THE GROWER

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FARMING PICKLES

Ontario hand-harvested field cucumbers fill U.S. processing needs

Ontario's field cucumbers are mostly hand-harvested to be pickled. Dan Froese is a field cucumber grower near Vienna, Ontario where he also oversees a receiving station for Hartung Brothers, a green shipper with the rights to export the raw ingredient to a brining station in the United States. Photos by Glenn Lowson.

KAREN DAVIDSON

The French call it a cornichon. The Brits call it a gherkin. Canadians call it a baby dill.

Cucumbers, the size of your pinky finger, currently sell for $1,400 per ton. And growers in southwestern Ontario believe that field cucumbers are worth growing again after a decade of annual planting declines. The Ontario Processing Vegetable Growers (OPVG) report that field cucumbers earned $16 million in 2022 farmgate value, a record over the last seven years. But many of those raw ingredients go to the U.S. and come back as slabs of dill pickles on a cheeseburger or as relish on a hot dog.

"We sold field cucumbers as far as Texas last year," explains Dan Froese, a field grower with Froese Vegetables and a director on the OPVG board. He also oversees the Hartung Brothers receiving station located near Vienna, Ontario, accepting hard-harvested crops from about 40 farmers from mid-July to early September each year.

The receiving station is but one of the steps en route to the jarred pickles returning to Canada under various brand names with Vlasic perhaps being the most familiar. The pickling industry operates on a North American basis. Hartung Brothers, headquartered in Madison, Wisconsin, has a raw ingredients division that spans several states and Ontario, with receiving stations in Vienna, Alymer, and Chatham.

Payouts vary by pickle size. After each wagon has been unloaded and graded, the wagon's owner carefully reviews the grading percentages and load value. It may seem counter-intuitive, but larger cucumbers suited to the food-service trade, fetch less money. And nubs and crooks -- stubby ends and deformed shapes which signal poor pollination – are destined for relish.

Jeff VanRoboys, a third-generation farmer who runs The Pickle Station and a Hartung Brothers' receiving station near Chatham, Ontario, is bullish about the future.

"Pickle demand grew during the pandemic," says VanRoboys. "Pantry items became more valued."

His grandfather Norm VanRoboys sold the family's first load of cucumbers in 1964 to Walter Bicks, the founder of Bick's Pickles, who insisted that a grading station be set up in Chatham. The following year, VanRoboys contracted out two million pounds to farmers in the region.

Although the famous Bick's brand was swallowed up by J.M. Smucker Company in a 2004 transaction and Ontario pickling facilities were closed for some years, the brand remains invincible. Since 2019, it's co-packed in Ontario and still in #1 spot as Canada's most popular pickle brand.

Now celebrating the company's 60th anniversary, VanRoboys explains that 90 per cent of field cucumbers are hand-harvested. In his area, the business model is to contract temporary foreign workers for premium picking while using machine harvesters for the bigger cucumbers that end up as a pickle slice on a sandwich.

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AT PRESS TIME...

Canadian seeded potato acreage is up

Province	2018	2019	2020	2021	2022	2023	% Change vs. 2022
Newfoundland	350	425	425	475	415	425	2.4%
Prince Edward Island	86,000	85,500	83,600	85,000	82,700	83,500	1.0%
Nova Scotia	1,600	1,440	1,200	1,200	800	800	0.0%
New Brunswick	52,000	52,900	48,450	53,000	52,200	53,000	1.5%
Quebec	41,956	43,508	45,924	46,236	47,928	47,197	-1.5%
Ontario	34,000	34,027	36,500	38,324	37,180	37,700	1.4%
Manitoba	64,100	70,000	71,500	78,000	80,500	81,000	0.6%
Sask.	6,300	6,700	7,000	7,300	7,100	7,300	2.8%
Alberta	55,645	61,235	59,677	68,450	73,080	80,000	9.5%
British Columbia	6,600	6,700	6,500	6,300	5,200	6,000	15.4%
Total Canada	**348,551**	**362,435**	**360,776**	**384,285**	**387,103**	**396,922**	**2.5%**

Statistics Canada has released its first estimate of 2023 potato acreage at 396,922 acres. The national increase of 9,819 acres (2.5%) is attributed mainly to Alberta whose growers planted an additional 6,920 acres. That provincial uptick (9.5%) is attributed to rising global demand for frozen fries as well as the expansion of the McCain Coaldale facility.

"The majority of increases we have seen in the last two to three years have been predominantly in the major processing provinces, bringing supply back to meet demand increases in the industry that began pre-COVID," says Victoria Stamper, general manager, United Potato Growers of Canada. "However, due to significant rises in input costs starting in early 2021, coupled with increased interest rates and land costs, as well as seed shortages, most areas in Canada saw acreage remain fairly flat compared to last year."

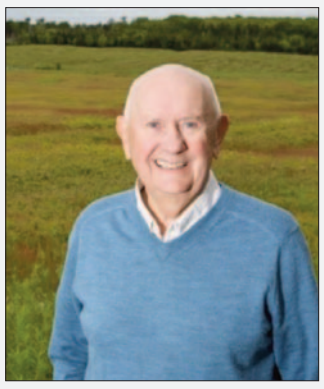
All other provinces showed increases in planted potato acreage with the exception of Québec whose growers posted a 731-acre decrease compared to 2022. Most regions reported differences in acreage figures depending on the sector, with some such as Québec down in chip but up in frozen and flat on table and seed. Manitoba was slightly up in fresh but flat in processing.

NEWSMAKERS


Kody Blois

Congratulations to MP **Kody Blois**, named 2023 Produce Champion by the Canadian Produce Marketing Association. He's MP for Kings-Hants, Nova Scotia and chair of the Standing Committee on Agriculture and Agri-Food.

The Canadian Agricultural Hall of Fame has announced seven inductees for 2023, two of whom are from horticulture. The formal event will take place November 4 in Charlottetown, Prince Edward Island.


John Bragg

John Bragg is the dominant force in the evolution of the wild blueberry industry in the Maritimes. At Bragg Foods Group, he built the sector from a cottage industry to the high-tech, export-driven sector it is today. His visionary leadership saw expanded production, a focus on research and development, new export markets and innovation in processing. John Bragg lives in Collingwood, Nova Scotia.


Robert Irving

Robert Irving's agricultural legacy began when he established Cavendish Farms in 1980, a frozen food plant in Prince Edward Island that created a local opportunity for processing and value-added agriculture. Cavendish is now the fourth largest producer of frozen French fry products in North America. Irving also heads Cavendish Ag Services – an agricultural inputs and services company. Robert Irving lives in Dieppe, New Brunswick and was nominated by Potato Growers of Alberta.

The Ontario Food Terminal has a new vice-chair in **Jacquelyn (Jackie) Fraser**. She owns and operates Fraberts Fresh Food in Fergus with her husband, chef **Derek Roberts**. Her appointment runs from June 15, 2023 to June 14, 2026. As vice-chair, she will support **Christy McMullen**, chair of the board and serve with directors **Steve Bamford**, **John Den Boer**, **Len Turkevics**, **Larry Kieswetter** and **Fred Koornneef**.

The World Potato Congress Inc. board of directors has announced that **Jianmin Xie** has joined as an international advisor. President **Peter Vander Zaag** says, "Jianmin is the director of the CIP-China Center for Asia and the Pacific, country convenor of CGIAR in China and as such will provide significant contribution to the understanding of the potato profile within this region of the world."

Peggy Brekveld has been acclaimed chair of the Canadian Agricultural Human Resource Council (CAHRC) for 2023-2025. The dairy farmer is also president of the Ontario Federation of Agriculture. Joining her on the executive committee is **Stefan Larrass**, vice-chair, representing Flowers Canada Growers; **Cyr Couturier**, treasurer, representing Canadian Aquaculture Industry Association; **Brenna Mahoney**, representing Keystone Agricultural Producers; **Connie Kehler**, representing Canadian Herb, Specialty Agriculture and Natural Health Products Coalition.


Daniel VanderHout

Congratulations to **Daniel VanderHout**, Beverly Greenhouses Ltd., Waterdown, Ontario. He's been accepted as one of 20 participants in the next class of the Advanced Agricultural Leadership Program which starts in August 2023. He's following in the footsteps of his father **Jan VanderHout**, currently the president of the Fruit & Vegetable Growers of Canada.

COVER STORY

Ontario hand-harvested field cucumbers fill U.S. processing needs

The ideal cucumber for pickling needs to be the right colour, size, and contain very few seeds. After harvested, cucumbers are transported by a licensed green shipper to a briner in the U.S. where they are washed, graded, sized, and placed in a tank of brine (a mixture of vinegar, salt, garlic, and spices) to be fermented into pickles.

About 40 farmers deliver their loads to Vienna, one of three Hartung Brothers receiving stations in Ontario. From mid-July to early September, summer students help unload the wagons into a water-filled flume.

Local workers discard nubs and crooks from the field cucumber grading line. These are cucumbers with stunted ends that don't make the grade for pickles. Their destination? The relish jar.

The VanRoboys family and The Pickle Station are celebrating three generations and 60 years in the business near Chatham, Ontario. Norm VanRoboys started working with Walter Bicks in 1964. After all these years, the Bick's brand is #1 pickle brand in Canada. Since 2019, it's being co-packed in Ontario. L-R: The VanRoboys family: Don, Jeff, Claire, Brody, Reece, Krystle

Continued from page 1

"The competition is very global," says VanRoboys, with a nod to varying costs of production, especially labour, in Mexico, India and Turkey. "Ontario is a power player in the North American hand-picked cucumber market," he says. "Despite all the hurdles in securing foreign labour and ensuring government standards are met in housing, the Canadians still corner a market that the Americans have exited."

VanRoboys explains that there are few opportunities for young farmers to get into a profitable crop on a few acres of land and bring in more than corn and soy commodities. "If you can stickhandle all the labour issues, then field cucumbers are an option," he says.

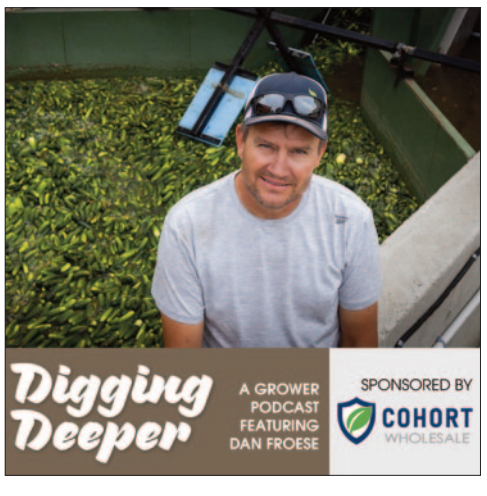
There are several niche picklers operating in Ontario. Adrian Jaques, proprietor of Sunshine Pickles, says that his Thamesville business is doing well as the only certified organic pickler in Canada. Besides cucumbers, the company pickles beets, field peppers, onions and jalapeño peppers. The company is also known for its conventionally grown asparagus, that when pickled, is a novel cocktail garnish.

Don Woodbridge, Lakeside Packing Company Ltd. is a purveyor of private label pickles that are sold as far afield as Germany and Australia. His Harrow, Ontario business offers a one-of-a-kind "cowboy candy" that consists of sweetened and spiced jalapeño peppers. These are an example of the locally grown stars that independent grocers love to buy to differentiate their store offerings.

