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PARTNERSHIPS

The stairway to heavenly Jupiter table grapes took seven years



An old winery building provides the scenic backdrop to a new table grape grown near Niagara-on-the-Lake, Ontario. Members of the Ontario Fresh Grape Growers' Marketing Board such as Jourdan Tregunno hope that the seedless Jupiter variety may appeal to a different consumer segment with its candy-like flavour. Photos by Glenn Lawson.

KAREN DAVIDSON

Indigo blue, seedless and addictively tasty, Jupiter table grapes are being sampled by small flocks of consumers this fall. Those lucky enough to come across the first trial in select Costco and Metro stores in mid-September are picking the stand clean.

For Jourdan Tregunno and 86 fellow members of the Ontario Fresh Grape Growers' Marketing Board (OFG-GMB), hopes are high for the new entry of locally-grown table grapes that mature after the Sovereign Coronation crop finishes. Testing at 18° brix on September 13, Jupiter grapes represent an opportunity to extend the marketing window to the end of the month. That timing would be ideal for this snacking grape in school lunches.

"This grape tastes like candy," says Tregunno. "We think this fresh grape should be marketed towards kids."

“

This grape tastes like candy.

~ JOURDAN TREGUNNO

”

Just two acres of Jupiter grapes were grown commercially this year, tucked away in a Niagara-on-the-Lake vineyard owned by Tregunno Farms. Hesitant to commit too many resources into this new grape, Tregunno explains that it's important to evaluate the agronomics and yield potential before expanding to a larger footprint. He was heartened by bud hardiness levels and winter survivability in both 2019 and 2020.

The variety development project, now in its fourth of five years, is under the umbrella of the OFGGMB. In the past, Sovereign Coronation grapes have represented the bulk of sales, but growers have realized that their sweet-and-sour flavour appeals to a loyal but niche market. Sales topped \$5.1 million in 2019 and slipped to \$3.8 million in 2020 under drought conditions, but growers aspire to better those farmgate values.

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Shift to larger farms PG 6

Ginseng outlook PG 7

Storage, containers and packaging PG 12

AT PRESS TIME...



Plastic use documented by ag sector

Cleanfarms has released a Canada-wide study that identifies the types and amounts of on-farm plastic used across the country. The research estimates that Canadian farmers use nearly 62,000 tonnes of ag plastic products and packaging annually.

The study also documents how much plastic is generated by sector and by region across the country. The infographic (below) details where single-use plastic is generated in Canadian horticulture.

This data helps stakeholders understand foundational information about what plastics are in use, where they are used and their resin-type. The pilots that are the focus of Building a Zero-Plastic Waste Strategy for Agriculture help explore efficient systems to recover these plastics so they are recycled and reintegrated into the economy.

The report also provides an

overview of existing programming and recommendations to increase ag plastics recycling capacity. This project was undertaken with the financial support of the Government of Canada through Environment and Climate Change Canada.

Source: Cleanfarms September 20, 2021 news release

Minority Liberal government returned

A minority Liberal government is going back to Parliament with 158 seats under Prime Minister Justin Trudeau. Time will tell if a new cabinet will be announced.

The current agriculture and agri-food minister, Hon. Marie-Claude Bibeau, (Compton-Stanstead) handily won her seat with more than 9,000 votes ahead of her Bloc Québécois opponent. She was first appointed to the role on March 1, 2019.

The Conservative ag critic,

Dave Epp, (Chatham-Kent Leamington), won his seat as did NDP ag critic Alistair MacGregor (Cowichan-Malahat-Langford) and Bloc Québécois ag critic Yves Perron (Berthier-Maskinongé).

The Canadian Produce Marketing Association congratulated all parliamentarians and reiterated key priorities:

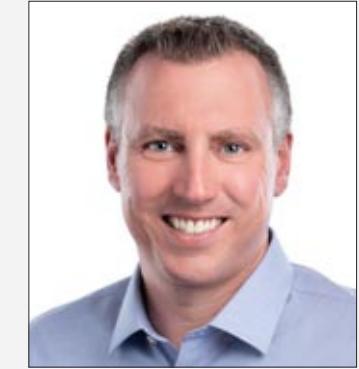
- Providing financial protection for produce sellers;
- Supporting a sustainable produce sector;
- Reducing unnecessary and problematic plastics;
- Bridging the labour gap in the fresh produce sector;
- Strengthening Canada's food system and fostering healthy communities;
- Fueling our industry's competitiveness through innovation and infrastructure;
- Promoting Canadian produce through global trade; and
- Ensuring meaningful consultation to achieve effective regulatory modernization.

