FACTORS TO WATCH

Competitive advantage:
Western Canada has dramatically increased pulse production at the expense of other nations, such as Turkey. In oats, our competitive advantage is proximity to the American marketplace.

Major political changes:
Forty years ago, the former Soviet Union was the top importer of wheat. Today, Russia has become one of the world's largest wheat exporters.

Consumer preferences:
When consumers decide to avoid foods with gluten, it has an impact on wheat demand. When they increase consumption of craft beers, more malting barley is needed.

Crop wrecks:
If producers run into major production problems such as disease or frost damage, it increases their appetite for switching to other cropping options.

Biofuel policy:
American ethanol production created a huge new market for corn. Policy approaches in the U.S. and Canada will influence demand going forward.

Emerging markets have emerged:
Now what will drive exports?

BY OWEN ROBERTS

"Let's not talk about China as an emerging economy. It has already emerged, and people there have the money to buy Canada's high-quality products."

Food oddities are a tradition at the Canadian National Exhibition, and 2016 was no exception. Delicacies drawing some of the longest lines were crawling with protein: cricket tacos, beetle smoothies and "Crickety Lime Pie" from the Bug Bistro. It seemed gimmicky, but underlying it all was a key driver of modern food production: the demand for alternative sources of protein. And despite the ick factor, when it comes to natural protein sources, insects rule.

Canadian farmers tend to spend a lot more energy controlling and cursing insects than praising them for their protein content. And that's unlikely to change. But beyond the farm gate, history shows people's protein choices evolve. For example, as new economies emerge, consumers tend to swap plant protein for animal protein.

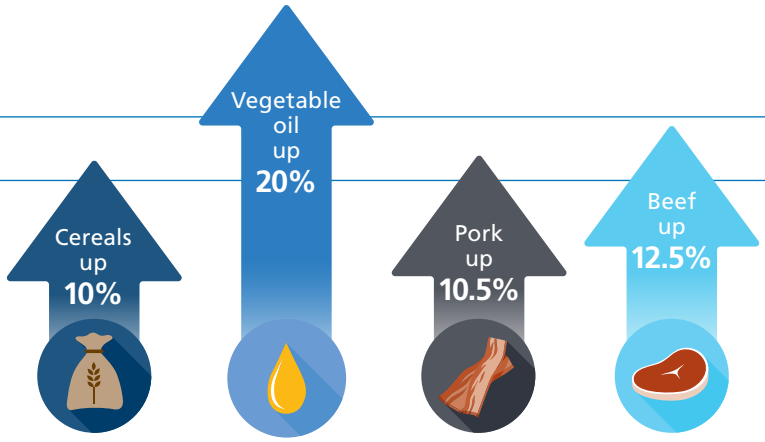
Canada's livestock sector, supported by a relative abundance of land, feed and natural resources, has responded well to this economic driver. Animal protein demand is expected to grow as societies become more affluent. For Canada, it's a solid, steady economic driver.

Other drivers make more flamboyant headlines. For example, international trade agreements like the Trans-Pacific Partnership are easy public targets for politicians abroad and reflect an overall pushback against globalization. Even when these trade deals seem to be ingrained in our culture, like the North American Free Trade Agreement. They're political agreements that can be renegotiated from time to time.

This volatility sparks an uneasiness with J.P. Gervais, vice-president and chief agricultural economist at Farm Credit Canada. He wonders if more energy should be dedicated to developing trade relationships, targeting one or two countries – or even individual cities,

FAST FACT

GLOBAL CONSUMPTION TRENDS: BY 2025



Source: OECD/FAO

given how some of them have such huge populations – rather than trying to deal with several countries at a time.

> **"Targeted trade expansion would focus Canadian exporters on what buyers really look for in a supplier," he says. "Food preferences are very diverse after all, even within a country."**

This, he says, would lead to more predictable, and possibly just as lucrative, export opportunities in the long run. And in this regard, China immediately comes to mind.

Forty cities in China have populations of more than one million. The New York City-based McKinsey Global Institute, which keeps a close eye on China, says population dynamics and the rising prosperity of inland cities there are key drivers in any economic discussion. Gervais agrees.

"Let's not talk about China as an emerging economy," he says. "It has already emerged, and people there have the money to buy Canada's high-quality products."

The McKinsey institute and others are particularly focused on what are called Generation 2 (G2) consumers in China – those who, today, are teenagers and people in their early 20s being raised in a period of relative abundance and influenced by Western culture.

Canada's food sector certainly knows how to cater to the Western world's tastes. But G2 consumers in China are like young people on other continents in their campaigns and movements targeting modern agriculture – such as anti-technology campaigns and GMO-free food. They demand what they consider a more nutritious and better-balanced diet.

To Prof. Evan Fraser, director of the Food Institute of the University of Guelph, that nutrition-and-diet imperative will drive demand and exports everywhere.