No pickle story would be complete without acknowledging the role of Québec-based Whyte's Foods Inc, headquartered in Sainte-Thérèse, offering the familiar brands Strubs, Mrs. Whytes and Coronation. Five years ago, the company invested $16.5 million in a plant in Wallaceburg, Ontario. After the company closed its Sainte-Rose plant in December 2022, citing persistent labour shortages, some production and equipment were moved to the Wallaceburg, Ontario plant.

Fifty years ago there were more than 2,000 producers supplying cucumbers to nine Ontario-based pickling operators. The pickle processing era, like the fruit processing era, is long over. Today, a Canadian-grown cucumber is more than likely brined by an American processor, increased pantry demand notwithstanding.

The Grower is "Digging Deeper" with Dan Froese, Froese Vegetables. He's a field cucumber grower and supervisor of the Hartung Brothers receiving station at Vienna, Ontario. Demand for pickles has perked up in the last couple years, providing a much-needed boost to the sector that has 90 per cent hand-picked cucumbers and peppers. This podcast is sponsored by Cohort Wholesale.



CROSS COUNTRY DIGEST

BRITISH COLUMBIA

BC cherry growers face short-term marketing challenges

Quality British Columbia cherries will be harvested until the end of August, with growers facing some difficult short-term market challenges. The seasonal cherry harvest normally progresses from California to Washington State and then to BC. However, some California cherries were still on the market the first week of July 2023 as BC production came into full harvest, an almost unheard-of situation.

"The BC cherry season stretches between mid-June to the end of August, and the early-season cherry prices are getting hit hard at the farm level," said Deep Brar, vice-president of the BC Fruit Growers' Association (BCFGA).

Canadian consumers are encouraged to buy cherries that are fresh, with green stems to ensure a good eating experience and maximum shelf life. "In the first week of July, some inferior-quality cherries from California and Washington State were being sold in the Canadian retail marketplace. Much of this fruit has been weeks off of the tree. There are also reports of 'consignment selling' of U.S. cherries, where sellers ship the product without a price - a signal that dumping at below the cost of production is occurring," said Peter Simonsen, president of the BCFGA.

The BCFGA has initiated the first step of an anti-dumping trade action, which is to request that the Canadian Border Services Agency (CBSA) monitor pricing and quantities of imports. Canadian consumers can help by asking for fresh, high-quality BC cherries.

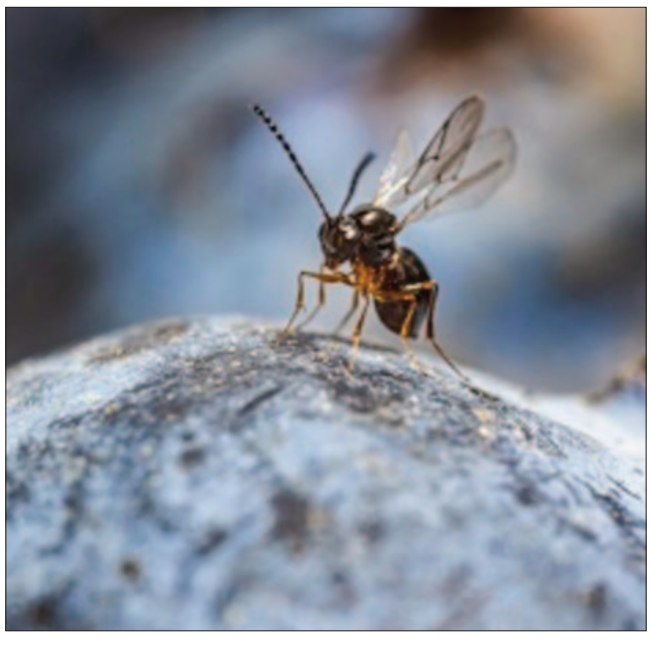
"With an exceptional late-season cherry crop yet to be harvested in July and August, we are excited to share it with consumers across Canada - it helps food security when people buy the fresh, quality produce of our local growers. In the near term, we hope the cherry market will recover quickly, as fresh BC fruit displaces tired imported fruit," concluded Simonsen.

Source: BC Fruit Growers' Association July 10, 2023 news release

BRITISH COLUMBIA

How a parasitoid wasp might aid in managing fruit flies

Spotted wing drosophila on cherries



Ronin wasp (*Leptopilina japonica*) searching for SWD larvae in a blueberry

A samba wasp (*Ganaspis brasiliensis*)

In 2018, Agriculture and Agri-Food Canada research scientist Dr. Paul Abram was embarking on a new project to tackle the spotted wing drosophila (SWD). The original plan was to introduce its natural enemy, a parasitoid wasp, in British Columbia (B.C.) to control populations. That is, until scientists discovered that the wasp was already present in B.C.'s Fraser Valley. Now, Dr. Abram has the unique opportunity to study the efficacy of this method of management in real life and inform other scientists considering intentional releases across Canada.

While other flies in the Drosophila genus tend to feed on rotting and fallen fruit, the SWD stands out for its taste for fresh and ripening fruit. This is made possible due to its sharp saw-like ovipositor, an appendage which allows it to cut through the harder skin of fresh fruit and deposit its eggs within, eventually causing the fruit to decompose. For B.C.'s fruit growers, the economic impact of this fly has been felt through the losses of soft- and thin-skinned fruits such as raspberries, blueberries and cherries, all of which had a combined export value of $623 million in 2020. Insecticide applications have limited the impact of the SWD, but this method can be costly.

To address these issues, Dr. Abram and his team at the Agassiz Research and Development Centre (RDC) turned to the pest's natural enemy for biological control. In its native environment, the SWD's natural enemies are two tiny parasitic wasps – the samba wasp and the ronin wasp – both of which attack the pest developing inside fruits.

> **"The fact that it has come to British Columbia on its own gives us the opportunity to see how it interacts in the reality of Canadian nature. Is it only attacking the pest or does it have a broader impact?**
>
> **~ DR. PAUL ABRAM**

To Dr. Abram's surprise, both wasps were commonly found across most of the southern coast of B.C. by 2020. This discovery has given scientists a unique opportunity to study two things: how effective the wasps are in controlling SWD populations and the ability to monitor any impact they have on agriculture and surrounding ecosystems. So far, the results have been promising.

"The fact that it has come to British Columbia on its own gives us the opportunity to see how it interacts in the reality of Canadian nature," says Dr. Paul Abram, research scientist, AAFC. "Is it only attacking the pest or does it have a broader impact?"

In 2020, both wasps were shown to kill an average of 13 per cent, and in some cases up to 53 per cent, of SWD larvae in natural habitats on 13 species of crop and non-crop fruiting plants. Of the two wasp species, the samba wasp has been the most promising. While the ronin wasp attacks several species of Drosophila, the samba wasp is highly specific in targeting and attacking SWD and has therefore been deemed the better candidate for deliberate introductions. Additionally, there have been no perceived negative impacts on the wider ecosystem. In fact, this method may even prove beneficial in protecting native biodiversity by mitigating the negative impact that SWD has on animals that feed on fruit, such as birds.

While Canadian scientists continue to monitor other fruit-growing regions to see if these parasitic wasps arrive on their own, the results observed in the Fraser Valley will ultimately lay the groundwork to consider the intentional redistribution of the samba wasp across Canada.

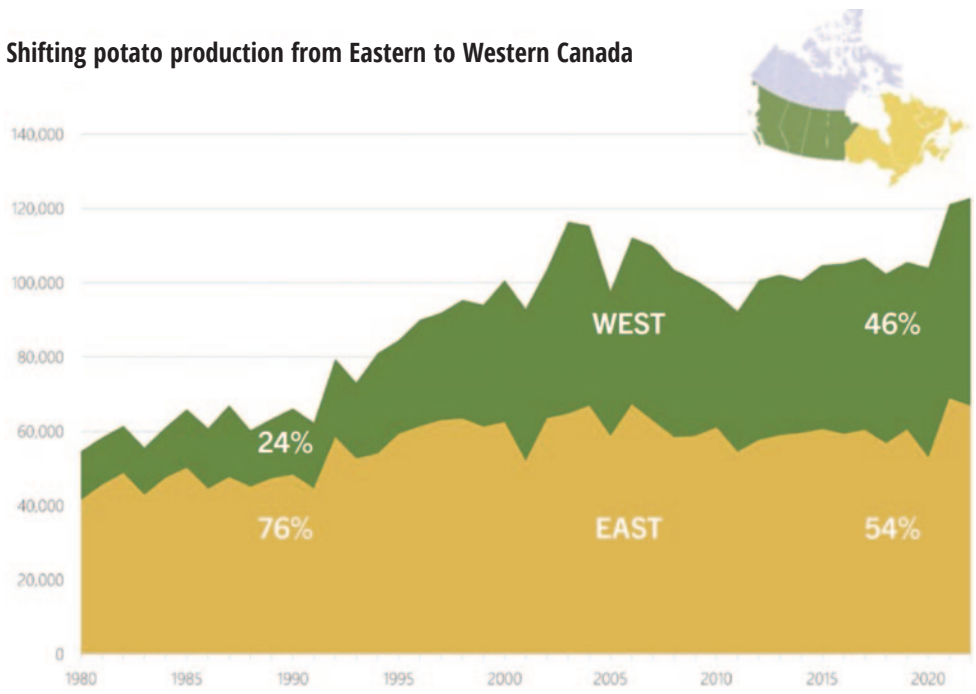
Currently, the introduction of a biological control agent into Canada is a highly regulated operation, but the same cannot be said for introductions within Canada. Canada is home to several different ecozones, and what works in one area may not be as successful in another. The process for redistributing a biological control agent within Canada is vague, but Dr. Paul Abram hopes to change that. One of his long-term goals is to develop a formal consultation process for redistribution within Canada that ensures due diligence.