Best wishes to Kevin MacIsaac, general manager of the United Potato Growers of Canada, who is retiring this fall. From his base in Prince Edward Island, he has devoted the last decade to improving the capacity of the organization to share timely data so that growers could make informed production and marketing decisions. A veteran of Canada's potato industry, MacIsaac's diversified career spans 42 years as an extension agronomist, farmer, industry organizer and articulate advocate for agriculture.



Kevin MacIsaac

Nova Scotia premier Tim Houston and his new Conservative cabinet were sworn in August 31. In a surprise move, he named long-time radio news director Greg Morrow (MLA Guysborough-Tracadie) to the role of minister of agriculture. In his campaign literature, Morrow said he would be an advocate of improving infrastructure such as internet service and road repairs. John Lohr (MLA Kings North) a vegetable and herb farmer from Canning, was appointed minister of municipal affairs and housing.



Greg Morrow

Ecoation has announced that Mauricio Manotas is joining the team as chief revenue officer in November 2021. He brings more than 20 years of experience as a global leader in horticulture, most recently holding the role of president and managing director at Ludvig Svensson Inc., a climate screen provider.

The Rural Ontario Institute has a new executive director. Ellen Sinclair brings experience in planning, economic, business and community development in both northern and southwestern Ontario. The institute is a charitable not-for-profit that delivers leadership-building programs in rural Ontario.

Félicitations to hard-working organic vegetable growers Geneviève Grossenbacher and James Thompson who were named Québec's 2021 Outstanding Young Farmers at an event held September 2. Their farm "Notre petite ferme" is located in Lochaber-Partie-Ouest, northwest of Montreal. The national event will be virtual, December 1-3.

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BELow THE BORDER

Supply chains affected by Los Angeles Port logjam



In mid-September, Bloomberg News reported that the Port of Los Angeles and Long Beach have breached another record with 55 ships at anchor. The average wait time to unload is more than eight days, adding costs during a peak season when companies are rebuilding inventories.

The average wait time rose to 8.5 days compared with 7.6 days in late August.

Los Angeles officials have run out of anchorage space for overflow traffic with 17 ships in "drift zones" which are used in times of extreme volume while ships wait for shallower water to drop anchor safely.

COVER STORY

The stairway to heavenly Jupiter table grapes took seven years



Patented by the University of Arkansas, Jupiter table grapes were discovered by Michael Kauzlaric, technology scout and grower outreach for Vineland Research and Innovation Centre. He noted several attributes: seedless, decent berry size, a harvest window that was different from Sovereign Coronation, good post-harvest quality and a positive consumer response from tastings.

Gross farm gate value of Ontario fresh grapes, 2016-2020

| YEAR | NET FARM GATE VALUE | AVERAGE RETURN* | VOLUME |
|------|---------------------|-----------------|--------|
| | | PER TON | |
| 2020 | \$2,510,150 | \$1,867 | 1,328 |
| 2019 | \$3,375,250 | \$1,743 | 1,937 |
| 2018 | \$2,891,469 | \$1,759 | 1,643 |
| 2017 | \$3,471,258 | \$1,770 | 1,961 |
| 2016 | \$2,427,190 | \$1,730 | 1,403 |

*Returns are net after deducting all shipper commissions, board fees, and container costs.

Source: Ontario Fresh Grape Growers' Marketing Board.

Continued from page 1

As David Hipple, chair, OFGGMB, says, "We found a different consumer in our taste studies. The Sovereign Coronation grape has a thick skin and tastes like a Concord. The Jupiter grape has a thin skin and is sweeter. I think Jupiter grapes are a pure growth opportunity without cannibalizing the market we have with Sovereign Coronation grapes."

Current estimates are that Ontario's fresh grapes earn just 1.8 per cent of the entire marketplace, with California imports dominating the category. Hipple calculates that doubling that market share is attainable if growers ramp up to 50 acres. To date, the limited supply of virus-tested budwood is crimping rapid expansion.

To borrow an old phrase, it takes a village to bring up a new project. Hipple acknowledges funding provided by Agriculture and Agri-Food Canada, in partnership with Vineland Research and Innovation Centre (Vineland). The first vines were planted at Vineland on June 10, 2014, but not before another company, Vinetech, had certified virus-free budwood from the U.S.