> **"People are becoming more aware and choosy about diets that fit their definition of nutrition and balance," he says. "It also makes education about food more important than ever."**

Fraser, one of 10 principal investigators in a new $77-million sustainable research initiative at Guelph called "Food From Thought," is advocating change. That includes a major shift in production that would see more emphasis on fruits and vegetables and protein-rich commodities such as pulses.

He and his research team say currently, on the basis of calories, about one-quarter of all food produced in the world is sugar – even though it's recommended that consumption be less than five per cent of our daily intake. As well, there's double the availability of cereals and three times more vegetable oil produced than recommended for a healthy diet. At the same time, only one-fifth of the fruit and vegetables recommended are actually being produced.

"Rectifying this imbalance is perhaps the most logical strategy for feeding a population of nine billion equitably and nutritiously," Fraser says.

Fraser's perspective is applauded by Zenia Tata, Colorado-based executive director of global development for XPrize, an incentivized competition for solving stubborn or difficult international problems such as hunger and carbon emissions.

She believes creativity at the grassroots level – among plant researchers, developers and farmers – will greatly influence Canadian food demand abroad. To Tata, that means developing crops and livestock with additional nutrients that will provide the proteins and amino acids people need for better health.

"Canada has an abundance of land and water," Tata says. "The challenge to your farmers is to use those resources to nourish people, not just feed them. That's what people need, and Canada can do it." ■

***OWEN ROBERTS** / Owen teaches agricultural communications at the Ontario Agricultural College, University of Guelph, where he's director of research communications. He's also a freelance journalist.*

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FROM MILK TO YOGURT... AND beyond

BY LILIAN SCHAER

What's old is new again when it comes to Canadians' changing dairy tastes. Simply put, fat is good again.

That means renewed popularity for cream – long shunned by shoppers attracted to low-fat or fat-free products – solid increases for cheese consumption, and dramatic expansion in yogurt, where a plethora of types and brands now line the dairy case.

"Consumers have more comfort again with higher-fat drinks and cream-based sauces. People are looking at 18 per cent cream versus 10 per cent cream in their coffees, for example," explains Al Mussell, research lead at Guelph-based Agri-Food Economic Systems.

That new-found comfort can be attributed to changing beliefs about what constitutes a healthy diet – a balance of food groups instead of exclusion – and a desire for simplicity in an increasingly complex food environment.

"There's an excitement about food and natural ingredients like cream and butter that's leading to a renaissance in cooking and culinary experimentation," says Michael Barrett, president and CEO of Gay Lea Foods Co-operative Ltd., a major Canadian dairy processor. "At the same time, increasingly sophisticated consumer palates are growing the demand for innovation in product development."

Barrett adds that milk is also being looked at as a source of healthy ingredients, with its various components potentially serving as additives in other products.

Overall, the demand changes have come with a need to increase production, which

"There's an excitement about food and natural ingredients like cream and butter that's leading to a renaissance in cooking and culinary experimentation."

is a good-news story for farmers, according to Alberta dairy farmer and yogurt processor Hennie Bos.

"Last year, we produced five per cent more milk in Canada than the year before, which is unheard of. We're seeing more products being sold and consumed by Canadians, which is a great story in my point of view as a farmer," he says.

According to Brian Van Doormaal, Canadian Dairy Network general manager, Canadian milk production has been fairly stable over the last two decades. What has changed is the number of farms and cows, largely due to innovations in areas such as genetics and milking technology.

"There's a lot of on-farm innovation that's allowing farmers to increase butterfat and milk production, such as the use of voluntary milking systems, for example. Production per cow increases when they can get milked as often as they want," explains Wally Smith, B.C. dairy farmer and president of Dairy Farmers of Canada.

Changes in genetics have been tremendous. Production per cow per year has doubled since the 1960s, with more than three-quarters of that progress in Holsteins directly attributable to genetics, Van Doormaal says.

"The level of production is 50 per cent higher now than it was even 25 years ago. We were averaging 7,000 litres per cow per year, and now it's 10,000," he adds.

The real genetics game-changer since 2008, though, has been genomics – evaluating an animal's DNA to estimate its genetic merit. Not only has the annual rate of genetic progress in Holsteins now doubled, but genomics also allows selection for so-called functional traits, like longevity, fertility and disease resistance, which couldn't accurately be selected for before.

For niche market processors like Hennie Bos's Bles-Wold Yogurt, change means opportunity. Their business started in 1996 with plain and a few flavoured product options; today, they make a wide range of yogurt, including drinkable products and the wildly popular Greek yogurt.

"There's never been a better time to be a dairy farmer," Smith believes. "More milk from fewer animals means a reduced carbon footprint for the industry. That makes us very sustainable, and we can say that very proudly."

The bigger challenge now – say those in the industry – is dealing with the surplus skim that accompanies the increased butterfat market. Current Canadian skim milk drying infrastructure has reached its capacity, and domestically produced product isn't price-competitive with growing imports.