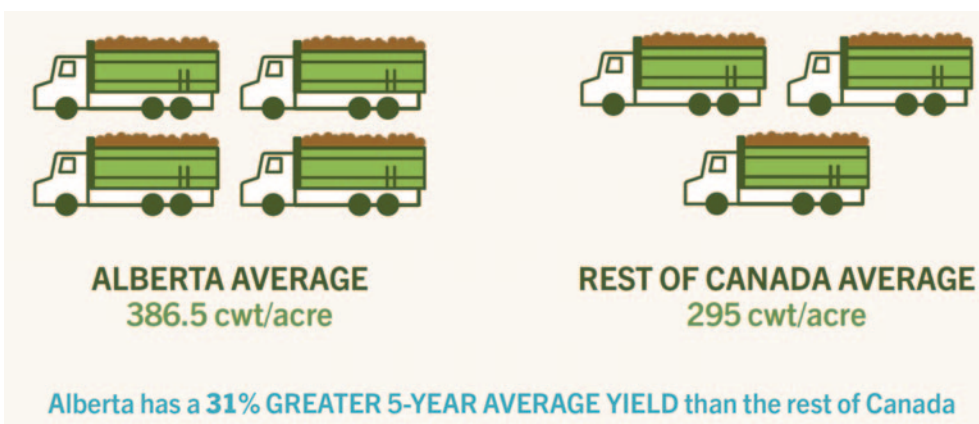
Source: Agriculture and Agri-Food Canada

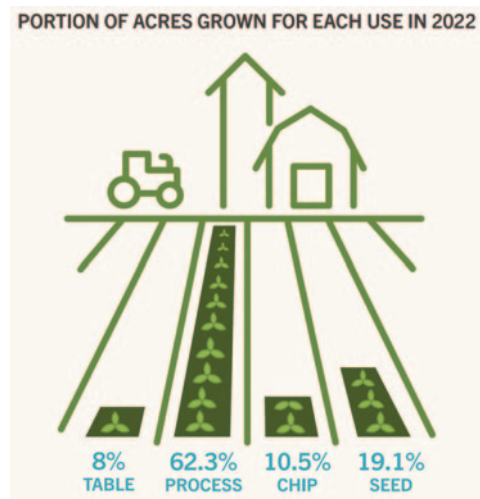
CROSS COUNTRY DIGEST

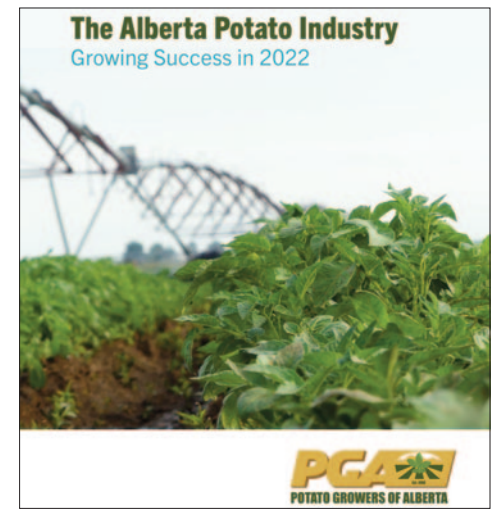
ALBERTA

Potato sector contributes $2.87 billion to economy









Potato Growers of Alberta (PGA), headquartered in Taber, has released its landmark study outlining the significant growth of Alberta's potato industry in recent years and documenting its economic impact. One of the driving factors for productivity is that 87 per cent of the potato acreage is irrigated, mostly located in southern Alberta.

"We knew our industry has seen accelerated growth in recent years, but we had no way of measuring its overall impact on our economy," said James Bareman, chair, PGA, representing 150 growers.

The report documents a total economic contribution to the economies of Alberta and Canada of $2.87B. It further documents job creation of 9,390 full-time equivalent jobs, $662M in employment income, $1.33B contribution to GDP and $87M in tax revenue to federal and provincial governments.

"We are pleased that we now have an accurate assessment and delighted with the result," continued Bareman. "The industry could not have grown to this scale without the goodwill and collaboration of all parties: growers, processors, packers, the service sector, the scientific community and governments. PGA warmly thanks all involved for their excellent contributions to growing our industry into the largest potato sector in Canada."

The study was completed by two reputable firms, Serecon Inc. and Nichols Applied Management.

NOVA SCOTIA

Three new strawberry varieties bred at Kentville


AAC Kate


AAC Audrey


AAC Evelyn


The small fruit team at Kentville Research and Development Centre in 2017, L-R: Ken Gough, Chad Cairns, Dr. Beatrice Amyotte, Pansy Rand, Dylan Troop, Amanda Charlton and Dr. Andrew Jamieson.

It has been more than 10 years of progress, but the small fruit research team from the Agriculture and Agri-Food Canada (AAFC) Kentville Research and Development Centre in Nova Scotia has released its newest strawberry varieties. They are called AAC Kate, AAC Audrey and AAC Evelyn (AAC represents "Agriculture et Agroalimentaire Canada" or Agriculture and Agri-Food Canada in English).

This release marks a total of 20 different varieties of strawberry that have been bred at AAFC in Kentville over many years of research, testing and field trials.

Dr. Andrew Jamieson, an AAFC research scientist from the Kentville Research and Development Centre, first began the hunt for new varieties in 2012. He began his research by selecting strawberry plants that had favourable attributes including having excellent growth, beautiful fruit and delicious flavour. Using a method called "controlled crossing", he chose two plants that had positive characteristics and dusted the pollen from one plant onto another. Once the strawberries grew, he picked them all and collected the tiny seeds. Each of the seeds grew into a unique new plant for him to study. After he identified the specific plants that grew the best strawberries, he began breeding the plants so he had several copies to compare side by side.

When Dr. Jamieson retired in 2017, he left a legacy of naming the new cultivars after his three granddaughters: Kate, Audrey and Evelyn. His successor Dr. Beatrice Amyotte, continued to breed and field test from 2017 to 2022 in multiple locations, confirming if these new varieties had consistent growth, yield and fruit quality.

Dr. Amyotte launched the Canadian Berry Trial Network (CBTN) in 2018. The CBTN is an industry-led horticulture project that involves testing new varieties of strawberry, raspberry, and blueberry in British Columbia, Ontario, Québec and Nova Scotia. Dr. Amyotte was able to use the CBTN to test the strawberry varieties to ensure they could grow in different strawberry regions across Canada.

After navigating the bumps and hurdles that come with research, including dealing with bad weather one season and the challenge of getting into the field during the pandemic, Dr. Amyotte was able to release these three varieties in 2022. After consulting Canadian nursery growers to see if there was still an interest to have these fruits become commercial cultivars and receiving a resounding "yes", she and her team requested Plant Breeder's Rights through the Canadian Food Inspection Agency. Having Plant Breeder's Rights means that the three varieties can now be grown and sold by Canadian nurseries. In Canada, the two nurseries with licenses to grow AAC Audrey, AAC Evelyn and AAC Kate are C.O. Keddy Nursery in Nova Scotia and Lareault Nursery in Québec.

GREENHOUSE GROWER

Monitoring for pepper weevil

Pepper weevil has caused damage numbering in the millions of dollars in greenhouse peppers in Ontario. The pest should not be confused with pepper maggot.

The presence of adults can be monitored with yellow sticky traps baited with a two-component pheromone lure. Visual scouting for dimples in fruit, prematurely dropped fruit or fruits with a yellowed calyx, feeding damage on buds and flowers, and adults is also recommended.

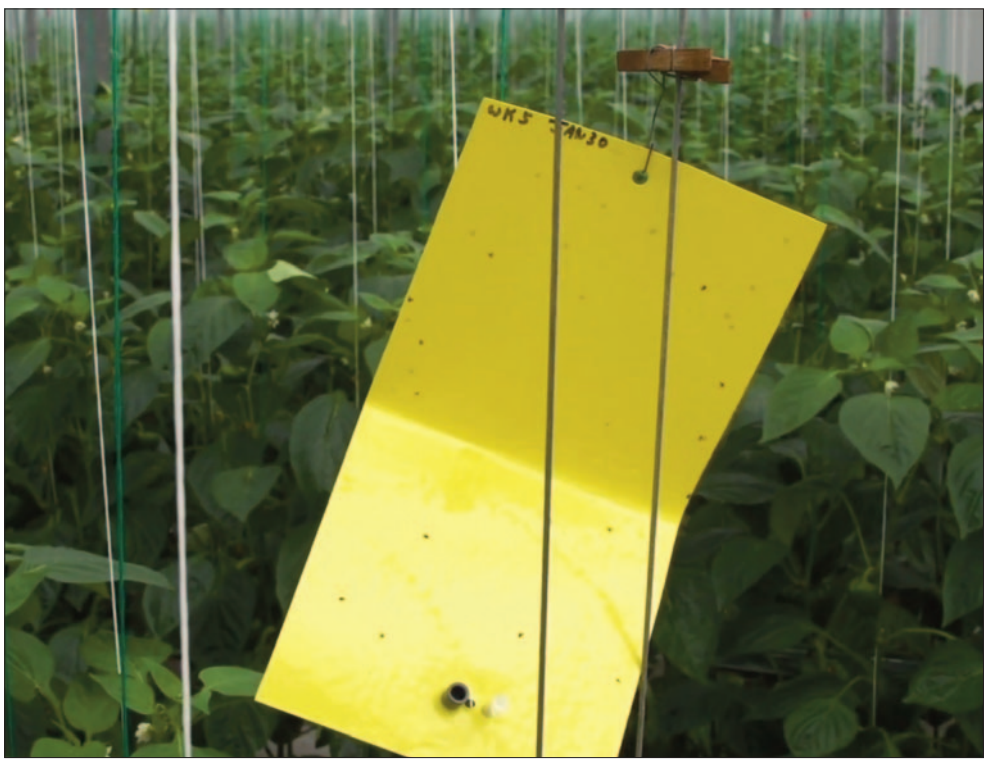
One weevil on a trap or observed in the crop indicates management is needed. There is no tolerance for this pest.

A five-minute video has been posted by Cara McCreary, greenhouse IPM specialist for the Ontario Ministry of Agriculture, Food and Rural Affairs, on how to monitor for pepper weevil in both field and greenhouse situations. She gives detailed instructions on how to set up a sticky trap. In greenhouses, 10 traps per hectare (four acres) are recommended as soon as the new crop is established.

Here's how to identify pepper weevil.

- Females lay eggs in small fruit, creating a small dimple as the fruit sizes
- Eggs are laid inside the fruit wall and are yellow in colour
- Larvae are legless, white to light grey coloured with a light brown head
- Larvae range anywhere from 1-4 mm long and are found inside of the fruit.
- Adult weevils can be black, dark brown or dark amber coloured and range from 2.5-4 mm in length
- Adults have white, yellow or grey hair-like scales covering the body, with a small concentration of white scales at the top of the elytra (wing covers)
- Adults exit the fruit by chewing a small hole through the flesh of the fruit

Link to the YouTube video here: https://www.youtube.com/watch?v=D0T0WEJrp6A



Registration opens for Canadian Greenhouse Conference

August 1 is opening day to register for the 2023 Canadian Greenhouse Conference slated for October 4 and 5. The event will take place at the Niagara Convention Centre in Niagara Falls, Ontario.

The speakers' program is posted. October 4 will feature the topics of sustainability, IPM, energy management in the new times and disease management.

Of particular interest will be updates on the tomato brown rugose fruit virus (ToBRFV) which has severely disrupted Canadian greenhouse tomato production. Jonathan Griffiths, a molecular plant biologist and virologist with Agriculture and Agri-Food Canada, will explain how the rapid spread can be traced to the escape from the longstanding *Tm-2*^{2} *resistance gene.*

"Escape from this resistance gene is emblematic of the complex interactions between viruses and their plant hosts," he writes in a brief synopsis of his talk. "Molecular mechanisms that control these complex interactions can have dramatic effects, resulting from small changes in the viral genome. My seminar will review progress in understanding this escape mechanism, and other potential sources of resistance. The *Tm-2*^{2} *resistance gene* provided valuable resistance to related Tobamoviruses for ~50 years, and finding new sources of resistance could be the best approach to control this dangerous pathogen. Other approaches to resistance will also be discussed."

October 5 will feature lettuce production, forward thinking, vegetable production, strawberries and an energy management research update.

Stay tuned to the website for upcoming details on a pre-conference bus tour. Link to: www.canadiangreenhouseconference.com

The New Varieties Showcase will feature the latest in tomato, pepper and cucumber varieties. Companies such as Enza Zaden, BASF/Nunhems, Rijk Zwaan and Syngenta will be displaying their latest entries.

GREENHOUSE GROWER

Biobest completes acquisition of BioWorks' portfolio of biopesticides

Biobest, a global leader in biological control and pollination, has completed its acquisition of BioWorks, Inc. a Victor, NY-based manufacturer, and marketer of industry leading biopesticides.