"Through scouting different breeding programs in both cool and warm climates around the world, I found the University of Arkansas as an option," recalls Michael Kauzlaric, technology scout and grower outreach, Vineland. "Where their grape breeding is undertaken, winter temperatures may fall to -15°C."

Kauzlaric noted several attributes: seedless, decent berry size, a harvest

window that was different from Sovereign Coronation, good post-harvest quality and a positive consumer response from tastings. Before importing it for initial trials at Vineland, he tasted the grape on the vine.

It's an interspecific seedless Muscat grape with the Muscat flavour emanating from a *vitis vinifera* variety and the seedlessness from a *vitis labrusca* variety. American researchers estimate a yield of eight to 13 tons per acre, but those numbers are yet to be tallied under this season's Ontario growing conditions.

Besides Dr. John Clark, the University of Arkansas breeder, private breeders are investing in the lucrative table grape market. International Fruit Genetics, based in Bakersfield, California, launched several varieties in 2020 with fanciful names such as Bebop, Kokomo, Julep and Gracenote. Andy Higgins, CEO since 2016, predicts that grapes won't be just red, green or black anymore, but tri-coloured. The company's genetic pipeline is geared towards sweeter, snacking grapes.

In keeping with these trends, the OFGGMB has looked to other potential entries besides Jupiter. Sarah Marshall, general manager, OFGGMB, says that other imported varieties of seedless green, red and bi-colour grapes are currently in local trials.

To take these varieties to a younger demographic in the marketplace, packaging is an important consideration. For the Jupiter variety, the OFGGMB marketing committee and partners chose miDori Biosolutions. The 1.5 pound/680 gram stand-up pouch contains an organic additive that speeds up biodegradation in



Jourdan Tregunno uses a refractometer on September 13 to determine a brix level of 18°.



Biodegradable packaging was developed by a marketing committee which included Vineland Growers' Cooperative, Niagara Orchard and Vineyard Corporation, OFGGMB staff and members and Vortex Packaging.

landfills. The packaging for Jupiter grapes contains a QR code at the bottom that leads consumers to its website.

All of these elements – breeding, propagating, trialling, growing, marketing and packaging – have coalesced to bring Jupiter table grapes to Ontario consumers. The story of the oval-shaped grape is still being crafted for kids and adults alike. A cluster would look totally in place on a charcuterie board surrounded by artisanal cheeses.

As of mid-September, the 2021 crop is looking so promising with heavy yields of 800 to 1000 cases (18 lb/case) per acre that Tregunno would be happy to transition his block of Sovereign Coronation to the premium-priced Jupiter variety. If several growers jump to Jupiter, 50 acres would represent 50,000 cases and just under a million dollars of farmgate value. Only time will tell how fast those numbers can be achieved.

For his part, Tregunno has enlisted his 20-month-old to toddle into the vines.

"He knows what he wants," says Tregunno. "He can't get enough of them."



CROSS COUNTRY DIGEST

BRITISH COLUMBIA

Heat dome shrunk blueberry crop by 30 per cent

Official numbers to be known in early 2022, says BC Blueberry Council

British Columbia's blueberry growers are lamenting a much shorter crop in 2021, due to various factors including the late-June, heat-dome event. The history-breaking temperatures of 42.9°C in Abbotsford, for example, explain the heat scorch damage and the resulting loss of about 30 per cent of the crop.

The Council is estimating that the 2021 crop will be down 30 per cent from a combined production average of more than 200 million pounds in 2019 and nearly 185 million pounds in 2020.

"With this summer's heat

waves posing an issue to growers, the BC Blueberry Council was diligent in sending reminders and resources about keeping crops and workers safe from the heat," says Clara Moran-Sakalauskas, marketing and PR coordinator.

Crop insurance and AgriStability may compensate for some income losses. The AgriStability application deadline for the 2021 season has been extended to December 2022.

Details here:
<https://bit.ly/3zj1KZH>

"As our industry continues to experience climate and weather-related events, the Council is

seeking ways to support the industry from prevention to protection," says Moran-Sakalauskas. "Advocacy for better coverage from Business Risk Management Programs is a priority. The Council has been involved in a number of industry projects, including work in tarp application for heat protection, flood risk mitigation and blueberry variety suitability to protect against external factors."

Due to the federal election, agricultural leaders are waiting for new dates to be set for the Federal-Provincial-Territorial ag minister's conference to discuss



Business Risk Management Programs.