A solution could lie with a new national ingredient strategy announced in July by Dairy Farmers of Canada and dairy processor associations; details are to be released once the ratification process is complete. ■

***LILIAN SCHAER** / Lilian is a professional writer and editor based near Guelph, Ont., providing freelance communications services across the agriculture industry.* **AgriFoodProjects.ca**

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Milk production in Canada

1960: nearly 175,000 farms and around 2.7 million dairy cows

2016: 11,683 farms and 959,600 dairy cows

Fluid milk consumption
from 103 litres per capita in 1980 to just over 70 litres by 2015, with a marked shift from whole milk consumption to low-fat and skim

Cream consumption
from five litres per person in 1988 to as high as 10.03 litres in 2014

Yogurt consumption
has more than tripled from 1996 to 2015

Cheese consumption
has increased almost two kilograms per person from 1996 to 2015

FAMILY FINDS SUCCESS AS A MULTI-GENERATIONAL TEAM

BY LORNE MCCLINTON

Photos courtesy of Karla Sunderland

Five generations of the Sunderland family have farmed in the area since Dale's grandfather, Edeth, moved there from Saskatchewan in 1951.

Agriculture in Canada is a dynamic, fast-changing industry and the most successful farm operations will be those that adapt best. Facilities need to be regularly assessed and sometimes replaced, but just because the older ones aren't state-of-the-art doesn't mean they need to be bulldozed. When the Sunderland family of Paradise Valley, Alta., started to run out of room in their finishing barns, they used their imaginations to come up with a new approach for their farrow-to-finish operation.

"We had two old barns and some outside pens from years ago, so we decided to try running some outside to alleviate our space problem," says Dale Sunderland. "Before too long, Britco Pork from Langley, B.C. (a division of Donald's Fine Foods), asked us to consider working with them to offer a line of free-range pork to consumers, and split the profits. Our pork is now marketed to consumers and high-end restaurants under the Paradise Valley Free Range Pork label. It's been evolving with the marketplace ever since."

The Sunderlands finish 35,000 free-range hogs in outdoor pens annually. Their sows are kept indoors and farrow in standard barns, and the piglets move outdoors when they're weaned. Sunderland says it takes quite a bit more labour than raising them in a finishing barn, because their straw bedding has to be changed regularly.

Hogs are sheltered in barns made from straw bales so they have somewhere warm to sleep on really cold winter days, and mud holes in the summer so they don't get sunburned, Sunderland says.

The family's many ventures include the hogs, 20,000 acres of grains and oilseeds, and a cow-calf operation.

"Our operation meets the free-range criteria that so many people want," Sunderland says. "They grow very well, and we think the meat tastes better and is a little firmer too."

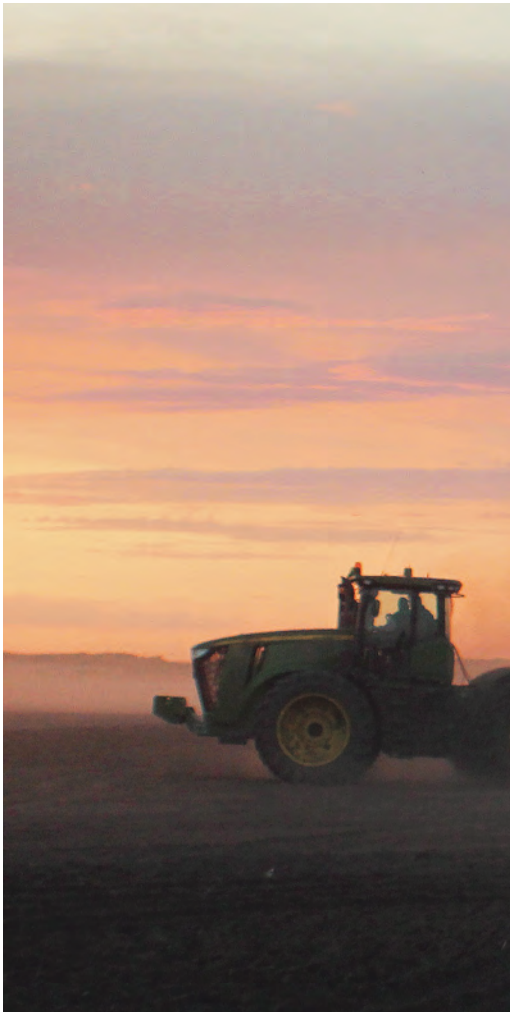
Dale and his brother Delmer plus their spouses, children, grandchildren and parents – Myron and Donna – are actively involved in the operation. It's a true multi-generational farm.

The family's many ventures include the hogs, 20,000 acres of grains and oilseeds, and a cow-calf operation. With a mix of businesses and so many family members involved, they took special care to put an ownership and management plan in place that was flexible enough to handle the intricacy.

Sunderland Hog Farm Partnership is the overall controlling entity. Under that layer, individual family members retain ownership of the companies that make up the partnership. Dale's children and their spouses have a profit-sharing interest in the partnership through his company.

Often brothers who farm together want to strike out on their own at some point, but the Sunderlands have found that working together allows them to maximize efficiencies. "So far, the benefits have far outweighed the disadvantages. We all have a share in the profits and all share the risk. So it doesn't matter if we combine canola on my land or wheat on my brother's first," Dale says. "It's all going into the same pot anyways."