BioWorks' innovative portfolio of biopesticides for disease and insect control as well as its product development, marketing, and logistics expertise are key assets. With a continued focus on the horticulture and specialty agriculture markets, and now as a member of Biobest Group, BioWorks will continue to expand its range of biopesticide solutions for growers. Biobest Group thus further steps up its contribution to reduce the reliance of growers on synthetic pesticides.

"Biopesticide solutions are a global strategic priority for us, and BioWorks has a strong range of products that growers demand," said Jean-Marc Vandoorne, Biobest's CEO. "BioWorks will continue to actively service the highly effective distribution channels it has developed over the past 30 years while adding new and unique biopesticides that will expand the range of biocontrol solutions available to growers. BioWorks will continue to operate independently of Biobest's beneficial insect and pollination business and Biobest's North American subsidiaries."

BioWorks' headquarters will serve as the North American manufacturing and marketing hub for biopesticides for the entire organization. The Victor, New York facility features more than 55,000 square feet and combines office, manufacturing, research and development, and warehouse space serving all of North America. BioWorks also has warehouse and shipping space in Las Vegas, Nevada that enhances supply capabilities to growers and distributors in western regions of the United States.

"With our growers in mind, this greatly increases our ability to provide more innovative biopesticide solutions across a broad range of geographies," said Bill Foster, CEO of BioWorks. "We will continue to innovate through research and development while working with our channel partners on strategies that will speed up our ability to get products to market. We are excited to be part of a global leader in biological control and are confident that we will make a great contribution to deliver on Biobest's aim to be the preferred partner for biological control of growers across the globe."

Source: Biobest July 10, 2023 news release

Nature Fresh Farms introduces the first organic greenhouse strawberry

Nature Fresh Farms is the first greenhouse producer to grow and market organic, greenhouse-grown strawberries in North America. Its growing facility is based in Delta, Ohio.

"Nature Fresh Farms is always looking for ways to support our customers by listening to their challenges and addressing their concern," comments Matt Quiring, senior vice president, sales & marketing, Nature Fresh Farms. "One such challenge was field berry supply, particularly ongoing weather and water challenges that continue to impact field growers, causing inconsistent supply. Our organic greenhouse berries address this concern, providing peak supply while field grown is most depleted and filling in supply gaps."

Nature Fresh Farms' controlled environment agriculture growing practices boast further advantages, requiring approximately 70 per cent less water for strawberry crop growth, while allowing for increased crop cleanliness and closer to market production when compared to field.

"Greenhouse-grown berries are the future, and we know that also includes organics," states Quiring, explaining that greenhouse farmers, don't face the challenges of weather, drought, fire, or overspray that field famers do. "Because of this, greenhouse farmers are able to provide a more favourable crop that is consistent in flavour, freshness, quality, and availability and provide consumers with a fresher berry that is selected for taste and eating experience versus shelf life and transportability."

With its new 45-acre organic strawberry facility coming online in fall 2023, Nature Fresh Farms is focused on developing retailer partnerships within the berry category, noting the increase in organic purchase trends over the past several years.

A worker tends to organic strawberry plantings at the Delta, Ohio facility.

PERSPECTIVE

Domestic food production threatened by inflationary pressures on the farm

MIKE CHROMCZAK

A key priority for the Ontario Fruit & Vegetable Growers' Association (OFVGA) is advocating for the preservation of domestic food production. Our organization has sections or committees that deal with very specific issues, such as safety nets, which I chair, or crop protection or labour, to name just a few.

And although these sections delve deeply into the nitty gritty details of their respective subject areas, they all ultimately have the same goal – to support grower competitiveness and profitability so that we can continue to produce food right here at home.

This is often referred to as domestic food security and the last few years have shown us how precarious our world can become when we must depend on other countries to produce the inputs, ingredients, products and supplies that we need. Post-pandemic, probably the most dramatic example we've had to deal with is fertilizer, which became a challenge following the Russian invasion of Ukraine in 2022.

Canada is well known around the world as a major agricultural producer and as growers, we proudly believe that there is no better produce than fresh local Ontario produce. Even for a country with as strong an agricultural tradition as ours, however, long-term food security is far from guaranteed. This is especially true for fruit and vegetable growers.

What makes us different from other farmers? A major factor is the labour-intensive nature of the crops that we grow. A lack of automation in our sector means we still depend heavily on human labour to grow, manage and harvest our crops, making wages, housing and other labour-related costs a significant investment for growers.

It's also about the perishability of our product. I grow asparagus and watermelon, and unlike grain oilseed, livestock and forage producers, I can't just hold onto my produce until the price gets higher. And if some product doesn't quite make a quality grade, growers aren't just given modest price discounts; instead, the entire load is rejected.

We also have no ability to use futures markets to hedge against risk, nor do we have protection from inflation the way our supply managed sectors do. Dairy farmers, for example, have raised their prices as needed to cope with their rising input costs.

That brings us to the topic of inflation. Retailers are struggling to deal with pressure from media, consumers and government to keep food prices in check, which means they're looking to their suppliers, such as farmers, to take less. Many of us feel that fruit and vegetable growers in particular are bearing the disproportionate brunt of the battle against inflation – because again, this is where the perishability and seasonality of our fresh product work against us.

As growers, we're all still dealing with inflated prices for fertilizer, fuel, packaging and other aspects of our cost of production, but few if any of us can get that full cost increase covered by produce buyers. We also operate in a global marketplace with competitors who are less regulated, have stronger safety net supports or lower production costs.

All of these factors come together to make for an unsustainable production environment for Ontario fruit and vegetable growers that not only limits the profitability and competitiveness of our sector, but also makes it extremely challenging to work in support of the provincial government's Grow Ontario Strategy. Among its goals are to increase the production and consumption of food grown and prepared in Ontario by 30 per cent, and boost Ontario's agri-food exports by eight per cent annually by 2032.

It should also be noted that with the exception of greenhouse vegetables, Ontario is not in an abundance situation when it comes to domestic fruit and vegetable production; in fact, in many crops, we don't currently have the capacity to meet all of our domestic consumption needs with local production.

In onions, for example, we can only grow enough to cover about three-quarters of domestic consumption. Asparagus are at about two-thirds, apples are at less than two-thirds,and watermelons meet less than half of our domestic consumption needs.

Fruit and vegetable production, markets and exports are a complicated balancing act. We are such a diverse sector and face risks unique among Ontario farmers, which is why the Self-Directed Risk Management (SDRM) is so crucial for us.

It's also why, if we want to protect our ability to grow as much of our own food as possible, it's time for the program to be funded properly. Our inflationary realities and market challenges are real and unsustainable. And if they continue, our domestic food security will also become unsustainable as growers switch to lower risk, higher margin agricultural commodities.

Mike Chromczak is chair, safety nets section, Ontario Fruit & Vegetable Growers' Association.

WEATHER VANE

Irrigation was needed early in the season on the sandy plains of Ontario's Norfolk County. That's because the sand is so sharp that it can damage the emerging potato seedlings. Timely rains were welcomed as Charles Emre and son-in-law Nick Bell inspect field progress at their Windham Centre farm on July 11. Photo by Glenn Lowson.

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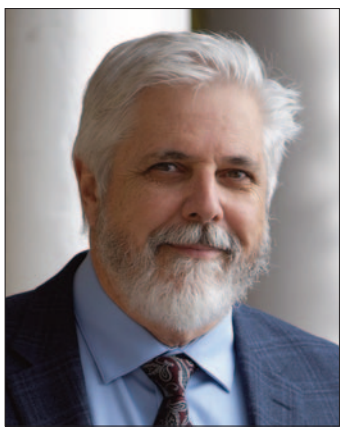
THE URBAN COWBOY

Cheers to diversity and honesty in news



OWEN ROBERTS

What's this . . . fruit wine production in central Alberta's storied cattle country?

Indeed, a site tour and tasting selection from Delidais Estate Winery north of Three Hills, Alberta was unexpected by many of the 200-plus journalists and professional communicators who participated in last month's International Federation of Agricultural Journalists' congress in Olds.

You could say participants came for the beef. But it wasn't hard for this group to understand the reason a nearly 50-year-old fruit nursery would spread its wings and open a new winery a few years ago: that is, diversity.

Producers of all types get a leg up when they diversify their operations to take advantage of market opportunities, supplement their staple commodities' income, shore up the coffers during challenging years caused by drought or other calamities, and give their customers new and exciting options.

So, fruit wine in cattle country? Why not?

Diversity resonates with journalists. It sparks stories and keeps the news fresh.

But lately, Canadian journalists are finding diversity elusive in their own operations.

For example, just as the congress was getting underway, news surfaced that Canada's most widely read newspaper, The *Toronto Star*, was in merger talks with news giant PostMedia. The latter publishes the *National Post*, the *Edmonton Journal*, the *St. Thomas Times-Journal* and about 130 more titles.

Politically, these two media entities would be strange bed-fellows, which may be one reason merger talks fizzled. But the news monopoly they'd have if they'd joined forces and shared resources (i.e., cut more jobs) is frightening.

Just as troubling to journalists and others who keep track of the news was that just prior to the congress, the federal government passed new legislation, Bill C-11, the Online Streaming Act. It gives the Canadian Radio-television and Telecommunications Commission (CRTC) new power to regulate Canadian content to include online streaming from the likes of Netflix and Disney+.

Some worry that's too much centralized power, even though the CRTC is supposed to be arm's-length from the federal government. After all, a single ideology, a single perspective, government intervention and shrinking newsrooms all bode poorly for democracy, let alone for journalists.

Photo by Mary MacArthur

Those ills are not limited to the daily, urban media – they go for farm media, too. Canada had to compete for the right to host the international agricultural journalists' congress. It got the nod because it had a good program, viable sponsors, a proven track record in global agricultural journalism and a vibrant agricultural media culture.

True, ownership in Canada's farm newspapers, magazines and other forms of media has shrunk, like it has in urban media.

But there's still a lot of independence here . . . like this newspaper, **The Grower**, serving fruit and vegetable growers for almost 145 years. That is an amazing track record, one to be proud of for staff, advertisers and subscribers alike.

Some of the information shared in the media with growers comes under the wide heading of knowledge mobilization. Besides unfettered news about the agri-food sector, growers of all kinds need unbiased, balanced sources of knowledge, for the likes of technical matters and more. The role of the media – print, broadcast, electronic, social -- is to identify the best sources and present them for their audiences' use.

Agricultural journalism and communications are global. Its members like presenting international stories that have market and management implications for their audiences, given how the agri-food sector everywhere is so export oriented. That's what brought them in droves to Olds.

But sometimes, audiences also appreciate a feel-good, gee-whiz story, such as Sodbuster rhubarb wine from central Alberta. This kind of reporting gets the creative juices flowing, promotes thinking about product diversification and shows that artificial intelligence is still a step behind humans.

Owen Roberts is a past-president of the International Federation of Agricultural Journalists and a communications instructor at the University of Illinois.

IN THE FIELD

Canadian potato crop is progressing well

Early bloomers. Photo by Tracy Carnelley, Peak of the Market.

The potato crop in Canada is in varying stages, from emergence to touching between rows reports Victoria Stamper, executive director, United Potato Growers of Canada.

"Potato growers everywhere are optimistic for the good growing conditions needed to move this crop in its early life stages," she reported July 6, 2023. "At this point the weather can be characterized by hot and dry from Manitoba west and wetter from Ontario east.