Photo of heat scorch damage.

ALBERTA

No zebra chip pathogens found in monitoring project

Dr. Dmytro Yevtushenko, potato scientist, University of Lethbridge, has reported on the potato pest monitoring program at the University of Lethbridge with the good news that no zebra chip pathogens were found.

"Although we did not see any potato psyllids last summer, we anticipated that the psyllid numbers would increase this year as these up-and-down fluctuations are quite common in insect populations," says McDade. "Well, we were right. We have seen lots of psyllids, especially during this August."

Annelise Den Hertog and Dylan Jones have been performing the morphological identification (using light microscopy) of potato psyllids and other insect pests. All detected psyllids are subjected to molecular analysis in the lab, performed by

Dr. Maria Munawar. The procedure includes isolation of insect DNA from individual insects (yes, those tiny and barely visible creatures of 2 mm long) and performing PCR analysis using species-specific DNA primers.

The PCR analysis consists of two parts: first, the species identity is confirmed i.e., that the psyllid is indeed a potato psyllid and not a similar looking other species. Second, these psyllids are analyzed for the presence of the zebra chip pathogen - *Candidatus Liberibacter solanacearum* (Lso).

As of September 1, no zebra chip pathogen was found in the potato psyllids that been collected from the insect monitoring surveillance network.

Two summer students monitored daily changes in concentrations of airborne spores

of *Phytophthora*, *Alternaria*, and *Fusarium* collected from a network of Burkard automatic multi-vial spore traps, placed across potato fields. The team conducted meticulous and timely work on pathogen identification, ensuring high confidence in the early disease warning system for Potato Early Dying (PED) complex.

Throughout the growing season, Atta Ur Rahman (M.Sc. student) has been surveying designated potato fields, ranking the plants for PED symptom development, and collecting tissue samples from the plants. In the University of Lethbridge lab, the collected tissues are used for isolation of pure pathogen cultures and for molecular analysis. The purpose of this activity is to identify all pathogens contributing to PED in Alberta



Dr. Dmytro Yevtushenko

(in addition to *Verticillium* spp., we suspect involvement of other pathogens), and to see the colonization of plant vascular tissues with pathogen(s) over time.

"The latter will help us to determine how early colonization starts, who is the main culprit and who is just an opportunistic microorganism," says McDade.

Powdery scab of potatoes

The University of Lethbridge is starting a new project, in collaboration with Syngenta

Canada Inc. and PGA, to study powdery scab of potatoes. The project will focus on the presence and population levels of the causal agent *Spongospora subterranea* f. sp. *subterranea*, and establishment of region-specific threshold(s) for the pathogen at which disease can develop. This project starts in January 2022.

Source: Potato Growers of Alberta September 1, 2021 newsletter

SASKATCHEWAN

Water demands likely to increase in South Saskatchewan River Basin

As farmers adopt high-tech irrigation systems to manage water use for economic, conservation and environmental reasons, University of Saskatchewan (USask) researchers suggest policymakers should enact measures to curb an "agricultural rebound phenomenon" that increases water demand over time.

"Due to modern irrigation, many farmers can switch to higher value crops and expand irrigation acreage to increase profits, which can increase agricultural water demand," said Mohammed Ghoreishi, a PhD candidate at the School of

Environment and Sustainability (SENS) and a researcher at USask's Global Institute for Water Security (GIWS).

The USask research paper is based on a study of what's happening in the Bow River Basin, where the Alberta government is managing the water resource and balancing the needs of groups, from individuals to municipalities to commercial enterprises, through licensed water allocations.

With the Saskatchewan government ready to embark on a major agricultural irrigation development, the Alberta experience provides useful lessons,

he said.

In the Bow River Basin, many farmers who adopted modern irrigation systems and benefited from higher yields, reduced labour, and more precise application of fertilizer and chemicals, are using their surplus water allocations to expand operations and move to higher-value crops.

If water conservation is a goal, said Ghoreishi, the lack of restriction on unplanned expansion can be concerning, and the government might need to consider buying back some water rights in such cases.

"Imagine that a severe drought



happens after many farmers expand their irrigated areas due to a so-called water conservation program. Probable increase in agricultural water demand in Alberta may create a downstream impact," he said, noting that Saskatchewan could be on the

receiving end of this problem as it shares the water flow on the South Saskatchewan River.