"There's a lot of give and take on everyone's part," he says. "If someone feels strongly about moving in a certain direction, for the most part the others will go along with it. We do have a written agreement on how to handle disputes and resolve differences if we can't agree, but so far it's never been an issue. We're very confident we'll be able to work together and face the future as a team." ■



Photos courtesy of Karla Sunderland

"There's a lot of give and take on everyone's part... We're very confident we'll be able to work together and face the future as a team."

Building a dairy farm for future generations

BY LORNE MCCLINTON

Dominic Drapeau and Célia Neault of Ferme Drapeau & Bélanger run a first-class dairy operation near Ste-Françoise-de-Lotbinière in the Centre du Québec Region. Named Quebec's Outstanding Young Farmers for 2016, they're part of a true multi-generational success story.

The farm might never have existed if Dominic's grandfather, Marcel Drapeau, hadn't been prone to seasickness. He worked on a ship after his two-year agriculture program in the 1950s, but constantly fighting bouts of nausea

> "When my grandfather and parents were building this farm, they were building it with future generations in mind."

whenever the seas turned rough quickly convinced the young man he wasn't cut out to be a sailor. So he returned to his father's subsistence farm to try his hand at dairy farming.

"My grandfather worked hard," Dominic Drapeau says. "He slowly built up a herd of milk cows as he cut down trees to carve the farm out of the forest. By 1980, he and his business partner were milking 120 cows." The farm dropped back to 80 milk cows and 40 dry stock that same year, he explains, when Marcel's partner left the partnership and took his animals with him. "Then my parents joined the operation, and we haven't looked back since."

Dominic's parents and grandfather steadily built the herd to the point they were milking 150 head in the mid-1990s when Dominic joined the operation. They've become a true three-generation farm – Marcel had a few shares in the operation until last year when he turned 85. He still comes to the barns every day.

The farm has been aggressively expanding since 2001. They went from 142 kilograms of quota that year to 700 kilograms today. They milk 550 animals three times a day with a 36-stall rotary parlour facility attached to a 700-cow free-stall facility. And they've increased production from 8,295 to 11,136 litres per cow annually.

"When my grandfather and parents were building this farm, they were building it with future generations in mind," Drapeau says. "For three generations now, we've been willing to gift shares in the operation from one generation to the next instead of selling them. In return, there's a covenant to look after [the older generation] when they retire.

"For example, we supply my grandfather with a vehicle, a house and keep him on a salary to make sure he is financially secure. This frees up all the capital it would have taken to buy out his interest and gives us leverage to invest in things that provide good return, things like quota, land and buildings. It's a really nice donation from the generations that went before us."

It's not always easy for three generations of a family and their partners to all work together, Drapeau says. They've had success dealing with each other and their employees by making a point to treat each other with honesty and respect.

"We feel very positive and are passionate about the future of our operation," Drapeau says. "We know each generation will have its own challenges, but we feel we're well-positioned to succeed. We've spent the past 15 years putting everything in place to be able to continue to grow at 10 to 15 per cent a year. Currently, we're working to make sure we meet all the environmental requirements to be able to expand to 1,600 cows in 20 years." ■

A duck for all seasons

BY LORNE MCCLINTON

Feel like having duck à l'orange for dinner tonight? King Cole Ducks (KCD) of Newmarket, Ont., will happily sell you a pre-cooked one that can be ready to eat in as little as 15 minutes. On the other hand, if you want to try out your grandmother's recipe, they'll happily sell you a fresh duck, too. Need duck breast, duck spiedini, pre-cooked pulled duck, a traditional French duck confit or just about any other type of duck for your feast? KCD's got it. This four-generation farm built their fully integrated duck enterprise around the tried-and-true business model of giving the customer what they want.

King Cole Ducks started out as a small, diversified family farm owned and operated by Jim and Marg Murby, says Debbi Conzelmann, their granddaughter and the company's CEO. They sold chickens, ducks, turkeys and pigs at the North York Farmers Market. Noticing they were continually selling out of ducks, the couple made the momentous decision to streamline the operation and make them their focus. Jim and Marg, along with their son Bob, officially launched KCD in 1951.

"We sell fresh and frozen duck into the ready-to-cook market as well as the ready-to-eat market," Conzelmann says. "The duck industry is a small niche market. Our strategy is diversification, so we can be flexible in case the market suddenly fluctuates like it did when the SARS outbreak hit Toronto."

Sixty-five years later, the second generation of the family owns the operation while the third, Debbi Conzelmann and her sisters, Robin Kelly, Patti Thompson and Jackie Fisher, manage it. About forty per cent of the 2.5 million ducks they produce annually are sold into the fresh market in the Greater Toronto area. The rest go to customers around the world.

"Eight years ago we made the transition from being a family farm to a family business," Conzelmann says. "We're a large

player in the Canadian duck market, but we're small on the global scale and were struggling in the commodity world. So this prompted us to make the decision to step back and really evaluate our business. We decided to expand from the fresh market, which is primarily a commodity market, and opened our value-add cook plant."