Link here for a province-by-province summary: https://unitedpotatocanada.com/wp-content/uploads/2023/07/UPGC-Crop-Report-July-6-2023.pdf

Source: United Potato Growers of Canada July 6, 2023 news release

SCENE ON TWITTER

Michel Camps @cpfarmsltd · Jun 26

As I am checking fields and feel like this weather coming up is gonna absorb a fair amount of our 14" water allotment I can't help but think of our dryland comrades who are definately running a crop on fumes now. I really hope it rains in the very near future. @StMaryIrrig

@growernews thegrowernews

BITS & BITES

Approach employee mental health concerns with confidence

An employee asks for a few minutes with you. You've noticed something's off, they've been distracted, their performance has declined and they're just not the same person. How would you respond? You don't want to pry, but you also want to help support your worker and get them back on track. The issue may be temporary and require a short-term accommodation, or a more serious situation that requires a longer-term solution. Mental health concerns can range from managing stress, all the way to diagnosable mental health disorders. Either way, the two of you won't be able to work on solutions until you address the issue and have that conversation.

"An employer may struggle with how to respond to an employee who may have a mental health issue," says WSPS Consultant Kristin Hoffman. "Do not ignore the situation. Early intervention is important. Prepare yourself to support your employees."

5 ways to prepare yourself to support your employees

Know your responsibilities. Organizations are required by law to accommodate people with any type of diagnosed disability, physical or mental, up to the point of undue hardship.

Understand your role. This involves recognizing when someone is not themselves (being absent more than usual, less engaged, etc.), knowing what support and resources are available, having a conversation with the person, and exploring possible solutions together.

"Your role is not to be your employee's therapist," says Kristin. "You are not expected to fix the problem. However, it is important to listen and support your employee."

Look at the situation from the perspective of managing a physical injury. Most workplaces have a process in place to accommodate a physical injury. Explore how it could be applied to support a mental health injury.

Consider whether workplace conditions may be affecting employee mental health. If one person is struggling, others may be as well. Effective managers create the best possible environment in which employees can perform to the best of their ability. This includes setting realistic goals and prioritizing tasks for an employee who is feeling overwhelmed, providing clear communication and feedback, and saying thanks for a job well done.

Be proactive. Managers need to feel comfortable having these kinds of conversations so that they can address issues early, focus on solutions, and steer people toward help. These are skills that can be learned and practised.

Resources

- WSPS

Workplace Mental Health: How Managers Should Respond is a half-day training course, offering a framework that helps managers understand:

- How workplaces can affect employee mental health
- What resources and accommodations could support employees dealing with mental health situations, and
- How to have productive solution-focused conversations with those employees

Agriculture and mental health

Mental Harm Prevention Roadmap

Mental Health and Agriculture

Raising Awareness on Mental Health in Agriculture

Continuing the Conversation of Mental Health

Stop Think Act Mental Health

- Agriculture Wellness Ontario
- The Do More Agriculture Foundation
- Province of Ontario Mental Health Resources for Farmers

This article was prepared by Workplace Safety & Prevention Services (WSPS). For more information, visit wsps.ca or contact WSPS at customercare@wsps.ca.

In the field

The Ontario Processing Vegetable Growers report that 5,388 acres of beans have been contracted for 2023. This photo shows harvest underway near Exeter, Ontario. Photo by Glenn Lowson.

COMING EVENTS 2023

AUG 5	Food Day Canada
AUG 9	Nova Scotia Fruit Growers' Association Summer Orchard Tour, www.nsfga.com
AUG 9	Manitoba Crop Diversification Centre Annual Field Day, Carberry, MB
AUG 12-13	Perth Garlic Festival, Perth, ON
AUG 15-16	North American Strawberry Growers Association Summer Tour, Mount Laurel, NJ
AUG 16	What's Growing On Annual Open House, Vineland Research Farm, Vineland Station, ON 6-8 pm
AUG 17-18	U.S. Apple Outlook Conference, Ritz-Carlton Hotel, Chicago, IL
AUG 23	Ontario Potato Research Open House, Elora Research Station, Elora, ON
AUG 24	Ontario Potato Field Day, HJV Equipment, Alliston, ON
SEPT 6	Ontario Grape Grower Demo Day
SEPT 6-8	Asia Fruit Logistica, Hong Kong
SEPT 9-10	Stratford Kiwanis Garlic Festival, Stratford, ON
SEPT 13	Grape Growers of Ontario Celebrity Luncheon, Roma Club, St. Catharines, ON
SEPT 20	Ontario Produce Marketing Association Annual Golf Tournament, Lionhead Golf & Country Club, Brampton, ON
OCT 2-8	Ontario's Agriculture Week
OCT 4-5	Canadian Greenhouse Conference, Niagara Falls, ON
OCT 17-18	Canadian Centre for Food Integrity Public Trust Summit, Westin Airport Hotel, Toronto, ON
OCT 19-21	PMA Fresh Summit Convention & Expo, Anaheim, CA
NOV 3-12	Royal Agricultural Winter Fair, Toronto, ON
NOV 14	Arrell Food Summit, Toronto, ON
NOV 20-22	Potato Growers of Alberta Conference & Trade Show, Grey Eagle Resort & Casino, Calgary, AB
NOV 22-26	Canada's Outstanding Young Farmer National Event, Laval, QC
NOV 24	Ontario Produce Marketing Association Annual Gala & Awards Ceremony, Bellvue Manor, Vaughan, ON

2024

JAN 10-11	Potato Expo. Austin, Texas

RETAIL NAVIGATOR

A critique of the Competition Bureau's Retail Grocery Market Study

PETER CHAPMAN

The headline: "Canada needs more grocery competition" Our response: No kidding

Everyone who works in this industry, except perhaps the leaders of the major retailers, think we need more competition. The balance of power is with five major retailers that control more than 85 per cent of the market, through their corporate and franchised stores.

Once we got past the immediate response to the headline, we read the rest of the report. The content is divided into the following segments:

1. Grocery competition in Canada
2. Domestic grocer margins
3. Property controls
4. Online grocery
5. Brining international players to Canada
6. How other countries have increased competition
7. Informing consumers
8. Canadian's ideas for increasing competition

The report made the following recommendations:

1. Canada needs a Grocery Innovation Strategy aimed at supporting the emergence of new types of grocery businesses and expanding consumer choice.

2. Federal, provincial and territorial support for the Canadian grocery industry should encourage the growth of independent grocers and the entry of international grocers.

3. Provincial and territorial governments should consider introducing accessible and harmonized unit pricing requirements.

4. Provincial and territorial governments should take measures to limit property controls in the grocery industry, which could include banning their use.

My thoughts on these recommendations

#1-Not sure what this will be? Perhaps focus for online sellers of food that are not tied to major retailers?

#2-We agree as it pertains to independents but not international retailers. Yes, international retailers have expertise and infrastructure, but the profits will go elsewhere and we will just make it more difficult for suppliers.

#3-Nice to have but we do not see it changes the retail landscape or will make much of a change for consumers from store to store.

#4-Agree this should be changed going forward. Not sure how you can go back in time but as developments are built going forward, this needs to be part of the landscape to make it easier for independents and specialty stores.

Other thoughts

#1- Put resources/investments into distribution. It is a major cost of food in this country, and we have to believe more than other countries. Our relatively low population and diverse geography over six time zones do make distribution a challenge but there must be a better solution than what we do today.

#2- Explore Canadian content rules within categories to force these large retailers to carry products produced here. This reduces their leverage and ability to just bring something cheaper from somewhere else.

#3 Revisit Safe Food for Canadians Act to provide more realistic market sizes for producers and processors. Provincial markets are fine in the three largest provinces. Manitoba, Saskatchewan and Alberta should be a market as should be Atlantic Canada. We believe the reason is risk so why not make it fair? Ever tried to build a food business limited to Prince Edward Island? This would give processors a better chance at success and more leverage with retailers.

Highlights of the report

There is a good comparison of food inflation vs. all price inflation. We see food price inflation growing at a similar rate to all prices then in the summer of 2022 a gap begins to appear. Inflation is declining in all prices, however food hovers close to 10 per cent, whereas all prices drop to five per cent. If food is truly unique and global factors are impacting prices, we should see this in other countries to prove our Canadian retailers are telling the truth. It would have been beneficial to see more comparisons to other countries with the following food inflation chart (figure 1).

Not so impressive is the report's section on gross margins. Here's how to calculate gross margin. Gross margin is retail – cost / retail. Check out the report's chart, table 1.

Figure 1: Change in food prices vs. consumer price index, monthly from September 2021 to March 2023

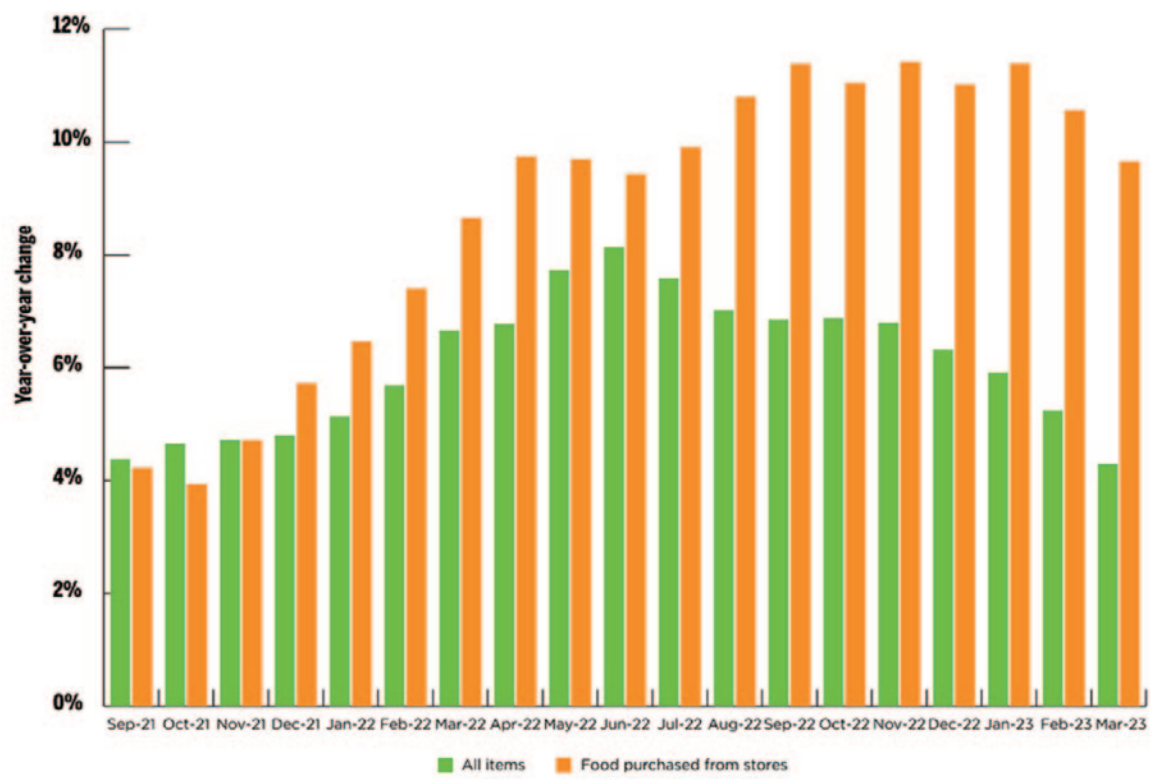


Table 1: Higher costs generate higher profits when margins remain constant

	Lower Cost	Higher Cost
Grocer's Cost	$1.00	$1.10
Grocer's Margin	20%	20%
Retail Price	$1.20	$1.32
Grocer's Profit	$0.20	$0.22

The report's authors are incorrect to say the grocer's margin is 20 per cent. The retailer's margin is 16.7 per cent in the lower cost example ($1.20-$1.00)/($1.20) and 16.7 per cent ($1.32-$1.10)/($1.32) in the higher cost example.