For research paper, link here: <https://bit.ly/2WBJudc>

Source: University of Saskatchewan August 30, 2021 news release

THE GROWER

CROSS COUNTRY DIGEST

QUÉBEC

Outstanding Young Farmers 2021 grow organic vegetables

Organic vegetable growers Geneviève Grossenbacher and James Thompson were named Québec's 2021 Outstanding Young Farmers at an event held September 2. Their farm "Notre petite ferme" is located in Lochaber-Partie-Ouest, northwest of Montreal.

For the first time in its history, the event was presented in virtual mode and with simultaneous translation, allowing nearly 800 people from across Canada to tune in. The winners will represent the Québec region at the Outstanding Young Farmers national event that will take place virtually from December 1-3.

The main purpose is to honour farmers for their exceptional accomplishments and performance. Through their

management practices, these young agricultural producers (younger than 40 years old) ensured that their farming operations had a strong start as well as steady and progressive growth. Their operations are based on solid ground and ensure a good income as well as financial stability.

In addition, the event aims at showcasing the Outstanding Young Farmers and at promoting better urban-rural relationships through the understanding of the situations faced by farmers and the recognition of their achievements.

To become finalists, the candidates had to go through several qualifying stages. The selection committee awards points according to each of the following



criteria: progress made during the farming career; utilization of soil, water and energy conservation practices; production history; contribution to the community; maintaining financial records as

well as oral interviews. For the Québec winner's farm video, link here: <https://bit.ly/3tNFQNN>

Source: Outstanding Young Farmers' September 7, 2021 news release

BELOW THE BORDER

CFIA changes rules for California romaine lettuce bound for Canada



The Canadian Food Inspection Agency (CFIA) has announced it will accept either pre-harvest or finished product testing as part of its requirements for California-grown romaine lettuce arriving in Canada between September 30 and December 31, 2021. The requirements apply to romaine lettuce grown in four California counties: Santa Cruz, Santa Clara, San Benito and Monterey.

Growers in those four counties must provide an attestation form and certificate of analysis for each shipment to demonstrate that the romaine lettuce does not contain detectable levels of *E. coli* O157:H7.

The California Leafy Greens Marketing Agreement (LGMA) has recently developed and approved specific protocols for preharvest testing of leafy greens that its members are required to follow. The protocols have been reviewed by CFIA and were a factor in its decision to allow the preharvest testing option. Last

year CFIA accepted only romaine that had undergone finished product testing, which occurs after the lettuce has been harvested and packaged for sale.

"We are pleased with CFIA's announcement because we strongly believe the preharvest testing option provides several benefits over finished product testing," said Tim York, CEO of the LGMA. "Although any kind of testing comes at a cost for lettuce farmers, preharvest testing is more efficient and less costly than finished product testing. It saves harvest, packaging and storage costs in the event the product tests positive for a pathogen. Importantly, testing lettuce prior to harvest before it's packaged for sale to consumers also provides further assurances that potentially contaminated romaine will not find its way into marketing channels."

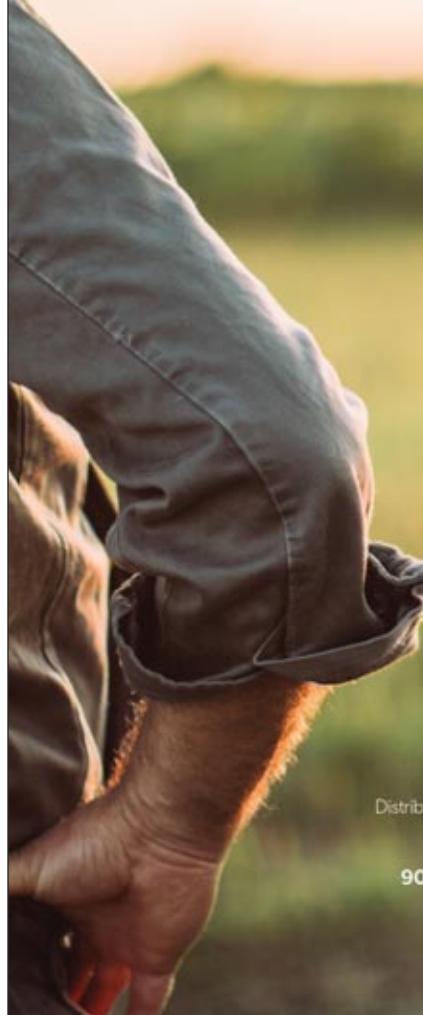
Source: Leafy Greens Marketing Agency September 15, 2021 news release

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TRENDS

The shift to very large farms is accelerating

KAREN DAVIDSON

Large farms in Canada are growing in number at the expense of small and medium-sized farms, and the shift to very large farms is accelerating.