That addition didn't mean KCD sold more ducks, but it did change how they were selling them, Conzelmann says. While they still sell a lot of fresh Grade A ducks, they now sell many others as fully cooked and specialty value-added products such as fully cooked breasts and legs, and smoked duck. The volume didn't change, but the profit margin went up significantly.

KCD is one of the few fully vertically integrated farm-to-fork operation of its kind in North America. Despite phenomenal growth over the past decade, the operation remains a closely-knit family business. Conzelmann credits this for being a big part of their success.

"I think having good communication is the secret to being able to run a successful business for generation after generation," Conzelmann says. "My sisters and I have an excellent relationship. We're friends inside and outside of the business. But, the first Tuesday of every month, we sit down and have a sister meeting. The four of us talk about the issues we're facing in the business and we talk about family dynamics, too. That way, if one of us is having challenges with each other or another family member, it can be brought out and dealt with before they can cause a major problem.

"Things never run perfectly – but having good communication does allow our company to run really well." ■

> "I think having good communication is the secret to being able to run a successful business for generation after generation."

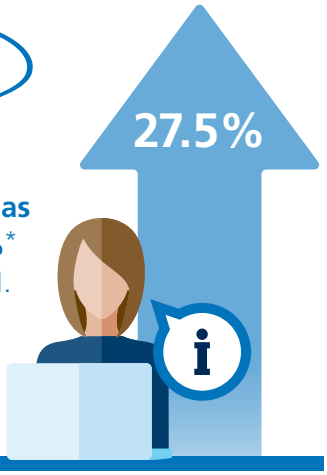
***LORNE MCCLINTON** / A writer, journalist and photographer, Lorne divides his time between his office in Quebec and his Saskatchewan grain farm.*

DID YOU KNOW?

The number of **Canadian women** who **self-identify as farmers** increased to **27.5%*** of all farm operators in **2011**.

*Farms can name up to 3 operators

Source: Statistics Canada, Census of Agriculture, 1991 to 2011



Canada's changing demographic spells opportunity for vegetables like **okra**, **bitter melon**, **yard-long beans** and **cassava**.

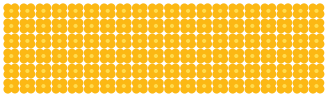
Source: Vineland Research Centre

AG ECONOMICS

CANADA INTRODUCES CANOLA TO THE WORLD

1956 production
6 million bushels

2015 production
810.3 million bushels



PULSE CROPPING IN CANADA

1981 = **6,392 farms**

2011 = **12,110 farms**

Source: Statistics Canada

TECHNOLOGY

3 WAYS TO ADAPT TO FAST-MOVING TECH

Technology begets technology – never before has the pace of advancement in technology been so rapid. How, as farmers, do you manage to stay ahead of the curve?

1. **Embrace continuous learning:** There's no shortage of farm conferences to attend each year, but continuous learning is also about challenging yourself to learn a new system or device – even if it's intimidating.

2. **Focus on the big picture:** How is tech already changing how you farm? How can you anticipate and adapt to the coming evolution?

3. **Encourage the younger generation:** Not sure how something can work for you? Listen to what native tech users (yes, millennials) have to say; observe how they use tech; and, ask them how they might do things differently if they were running the show.

Source: Adapted from Adam Fridman, Inc.com

COMPILED BY LYNDSEY SMITH | Find Lyndsey across social media platforms as **@realloudlyndsey**

IN THEIR OWN WORDS

@RealLoudLyndsey asked: In your farming career, what have been the most significant events or advancements? For your parents? Grandparents?

Jen Christie @SavvyFarmgirl

My dad would say going from milking by hand with the pail to the pipeline & milking machines.

MB Farm Women's Conf @mbfarmwomen

Autosteer? Big change from standing behind a horse & keeping your eye on a spot at the end of the field!

Gordon Moellenbeck @oldmangord

For grandparents it was from horse to engine power. Parents, size of equipment and chemicals. For me, technology (gps) & herbicide tolerant crops.

Warren Sekulic @SkepticAg

Me: information and market freedom. Dad: no-till and cheap Roundup. Grandpa: mechanization and the D6 cat.

Wendy Durand @durand_wendy

My 80 yr old mother says bringing in rural power in MB was biggest game changer, allowed for further advancements.

derek van dieten @dvandieten

Cell phones. Precision Ag. My parents: minimum tillage. My grandparents: equipment size and evolution.

Earl Greenhough @egreenhough

Dad is 86. He says that hands down, it's the hopper bottomed bin!

Taylor Snyder @FarmerBoy9870

My great grandpa saw mechanization, my grandpa saw fertilizer, my dad saw genetics and minimum till, and I've seen sectional control, auto steer, NoTill and soon automation.

Mark Keating @KeatingSeed

Glyphosate and Roundup Ready (RR) system, plus Internet and mobile tech most significant in mine.

John Kowalchuk @KowalchukFarms

My grandpa – farming in a new country. My dad – the combine from threshing machine. Me – size and complexity of machinery significant in mine.