Their argument is correct in that retailers make more cents per unit profit when inflation occurs in pricing, but their example uses mark up, not gross margin. Disappointing to see that lack of understanding.

Property controls

My first job at Loblaw was in real estate. I learned very quickly control over real estate was a huge part of the strategy for any retailer, regardless of the sector. If you have the best location and can prevent competitors, even small specialty stores, you will do the business. This is true even if you do not operate great stores or have the sharpest prices. We do need to explore the influence these large retailers have over locations and the impact on the rest of the value chain.

Online grocery

It is true this could be an opportunity for some disruption, but we probably missed the window to really change consumer behaviour. In fairness society was dealing with the pandemic and just trying to figure out how to get food produced and to consumers. If we had really provided some incentives to innovative people, we could have brought competitors to the market and consumers would have changed some habits.

The large retailers have responded and although more food is being bought online most of it goes through the same five companies. It will take a lot more work now to change the habits.

Bringing international players to Canada

It is interesting to see our own bureaucracy recommending the introduction of foreign competitors to the market. I am sure this will get some comments in a few retailers' boardrooms. The report references Aldi in other countries having an impact on pricing. One important piece that is lost in that argument is how the existing retailers responded. Our understanding is that a huge amount of pressure was applied to suppliers to deliver lower costs to compete with a discounter. Might not be the solution we need in Canada.

Informing consumers

We agree unit pricing informs consumers, but it does not really help make the choice from store to store. It does help within the category, at the shelf. There are so many prices to remember and they do change. Many retailers do this now because they want you to buy their private label. We do not see this will change the overall situation much.

Peter Chapman is a retail consultant, professional speaker and the author of A la Cart-a suppliers' guide to retailer's priorities. Peter is based in Halifax, N.S. where he is the principal at SKUFood. Peter works with producers and processors to help them get their products on the shelf and into the shopping cart.

FOCUS: EQUIPMENT AND FARM MACHINERY

Tree Fruit Technology Day showcases labour-saving equipment

Cathy McKay, chair, Ontario Apple Growers, attended the Tree Fruit Technology Day along with her farm manager Rob Alexander.

Joe Pillitteri, president, Lakeview Vineyard Equipment, demonstrates the leaf remover for apple orchards.

KAREN DAVIDSON

Ontario's Tree Fruit Technology Day drew more than 120 growers and industry stakeholders to the Simcoe event on June 27, 2023. Organized by the Ontario Apple Growers and Ontario Tender Fruit Growers' Association, the event showcased several pieces of equipment that are in testing stage or in early adoption.

De-leafers are in early stage of adoption in apple orchards

Adopted in vineyards for their ability to open the canopy to more sun, de-leafers are now coming to apple orchards. Joe Pillitteri, president, Lakeview Vineyard Equipment, demonstrated a Collard E3200 leaf remover with the following features and benefits:

- front mounted heads, rear 3pt mounted compressor
- 2 complete row production
- twin rotor head – adjustable leaf removal zone from 11" to 24"
- efficient Ingersoll-Rand high volume air compressor
- electric over hydraulic control of all functions
- ergonomic joystick control
- no physical contact with fruit or canopy
- productivity up to 10 acres/hour
- simple operation – low-moving parts

Tom Ferri, T & K Orchards, purchased this machine in 2022 and shares his first-season experience in his 20-acre, high-density orchard near Clarksburg Ontario.

"This machine is useful in high-value red varieties such as Honeycrisp, Ambrosia and Gala," says Ferri. "We get paid $1,000/bin for Honeycrisp and it's worth the effort to achieve premium colour for premium value."

Summer pruning and de-leafing are the most time-consuming practice on the farm. So when labour was short in the summer of 2022, Ferri was able to achieve the same results with three workers rather than five due to this machine. Given those first-year results, Ferri expects a return on investment in two to three years.

Like any technology, there is a learning curve. The machine works with an air compressor that blows the leaves off the tree without disturbing the fruit. But different air volumes are needed depending on the apple variety. Gala, for instance, requires more air volume than a sensitive Honeycrisp.

"I also think that each growing season is different," says Ferri. "So we may need to adjust air volumes this year depending on how much moisture has been received and whether the trees are stressed."

Cell phones used for Crop Load Vision

Photo right: Reid Mitchener (L) and Jeff Chemeres, Croptracker, Inc., demonstrate how the Crop Load Vision product works.

Croptracker's Crop Load Vision technology continues to move forward.

Reid Mitchener and Jeff Chemeres demonstrated to growers how they can accurately measure and consolidate pre-harvest information without the need for expensive new equipment, resources or time. Growers will use their mobile phones to walk amongst the orchards and scan their trees.

Croptracker expects the Crop Load Vision product to have a limited release in 2023 with specific crop types.

FOCUS: EQUIPMENT AND FARM MACHINERY

Castellari orchard helpers: new to the Canadian market

Italian family-owned company Castellari has expanded its European base to North America. About 40 years ago, the first anvil-blade-style lopper was created. The tool was well received and since then its popularity has expanded, especially for tree fruits. The design reduces the kickback/vibration for the user.

"In 2017, we implemented a number of enhancements in our factory including robotic machinery and automated warehousing," says Enrico Castellari, based in Imola, Italy. Now a second-generation family manager, he attended the Tree Fruit Technology Day in Simcoe, Ontario along with North American sales representative Jim Brody.

With the arrival of the Internet era, the decision was made to increase brand awareness which is now supported by digital marketing on many fronts. In 2022, as a result of global growth, a new, modern and "green-friendly" factory added another 43,000 sq. ft, to satisfy the growing needs of customers.

This line of equipment is available through distributor Chris Hedges, owner of Ontario Orchard Supplies.

"Simply put, the Castellari product is lighter, staff like it better, cuts cleaner and requires less maintenance," says apple grower Chris Hedges. "We've been using other brands for years and once the staff try the Castellari brand, they don't want to give it up."

Photo left: Enrico Castellari, president of the Italian-based company, demonstrates anvil-style loppers that greatly reduce the kickback/vibration for the user. The design results in far less wrist and arm fatigue improving worker productivity and safety.

Photo middle: Ontario apple grower Rich Feenstra tries out the Castellari hand pruner.

Photo right: Enrico Castellari demonstrates the new tools to three temporary foreign workers.

FOCUS: EQUIPMENT AND FARM MACHINERY

Vivid Machines beta tests growth rate model in apples

KAREN DAVIDSON

Variable lighting, row widths, fruit varieties and tree widths – these are all considered and analyzed in an emerging technology for predicting yield in tree fruit orchards. It's technically difficult to distinguish green apples from green leaves. Now in its second year of orchard work, Vivid Machines Inc. is quickly improving the accuracy of its predictions to 90 per cent in most circumstances.

Jenny Lemieux, co-founder and CEO, Vivid Machines Inc., explained progress at the recent Fruit Tree Technology Day in Simcoe, Ontario. The goal is for the ATV-mounted camera sensor to count and size the fruitlets, the beginnings of a new crop so that hand thinning – or chemical thinning – can remove the heavy crop load and allow remaining apples to size properly.

As of summer 2023, Lemieux shares that growers in Ontario, Nova Scotia, Michigan, New York and Washington have committed a total of 5,000 acres to the technology. What's most encouraging to her is that some growers are now confident enough to run the ATV-mounted camera themselves. The aggregated data from all participating growers help to improve predictability for the next season.

Jenny Lemieux, co-founder and CEO, Vivid Machines demonstrates the benefits of an ATV-mounted camera in an apple orchard. With sensors and machine learning, it can detect and count blossoms and fruitlets in high-density apples. She's joined by Jonathan Binas, co-founder and chief technology information officer.

This close-up of developing apples is a good example of how occlusion must be considered in computer vision in order to accurately count the total number in the cluster.

"We're now trying a beta version of the growth rate model," she says. "This will predict the fruit set and how and where to pinpoint thinning. This is particularly helpful in large acreages. In the future, this system could replace hand counting."

"We're in the alpha stage of shareable maps that teams can use for precise thinning programs," Lemieux continues. "We're learning as fast as possible to deliver strong value for fruit producers."

After thinning, the ability to predict yield when small fruit is at 40 to 45 mm, would aid the apple industry. Growers could communicate with confidence to their packing teams about labour and packaging requirements and ultimately, retail customers, how much fruit will be available for the coming year.

> **We're in the alpha stage of shareable maps that teams can use for precise thinning programs. We're learning as fast as possible to deliver strong value for fruit producers.**
>
> ~ JENNY LEMIEUX

Autonomous wagon to be piloted by two growers

Chuck Baresich (L), Haggerty AgRobotics Company, showcases a pilot wagon designed by University of Waterloo robotics engineers.

Robotics engineers are becoming more engaged with agriculture every year. One such example is how the University of Waterloo engineering team has configured an autonomous wagon that can carry heavy weights on programmed stops in the field.

When Chuck Baresich, Haggerty AgRobotics Company, was invited to tour the University's Robotics lab a few months ago, he discovered the model. Amir Khajepour, professor and research chair at Waterloo, said it had been built for the mining industry. But the hardware and software could be modified for field or orchard use.

A model was displayed at the recent Tree Fruit Technology Day in Simcoe, Ontario.

As Baresich explains, it can be configured for two-axles or three-axles, and also varying dimensions (width and length). He and the team at Waterloo are now collaborating with a vegetable grower and orchardist on how it might be modified for specific horticultural uses. Picking up bins at designated stops in the orchard and returning to the packing house is one example.

FOCUS: EQUIPMENT AND FARM MACHINERY

LaserWeeder is a work in progress for high-value crops

KAREN DAVIDSON

Bob Kerr is in his 53rd crop year and still learning. At Kerr Farms, Chatham, Ontario, the latest adoption of farm equipment is the LaserWeeder. It's the 20th such machine in the world and the first in Canada. With machine learning, it is directed by the Kerr Farms' team. It is being developed by Carbon Robotics in Seattle, and is built in Detroit, Michigan.

The 20-foot machine is mounted on the three-point hitch of a tractor with an operator. Under bright strobe lights, a high-resolution set of 'predict' cameras makes a map. The computer and its program identify emerging weeds. The operation is most effective when weeds range from pinpoint to shot-glass size. Each of the 30 lasers are guided by its own 'target' camera and the computer, which directs the thermal laser beam through a scanner aimed by two position adjusting mirrors. The weeder targets the meristem at the base of the weed.

Kerr Farms is growing organic carrots and onions to be graded, packed and marketed by Nature's Finest Produce in Pain Court. Major retailers are seeking to increase the availability of these locally-grown organic vegetables.