An Independent Agri-Food Policy Note explores the data on farm size in Canada, challenges the conventional wisdom of changes in farm structure over time, and warns of forthcoming risks from this dynamic.

"Today, increasing average farm size is not due to farms incrementally increasing in size step-by-step -- it is almost entirely explained by the increase in size of already large and very large farms and the decline in medium-sized and small farms," said Douglas Hedley, Agri-Food Economic Systems research associate, and co-author of the policy note. "A step-by-step process leading to larger farms may never have accurately reflected these dynamics, but this is now more clearly evident. The 'average' farm is all but meaningless."

The policy note interprets these changes in the context of farm management, especially in relation to economies of size, and the central role of investments in equipment. It raises the conundrum that the expansion of large farms depends upon small and medium-sized farms-- which are themselves pressured by the expansion of large farms.

"The large farms have size economies that support investments in new equipment, but these acquisitions are partially financed by the value of trade-ins. Small- and medium-sized farms comprise most of this used equipment demand," says Al Mussell, Agri-Food Economic Systems research lead, and co-author of the policy note. "The investments in new equipment increase farm product supplies, dampen farm prices, and sharpen the competition for land from large farms, continually pressuring the viability of small- and medium-sized farms. But as this dynamic plays out, it will weaken the demand for used equipment, and with it the value of trade-ins in financing of new equipment purchases by the large farms."

The policy note concludes that

The middle is hollowing out.

~ AL MUSSELL

markets and competition among farmers may not resolve this issue, and that it potentially represents a new dimension for agri-food policy. They caution the need for better understanding and that policy actions need to at least do no harm as federal and provincial governments grapple with improvements to the Business Risk Management Programs and the upcoming agricultural policy framework.

"The middle is hollowing out," said Al Mussell, research lead in an interview with **The Grower**. "What happens if medium- and small-sized farms disappear? The surprising conclusion is that this trend might adversely affect large farms who no longer have buyers for their used equipment. The full implications haven't been realized."

The question becomes who will invest in the next generation of field equipment, robotic weeders, for example. The \$60,000 robot designed for market gardens of a few acres has a price point that's not attainable for many small-sized farms.

As Mussell points out, horticultural farmers don't compete so much for customers as they do with other farmers for land. Thus, the trend to larger farms and economies of scale.

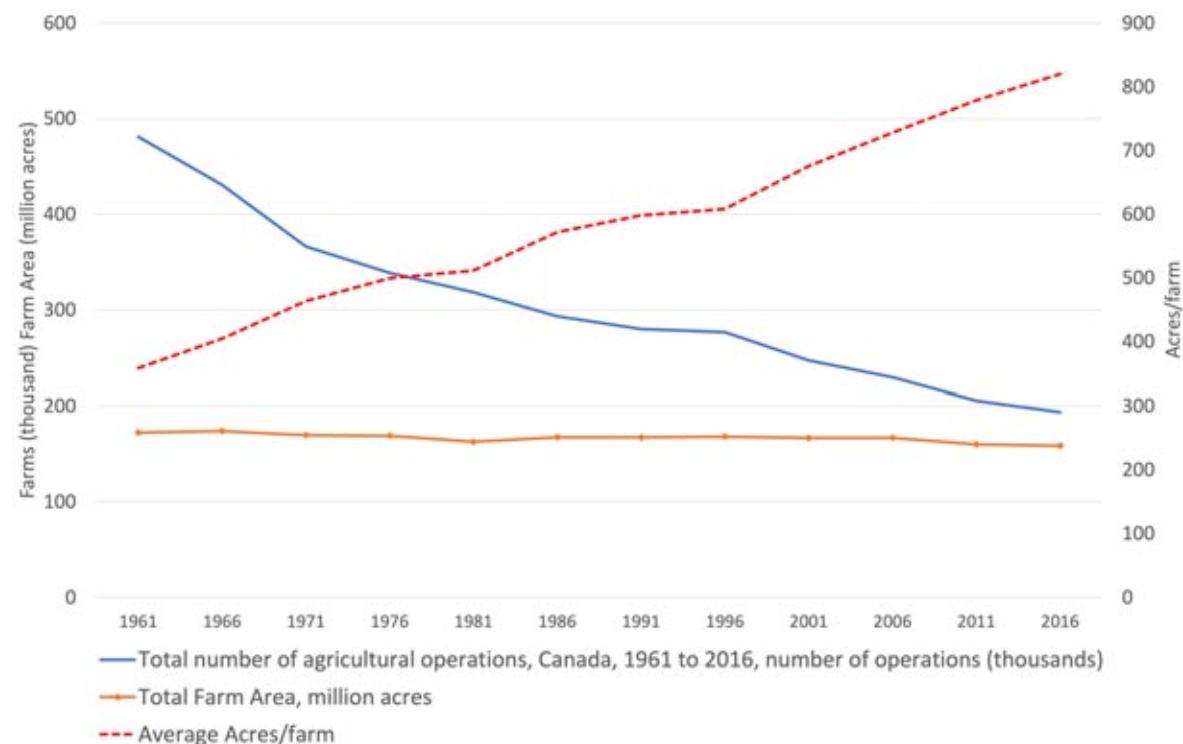
May 11, 2022 is the release date for the first round of results from the Census of Agriculture. A clearer picture should emerge on farm size by sector and province.