MILKING MACHINES

In 1922, Herbert McCornack invented the surge milker that mimicked a pulsating tug and pull movement like that of a calf. It was gentler on the cow and easier to sanitize. By the 1950s, it had changed dairy farming.

ON THE GRID

Early 1920s – several Manitoba towns, such as Carman, Minnedosa, and Virden, receive electricity service. Expansion of electricity service was slowed by the market collapse of the late '20s and the Dirty '30s.

Some tweets were edited for clarity.

MEETING THE CHANGING NEEDS OF **BOOMERS** AND **MILLENNIALS**

BY TAMARA LEIGH

Canadian communities are changing. The people you meet on the street or in the grocery store are likely to be older, online, and more likely than ever to be new arrivals to Canada. As consumer demographics shift, so do food preferences and the demands on producers and processors to meet their changing needs.

The boomer bulge

According to Statistics Canada, seniors are the fastest growing segment of the Canadian population. The over-65 age group is increasing four times faster than the population at large, and will continue to grow as the baby boomer generation (those born between 1946 and 1965) move into their senior years.

"We have a bulge of boomers, and that has driven some of the things we've seen in the marketplace," says Dr. John Cranfield, a professor in Food, Agricultural and Resource Economics at the University of Guelph. "They're getting older, are expected to live longer and have concerns about quality of life as they change."

The boomer quest for health and wellness is driving the trend toward functional foods, and processors and retailers are responding.

"The boomers look at food as medicine, in a way. They're looking for less processed food, which is why we're starting to see growth in areas like the yogurt section, and fermented foods like kefir and kombucha," says Jo-Ann McArthur, CEO of Nourish Food Marketing, a marketing agency specializing in food. "The trend is to natural, simpler, less processed foods."

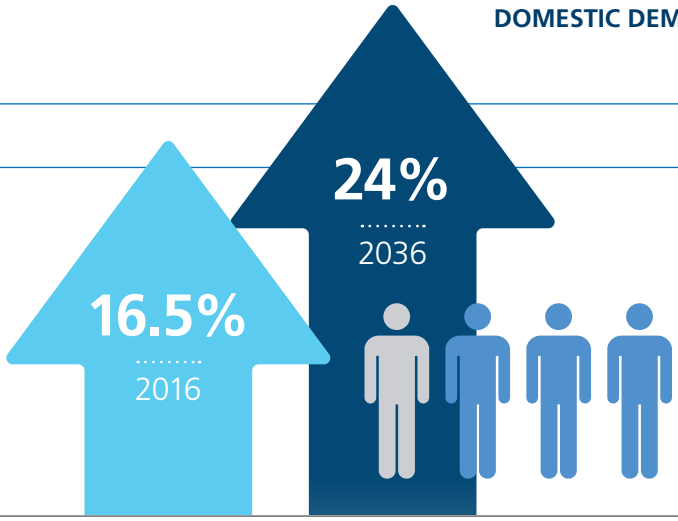
Millennial values

Balancing the aging boomers is the rise of the millennials, people born between 1981 and 2000.

"When people migrate, they bring with them their cuisine, traditions and types of food, and markets evolve around that."

FAST FACT

Canada's most recent population projections suggest that the **number of individuals age 65 and over will increase by about 4.2 million** over the next 20 years, with their share of Canadian population going from **16.5%** in 2016 to **24%** in 2036.



Source: Statistics Canada

"Millennials have a different relationship with food. They want something that's unique, authentic, stands out and gives them an experience," Cranfield says.

While both groups are 27 per cent of the Canadian population today, millennials are growing into their consumer power as the boomers decline. They're typically well-educated, well-travelled, and very connected through social media networks. They also have different values that influence their food choices.

"Millennials are very different from their parents and grandparents, in that they have a huge mistrust of corporate food," McArthur says. "To our parents, corporations meant bigger, more trustworthy, higher quality. Millennials see big as bad and don't trust those companies the same way. For them 'made' matters – they want to know who made their food, where it was made and what it was made with."

Real food ingredients, simple ingredient lists, local foods and craft products are all trends McArthur associates with the rise of the millennials. This is a generation with a deep appreciation for food, but few of them have any real skill in the kitchen or working knowledge of agriculture. They're also the generation most engaged with social media.

"Social media is pushing food trends and transparency. The power has shifted from the manufacturer to the consumer – you have to be transparent," McArthur says. She adds that interest in issues like animal welfare is growing, largely because of social media.

Ethnic diversity

While age demographics are shifting food preferences, maintaining markets and shaping new opportunities relies on a strong consumer base. As the birth rate continues to decline, immigration becomes increasingly important. According to Statistics Canada, over 60 per cent of growth is currently attributed to new Canadians.

"When people migrate, they bring with them their cuisine, traditions and types of food, and markets evolve around that," Cranfield says. "We see new foods become available, and new crops to Canada."

Grocery retailers have seen the rise of global cuisine in prepared foods, as well as increasingly diverse produce such as bok choy and okra. Demand for goat and lamb meat has also increased, outstripping Canadian production and processing capacity.