Weed control is the biggest challenge in growing organic carrots and onions. In a pilot project, hand hoeing proved to be prohibitively expensive and hard to manage. The LaserWeeder represents a potential solution. It can operate around the clock. There are few moving parts to wear out. There is no soil disturbance promoting another flush of weeds. Pesticide use is displaced. Weed pesticide resistance is avoided.

"We focus on a 12-inch band over the row to make the most of our capacity," explains Kerr. "We travel slowly and cover one-quarter acre per hour, or five to six acres in 24 hours. We didn't fully anticipate how many seeds we had in our weed bank. Our cost per acre is higher than we originally calculated."

"We have recently experienced a series of rain events, including one of 6.25 inches over three days," he continues. "We have been idled for almost one-third of the days available this spring, more than expected. Rain or humidity also caused a few shorts and electrical repairs."

The support package costs USD $20,000. This includes a technical support team in Seattle which monitors the machine via internet. Photographs are sent daily to Seattle for machine learning. More experience raises the machine's confidence in weed identification. Kerr Farms contributed to team knowledge by introducing the velvetleaf weed to the system.

"We have put in more than 1,100 weeding hours this season," says Kerr.

The LaserWeeder is integrated into a broader weed control program. This consists of a pre-emerge pass with a propane flamer to remove early weeds. Then, the expectation is to carry out two or three passes with the LaserWeeder then to cultivate between the beds. After that, a Weed Zapper electrocutes weed escapes that rise above the carrot canopy.

Based on current experience, the 2024 plan is to space out plantings to facilitate laser weeding timing, when the weeds are small. The goal is to effectively handle 110 acres of carrots and 35 acres of onions. Profitability will be determined by the value of the vegetables produced.

"One positive is that carrot grade-out is worth only a little less than retail carrots," Kerr concludes.

AgRobotics Working Group is hosting several demos

KRISTEN OBEID

Since March 2021, an AgRobotics Working Group comprised of more than 130 people (OMAFRA staff, Haggerty Creek AgRobotics Company Ltd., growers, grower associations, agri-business, universities and colleges, federal and municipal governments and technology companies) have been meeting weekly. The group brainstorms about available and future technologies, builds networks and collaborations, conducts on-farm demonstrations, and builds cross-functional teams to apply for funding opportunities in hopes of ground truthing these technologies in Ontario production systems.

The technology companies are impressed with the diversity of production, government support and research capabilities in Ontario. We're a long way off from wide-spread use of robotics in field and horticulture crops because there's so much to learn. But we are learning together and are asking the tough questions with current projects.

The AgRobotics Working Group has hosted several events this summer:

1. Carbon Robotics LaserWeeder TM demonstration day on May 25, 2023 at Kerr Farms.
2. Field Tour showcasing the Naio Oz, Dino and Ted, the AgroIntelli Robotti, Korechi Innovations HCW, and Carbon Robotics LaserWeederTM on July 5, 2023 which started at Haggerty AgRobotics Company.
3. Demonstration Day showcasing the Piketa Systems real time plant tissue analysis, the Naio Orio and the FarmDroid FD20 on July 12, 2023 which started at the Ontario Crops Research Station in Bradford.

If you would like to join the AgRobotics Working Group, please contact kristen.obeid@ontario.ca

Managing Botrytis neck rot in garlic

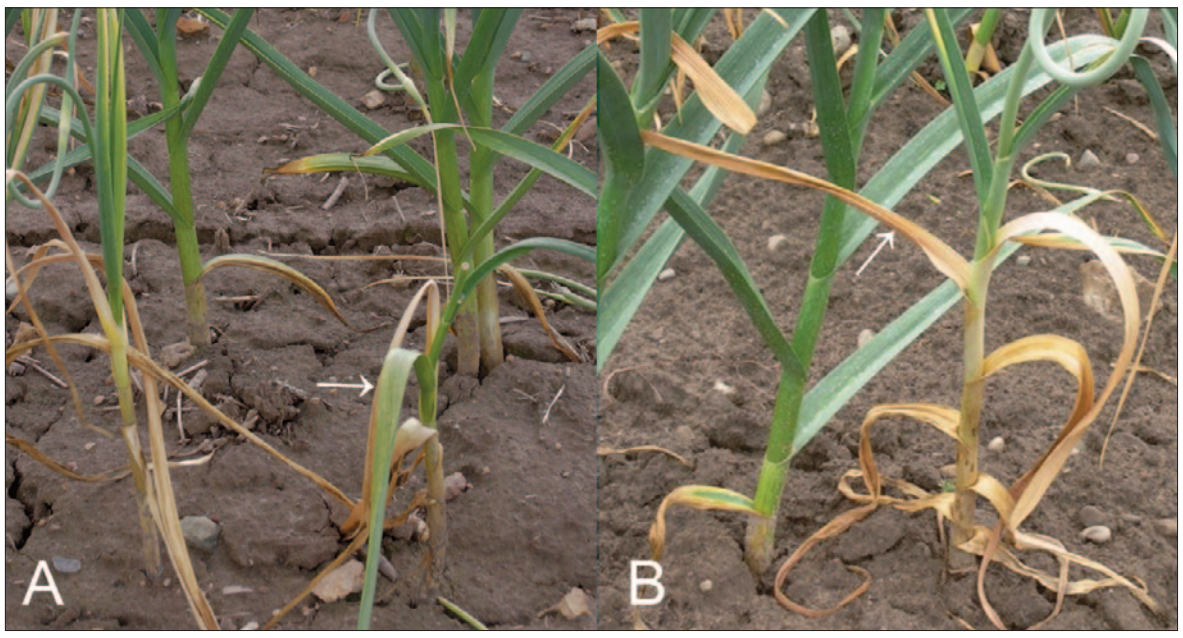


Figure 1. Infected plants with Botrytis neck rot show wilted leaves which turn yellow starting from the oldest leaves first (A). Leaves of plants infected with stem and bulb nematode yellow before they wilt (B).

Figure 2. When some plants are pulled, the bulb remains in the ground. Greyish-brown mould / mycelium is found on the outside necks of plants above the crown. Black sclerotia are also seen below the mycelium on the stem.

Figure 3. Black sclerotia of Botrytis neck rot form on the neck/bulb with grey mycelium along the neck.

TRAVIS CRANMER &
KATIE GOLDENHAR

Botrytis neck rot, caused by the fungus *Botrytis porri*, is an uncommon disease in Ontario, but some areas in 2023 have received the cool and wet conditions required to cause disease in garlic fields. There are several species of *Botrytis* that infect garlic including *B. porri*, which has been documented to generally infects plants through wounds.

When *B. porri* colonizes the bulb and crown, lower leaves show symptoms first. Plants appear stunted and green leaves can develop water-soaked lesions, wilt and eventually turn yellow (Figure 1A). Plants infected with stem and bulb nematode show similar symptoms with yellowing of the leaves from the bottom of the plant moving upward (Figure 1B).

When plants are pulled, greyish-brown mould / mycelium is found on the outside necks of plants above the crown (Figure 2). As the disease progresses, black fungal bodies known as sclerotia up to 7 mm (~1/4 inch) in size form on the outside of the bulb and neck (Figure 3). The outer wrappers of the bulb break down and secondary infections from other pathogens, such as *Fusarium* or *Penicillium* can follow. Harvested bulbs with Botrytis neck rot generally have few to no bulb wrappers remaining at harvest.

If only a few plants are found throughout the season, rogue out these plants to reduce inoculum levels. Avoid excessive irrigation and late applications of nitrogen.

The sclerotia can survive on dead plant material and the soil for several years, depending on soil conditions, residue depth, tillage and soil moisture. *Botrytis porri* is limited to hosts in the Allium family. Development in the field is greatest when cool, damp and cloudy weather persists. Sclerotia germinate under these conditions and release spores that can be carried by the wind to infect new plants throughout the growing season (Crowe 2002).

In storage, Botrytis grey mould survives on the surface of the bulbs or between leaf/wrapper layers and can move between cloves through the bulb's basal plate (Jepson 2011). *Botrytis porri* is a weak pathogen that generally colonizes wounds. Reducing the time between cracking / splitting of the bulbs into cloves in the fall and planting is crucial for reducing the chances that wounds created from the cracking process are colonized by *B. porri* before they are planted.

Fungicides for both conventional and organic production are registered for *Botrytis spp.* and can be found in the Ontario Crop Protection Hub. Applications should be aimed earlier in the season in fields where Botrytis neck rot has been a problem in the past and if conditions are favourable for disease development.

In summary:

- Plant as soon as possible after cracking bulbs into cloves
- Avoid planting cloves with any fungal colonization
- Dig up suspect plants in the spring with lower yellow leaves and inspect the crown for grey mould or sclerotia
- Incorporate crop residue after harvest and avoid returning to the field with susceptible crops (Allium *spp.*) for three years or more.

Crowe, F. (2002). Towards improving control of botrytis dry rot of garlic (Botrytis porri). Central Oregon Agriculture Research Center 2001 Annual Report. 92-97.

Jepson, S.B. (2011). Botrytis rot of stored garlic. Oregon State University Extension Service.

Misawa, Ueno, R., Kurose, D., & Nakahara, K. S. (2020). First report of Botrytis porri causing Botrytis leaf blight on leek in Japan. New Disease Reports, 41(1), 19–19. https://doi.org/10.5197/j.2044-0588.2020.041.019

du Toit, Derie, M. L., Hsiang, T., & Pelter, G. Q. (2002). Botrytis porri in Onion Seed Crops and Onion Seed. Plant Disease, 86(10), 1178–1178. https://doi.org/10.1094/PDIS.2002.86.10.1178C

Travis Cranmer is an OMAFRA vegetable crop specialist with responsibility for Alliums, Brassicas and leafy greens.

Katie Goldenhar is OMAFRA plant pathologist – horticulture crops.

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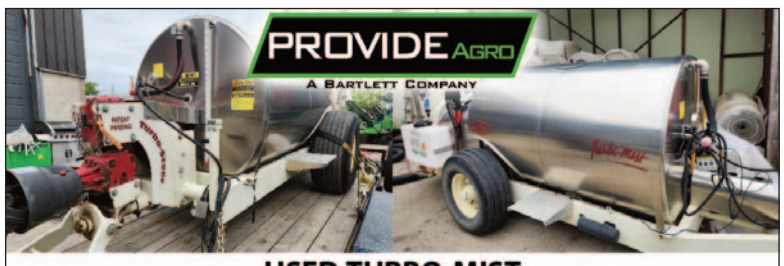

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CROP PROTECTION

PMRA registers new modes of action and continues re-evaluations

CHRIS DUVYELSHOFF

It has been a busy year for the Pest Management Regulatory Agency (PMRA) – Canada's national regulator of crop protection products. While much attention in 2023 has been focused on policy development and the PMRA's ongoing Transformation Program, the agency's core work, the evaluation and review of products must continue.

It is up to the PMRA to review products to ensure they do not pose unacceptable risks to human health or the environment and have value when used according to label instructions. These assessments are required before a product can be sold or used in Canada. These activities center around specific active ingredients, including new registrations, cyclical re-evaluations based on a 15-year timeline, and special reviews. These decisions ultimately decide which products are allowed to be in the grower's crop protection toolbox. The following summary outlines the major activities taking place so far in 2023.

Re-Evaluation decisions

Several final decisions have been made for conventional and biological active ingredients used in crop protection. Fortunately, no re-evaluation decisions have been made to date this year resulting in cancellations or major changes to product labels.