According to McArthur, the fastest growing demographic in Canada today is the Muslim consumer, expanding at a rate of 11 to 13 per cent annually.

"This is a market that is totally underserviced. People think of the halal market mostly as meat, but it goes beyond that," she explains. "Gelatin is used in a number of products – candies, gummies, marshmallows, all the way through to cosmetics – and that's not halal."

New reality, new opportunities

Food demand is more complicated than ever, but that also opens opportunities for producers.

"The opportunities that emerge will come about because there isn't one consumer, there are a variety," Cranfield says. "We're seeing the rise of smaller segments of consumers, so being alert to those opportunities and willing to take on the marketing perspective is important."

The increasing emphasis on trust and transparency also marks an opportunity for Canadian producers to strengthen their presence in the domestic market.

"If I walk through the supermarket these days, local products are at the front of the store. Retailers are using 'local' to signal quality," McArthur says. "People want to support their neighbours, and local is more important than ever." ■

***TAMARA LEIGH** / Tamara is a B.C.-based communications consultant and writer passionate about giving voice to farmers across the country.*

Follow Tamara: **@Shiny_Bird**

The world wants **Canadian beef and pork**

BY TRISH HENDERSON

Between 60 and 70 per cent of Canadian pork, and about 40 per cent of Canadian beef, is sold abroad. Millions of live hogs and hundreds of thousands of live cattle, both for slaughter and further feeding, are shipped annually to the U.S. alone, further strengthening Canadian pork and beef producers' reliance on export markets.

Ratification of the North American Free Trade Agreement (NAFTA) in 1994 was a key step in the evolution of Canadian red meat exports.

"Prior to 1989, the Western Canadian beef sector was dominated by small feedlots. The Canada-U.S. Trade Agreement – the precursor to NAFTA – spurred investment, including the construction of Cargill's beef processing facility at High River, Alberta, in 1991," says Brenna Grant, manager of Canfax Research Services.

Soon after NAFTA was signed, the Lakeside beef packing facility at Brooks, Alta., was expanded. Favourable exchange rates led to expansion of the beef cow herd, and the removal of the Crow Rate for hauling grain by rail in 1996 provided more affordable feed grains on the Prairies.

Combined with provincial government incentives, these factors spurred feedlot expansion and consolidation in the late 1990s. By 2001, there were 210 feedlots in Alberta feeding 2.39 million head – more than double the capacity of the province's cattle feeding sector a decade earlier.

NAFTA had a similar effect on the Canadian pork industry, stimulating an era of prosperity and growth – although not without blips – from 1996 to 2006, according to Statistics Canada. The Canadian pig herd peaked at just over 15 million head in the mid-2000s.

Since the early 2000s, Canadian cattle and hog markets have been rocked by animal health events like bovine spongiform encephalopathy (BSE) and porcine epidemic diarrhea virus (PEDv), world-record feed grain prices, a volatile Canadian dollar and foreign trade policies like the U.S. mandatory country of origin labelling (COOL). Despite these challenges, Canada remains a net exporter of beef and pork.

Global markets

The U.S. is Canada's biggest customer, taking 72 per cent of beef and 32 per cent of pork exports, but other markets around the globe are increasingly important. In 2015, Canada's other major export destinations were China and Hong Kong, Mexico, and Japan. Similarly, Japan, China, Europe, Mexico and Russia were the biggest buyers of Canadian pork in 2015, after the U.S.

"Global market trends are extremely important to Canadian beef and pork producers; this is where the biggest

opportunities lie," Grant says. "Exporting to different culinary cultures – ones that prefer different cuts of meat – also increases carcass value."

Statistics indicate the Canadian livestock herd may not be growing right now, but elsewhere in the world, beef, pork and poultry production are on the rise.

According to Brett Stuart, president of Denver-based Global AgriTrends, both beef and pork production are expanding in the U.S., with increasing cow numbers and construction of new hog barns and pork processing facilities.

As the world's largest pork-consuming nation, China is a key driver of world pork markets and an important economy to watch.

"Chinese pork imports surged in 2016, but Chinese hog farmers have experienced record profits and are beginning to expand," Stuart says. "This will eventually reduce demand for Chinese pork imports and have a major impact on all global protein markets. Where will one million tonnes of Canadian and European pork, previously destined for China, go?"

Grain-fed beef advantage

While Canadian pork producers have targeted the ultra-high-end market in Japan, there remains little differentiation between Canadian pork and that from other countries. The same cannot be said for beef, Stuart maintains.

"In general, North American beef is a grain-fed, high quality product that brings premium prices. In the last seven years, as global beef production has stagnated, tighter beef supply caused grain-fed beef premiums to emerge."

Statistics indicate the Canadian livestock herd may not be growing right now, but elsewhere in the world, beef, pork and poultry production are on the rise.

India recently became a leading global beef exporter, supplying large volumes of low-quality water buffalo meat to emerging markets such as Middle East and North African – MENA – countries. Brazilian beef is also exported in volume, but is predominantly grass-fed.

"Every country has a high-end hotel, and the gold standard in these hotel restaurants is grain-fed beef. As global economies grow, demand for grain-fed beef will grow," says Stuart, citing a recent study predicting the global middle class will increase by three billion people by 2030.

Cyclical markets

Despite major changes in the red meat sector, traditional cattle and hog market cycles prevail as relevant indicators of the future.

"Cycles of the past have been driven by the biological lag between when producers receive the price signal to expand or contract their herds, and the length of time until they can actually achieve that change. Hog cycles are typically four years in duration, with beef cycles lasting 10 to 12 years," Grant explains.

"Market information is more readily available now than in the past, meaning producers respond faster with their production decisions, but markets will always involve sentiment swings from optimism to pessimism."

Increased productivity and larger carcasses mean fewer cows and sows are required to produce the same amount of red meat domestically, rendering national cow and sow herd numbers less indicative of the current stage of the market cycle.

"Breeding herd numbers are still an indicator for industry optimism," Grant adds, "but carcass weights are increasingly important. Higher carcass weights, as animals are on feed longer, can have a substantial impact on production."

Preparing for the future

Stuart recognizes that the U.S. may have the upper hand with larger pork and beef production volumes and lower processing costs, but believes the Canadian industry has its own strengths to build on.

"As a smaller producer, Canada is more nimble at meeting consumer demands. For example, the Canadian beef traceability system offers a point of differentiation, and Canadian pork producers were willing to discontinue use of the growth-promoting agent ractopamine because of their strong reliance on exports. Smaller Canadian packers are also more willing to accommodate requests from overseas customers for unique meat cuts."

Grant encourages Canadian beef and pork producers to continue responding to market signals.

FAST FACT Canadians are eating less beef than they used to, but demand – consumers' willingness to pay a specific price given their tastes, preferences and income – went up 7% between 2008 and 2016.

"There is no longer a homogenous group of consumers," she explains. "Many consumers make purchases based solely on price, but others are looking for specific qualities or attributes.

"For example, in the last five years we've seen more focus on high quality (AAA and prime) beef production, based on price signals from the market. At the primary producer level, attributes like 'no added hormones' or 'sustainable' are growing. Substantial price premiums don't exist for them yet, but could appear in the future," Grant says.

Factors to watch

Exchange and interest rates: In addition to affecting global demand for meat, world economic growth will dictate the future direction of the U.S. dollar. According to Stuart, the U.S. Federal Reserve is anxious to raise interest rates, but won't until there's a more stable economy. A rising U.S. dollar is favourable for Canadian exports – and any upward movement in American interest rates will keep the U.S. dollar strong.

Trade agreements: Politics will continue to play a role in world export markets. For beef, Grant and Stuart agree on the importance of free trade with Japan, a major beef importer in terms of both tonnage and dollar value. Australia is North America's biggest competitor in the grain-fed beef market, and has a free trade agreement with Japan. Canadian and U.S. beef will continue facing higher duties in this lucrative market, Stuart says, if the Trans-Pacific Partnership or separate bilateral trade agreements with Japan don't proceed.

Outbreaks and pandemics: Animal health events also warrant attention, as they can shutter markets – as in the case of BSE – and affect global meat supply. PEDv and avian influenza outbreaks didn't close borders, but both impacted protein production and global trade flow. ■

***TRISH HENDERSON** / Trish is a freelance writer and farm business consultant based in Central Alberta. She is also a beef producer.*

Follow Trish: **@TrishHenderson3**

CANADIAN BEEF MARKET ACCESS POST-BSE

May 2003

Discovery of BSE in an Alberta cow results in all borders immediately closing to live Canadian cattle and beef.

August 2003

Partial opening of U.S. border to boneless boxed beef from cattle under thirty months of age, with specified risk material removed.

November 2007

Beef from cattle of all ages approved for export to the U.S., plus live cattle born after March 1, 1999, for slaughter or breeding (with age verification).

March 2009

Country of origin labelling (COOL) implemented, altering Canada's access to the U.S. for live cattle and hogs (a non-BSE measure). Prices for Canadian cattle drop $25 to $35 per head.

September 2014

South Korean free trade agreement eliminates the 40% tariff on fresh and frozen Canadian beef.

December 2015

COOL repealed.

October 2016

Mexico fully reopens to Canadian beef.

Here's to the farmer who's willing and able,
Who's at every meal, but not at the table.

Here's to the farmer who cares for the earth,
Who loves every creature and knows their true worth.

Who wears many hats with honour and pride,
With love for their business that shines from inside.

Who respects what they do and how to get through it,
Constantly learning the best ways to do it.

Who's open and honest and willing to share,
With nothing to hide, anytime, anywhere.

Here's to the farmer, who's in every bite,
Feeding the world and doing it right.

Since 1959, FCC has been proud to serve and support Canadian agriculture, and we can't wait to see what the next 150 years hold.

Here's to the farmer. Here's to Canadian ag. Here's to you.

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