Proposed re-evaluation decisions have also been made for abamectin and azoxystrobin, both of importance to fruit and vegetables. Abamectin (Avid, Agri-Mek, Minecto Pro) is a Group 6 insecticide, the only member from its mode of action registered in Canada. It is particularly useful for mites, thrips and psyllid control. Azoxystrobin (Quadris, Quadris Top, Elatus, Asoshy) is a Group 11 fungicide, and a widely used seed treatment, in-furrow, and foliar product in outdoor fruit and vegetables. Proposed decisions for both products were favourable for continued uses.

Notable upcoming re-evaluation/special review decisions are chlorothalonil fungicide (Bravo, Echo) and S-metolachlor herbicide (Dual, Boundary, Komodo), both expected in early 2024.

Novel product registrations

Several new products and label expansions have been registered by PMRA in 2023, all helping to provide an expanded toolbox for growers. Of note, multiple new novel modes of action have been registered, including two fungicides, one insecticide, and a plant growth regulator. Additional novel modes of action are particularly valuable when registered on a crop.

1-ACC or Accede – This plant growth regulator is found naturally in plants as 1-aminocyclopropane-1-carboxylic acid. It is a biological precursor to ethylene synthesis in the plant, and once 1-ACC is applied to the crop it is converted to ethylene, a well-known plant hormone. It is registered for fruit thinning of apples, and in particular has peak activity when fruit diameters are 15-20 mm, beyond the range of current fruitlet thinners, providing thinning when otherwise hand removal would be needed. Unlike any previous commercial thinners, 1-ACC also has activity on stone fruit, and is registered for this purpose in the U.S. This will be of great interest to Canada's stone fruit producers, who currently have no thinning products. This product is also MRL exempt as there are no residues expected at harvest.

Ipflufenoquin or Kinoprol – This product represents a new mode of action classification as a Group 52 fungicide. Now registered for scab and powdery mildew in pome fruit, ipflufenoquin has broad-spectrum activity against several important pathogenic fungi, including: Alternaria, Botryosphaeria, Botrytis, Sclerotinia, Cladosporium, Colletotrichum, Fusicladium, Fusarium, Monilinia, Podosphaera, Venturia, and Phomopsis. The registrant is already looking at stone fruit, grape, and tree nuts and a minor use project through the Pest Management Centre (PMC) will be starting next year on greenhouse cucumber. This will be an alternative mode of action and potential rotational partner to commonly used products in Groups 3, 7, 9, and 11.

> **1-ACC or Accede, a plant growth regulator found naturally in plants as 1-aminocyclopropane-1-carboxylic acid, has activity on stone fruit. This product will be of great interest to Canada's stone fruit producers who currently have no thinning products.**
>
> ~ CHRIS DUYVELSHOFF

Florylpicoxamid or GF-3840 – This product also represents a new mode of action classification as a Group 21 fungicide. While a Group 21 fungicide is registered in Canada, the existing product is specific to oomycete diseases such as downy mildew and late blight, whereas florylpicoxamid targets true fungi. Now registered for several field crops and Cercospora control in sugarbeet, florylpicoxamid also has broad spectrum activity against several important pathogenic fungi. Almost 15 minor use projects are already complete by PMC for future label expansions into a range of field and greenhouse crops covering several different diseases. This will also be an alternative mode of action and potential rotational partner to commonly used products in Groups 3, 7, 9, and 11.

GS-omega/kappa-Hxtx-Hv1a or Spear – This product is a new mode of action classification as a Group 32 insecticide. The product is a peptide (short protein), derived from the venom of the Blue Mountain funnel-web spider, native to Australia. Now registered on a range of greenhouse and outdoor vegetable, berry, and tree fruit crops, Spear targets soft-bodied insects such as mites, thrips, whiteflies, and spotted-wing drosophila. It was also found that Spear is synergistic with Bacillus thuringiensis (Bt) based products, and the combination can be used to control Lepidopteran caterpillars under the Spear-Lep label.

Chris Duyvelshoff is crop protection advisor for the Ontario Fruit & Vegetable Growers' Association.

Photo by Marcella DiLonardo

CROP PROTECTION

Switch 62.5 WG fungicide has received emergency use registration

JOSH MOSIONDZ

The Pest Management Regulatory Agency (PMRA) recently announced the approval of an Emergency Use Registration (EUR) for Switch 62.5WG fungicide for suppression of Alternaria leaf blight (Alternaria brassicicola) on Brussels sprouts, broccoli, and cauliflower in numerous provinces in Canada. This EUR for Switch 62.5WG fungicide on listed Brassica crops can be used only in Ontario, Québec, Nova Scotia, and Newfoundland and Labrador from July 8th, 2023, until July 7th, 2024.

Switch 62.5WG fungicide is labeled for management of diseases on a wide range of crops in Canada. The use on Brussels sprouts, broccoli and cauliflower has already been submitted for review as a full label expansion via a provincial User Requested Minor Use Label Expansion (URMULE) with the hope for full registration by the 2024 field season. This EUR request was initiated by participating provinces in response to the reduced number of chlorothalonil applications permitted on the crops following RVD2018-11 and a lack of sufficient registered protective products to allow for proper rotation and season-long disease protection. This EUR was led by Ontario in conjunction with the Fresh Vegetable Growers of Ontario (FVGO) and other participating provinces' provincial Ministries of Agriculture and their local growers' associations.

The following is provided as an abbreviated, general outline only. Users should be making disease management decisions within a robust integrated disease management program and should consult the complete emergency use label before using Switch 62.5WG fungicide.

For these uses, Syngenta Canada Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

TOXIC to aquatic organisms. Observe spray buffer zones specified under DIRECTIONS FOR USE. Fludioxonil is persistent and may carry over. It is recommended that this product not be used in areas treated with any products containing fludioxonil during the previous season. To reduce runoff from treated areas into aquatic habitats, avoid applications to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body.

Crop(s)	Target	Rate (g product/ha)	Application Information	PHI (days)
Broccoli, Brussels Sprouts, Cauliflower	Suppression of Alternaria Leaf Blight (*Alternaria brassicicola*)	775 – 975	The first application should be made when disease first appears and continue on 7-to-10-day intervals. Apply in sufficient water volume to obtain thorough coverage; a minimum spray volume of 200 L/ha is recommended. Up to 3 applications per year may be made to the crop.	7

Follow all other precautions, restrictions, and directions for use on the Switch 62.5WG fungicide label.

For a copy of the emergency use label, Ontario growers may contact Josh Mosiondz, provincial minor use coordinator, OMAFRA, Guelph (226) 971-3407, Katie Goldenhar, pathologist – horticulture, OMAFRA, Guelph (519) 835-5792, or Travis Cranmer, vegetable crops specialist, OMAFRA, Guelph (519) 835-3382. Non-Ontario growers from participating provinces may contact their local provincial minor use coordinator or provincial crop specialist(s). Alternatively, you may contact your regional supply outlet, Syngenta Canada Inc. representatives, or visit the PMRA label site.

Josh Mosiondz is minor use coordinator, OMAFRA.

Pardner herbicide label expanded for some Allium crops on muck soils

JOSH MOSIONDZ

The Pest Management Regulatory Agency (PMRA) recently approved a minor use label expansion registration for Pardner herbicide for control or suppression of labelled weeds on leeks, and dry bulb onions, dry bulb shallots, and green onions grown on muck soils in Canada. Pardner herbicide was already labeled for management of weeds on a wide range of crops in Canada. These minor use proposals were submitted by the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec and Agriculture and Agri-Food Canada's Pest Management Centre (AAFC-PMC) as a result of minor use priorities established by growers and extension personnel.

Crop(s)	Target	Rate (L product/ha)	Application Information	PHI (days)
Leek	Suppression or Control of Labelled Weeds	0.5 (two applications per year) OR 1.0 (one application per year	Apply PARDNER Herbicide at 1.0 L/ha to leeks 10-14 days after transplanting. Apply only once per year when using this single application rate of 1.0 L/ha **OR** Apply PARDNER Herbicide twice per season, each time at a rate of 0.5 L/ha. The first application should be made 10-14 days after transplanting followed by a second application 7-10 days after the first. Apply only twice per year when using this split application rate of 0.5 L/ha. Apply using ground equipment only. Refer to label for further instruction.	60
Onion (dry bulb), Shallot (dry bulb), Green Onions grown on muck soils	Suppression or Control of Labelled Weeds	1.0 – 1.2	Apply only to onion (dry bulb), shallot (dry bulb) and green onion grown on muck soils containing greater than 10% organic matter. Apply after planting before crop emerges, by ground application only. One application per year.	45 days for green onions 75 days for onion (dry bulb) and shallots (dry bulb)

The following is provided as an abbreviated, general outline only. Users should be making weed management decisions within a robust integrated weed management program and should consult the complete label before using Pardner herbicide.

For a copy of the new minor use label contact your local extension specialist, regional supply outlet, or visit the PMRA label site http://www.hc-sc.gc.ca/cps-spc/pest/registrant-titulaire/tools-outils/label-etiq-eng.php

Josh Mosiondz is minor use coordinator, OMAFRA, Guelph, ON

Optimize Fruit Bulking with "Science Driven Nutrition"™

Growers have four main windows of opportunity to maximize their harvest as the apple crop's nutritional needs change through the season. Apple bulking, when fruit cells expand and the apple increases in size and weight, is an important opportunity to impact fruit development. Growers who use Science-Driven Nutrition™ to better understand their apple crop can support optimal growth and an enhanced marketable yield.

A proper nutrition plan ensures cohesiveness throughout the growing season. Bulking is the period of time when growers must focus on facilitating the production and movement of sugars into the cell structures. During cell division, the crop timing prior to the fruit bulking window, growers increased calcium applications to support fruit cell development and fruit firmness. When this opportunity to introduce calcium into the fruit ends four-to-six weeks post petal fall, maintenance applications using products like Agro-K's **Vigor Cal™** or **Calcium 7%**, are required to support tree growth and fruit firmness.

In addition to supplemental calcium, the apple tree requires an increased amount of energy to support the rapid leaf expansion and shoot growth that occurs at this time. Agro-K's **AgroBest 9-24-3** is an excellent source of phosphorous, which is a key nutrient behind the energy driving healthy cell development. Zinc assists with the leaf and vascular tissue development on the new growth, while magnesium, manganese, sulfur and iron synergize to maximize chlorophyll production and photosynthesis. Agro-K's **Zinc Plus +5** is a great example of foliar products containing multiple micro nutrients designed to support leaf development and function during fruit bulking.

Potassium, which helps to move sugars throughout the plant and regulates plant moisture through the opening and closing of the stomata, is one of the most important nutrients during this time. The apple crop's potassium needs increase exponentially during the summer months. Fruit color, weight and uniform maturity at harvest all hinge on maintaining proper potassium levels during cell bulking with products like Agro-K's **KDL** and **Potassium 0-0-6**. Excessive nitrogen, an inhibitor to fruit color, must also be avoided during this crop window.

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During apple bulking, Agro-K's soft foliar products ensure producers don't inadvertently create fruit lenticel cell damage, a problem that inevitably worsens over time. Agro-K's **Vigor** and **Dextro-Lac** product lines are designed to safely improve crop performance by enhancing nutrient uptake and utilization. Using soil testing, sap analysis, fruit sampling and other tools, growers determine which products will be most helpful for their unique orchard.

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