The policy note is available at www.agrifoodcon.ca. Agri-Food Economic Systems is an independent economic research organization dedicated to agri-food located in Rockwood, Ontario.

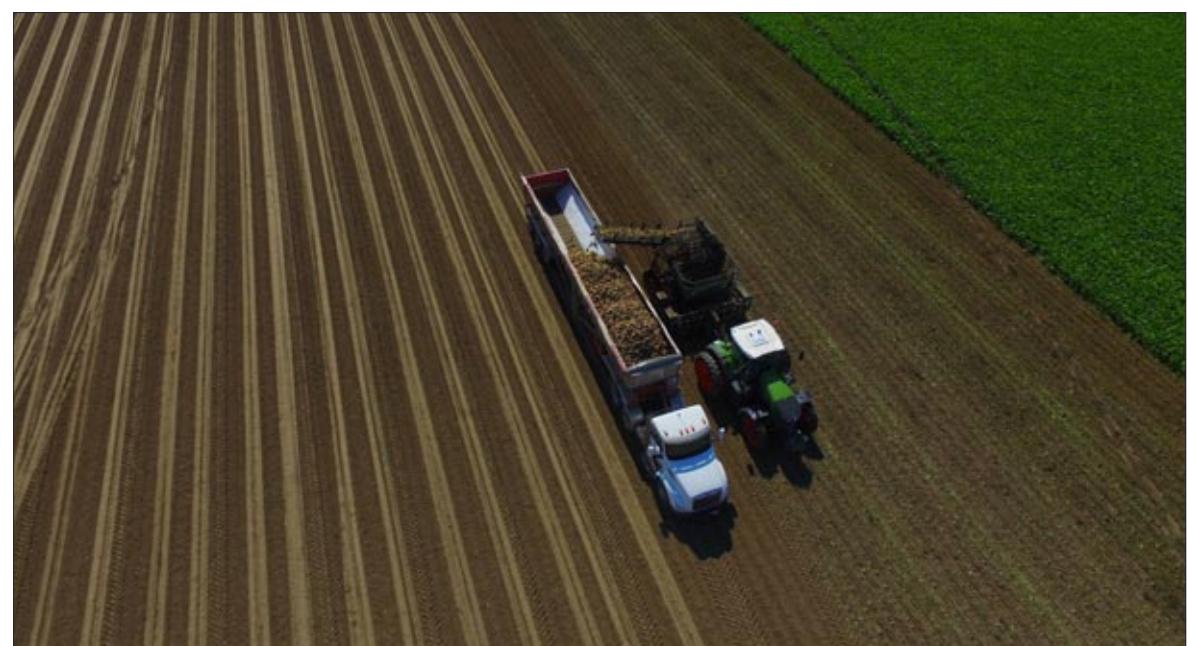
Source: *Agri-Food Economic Systems September 13, 2021 news release*



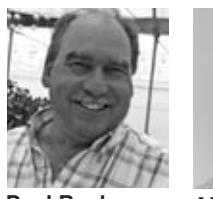
Figure 1: Selected Demographics of Canadian Agriculture



Source: Statistics Canada



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ROOT CAUSES

Seeking a cure for low ginseng prices



Glen Gilvesy, chair of Ontario Ginseng Growers' Association, is seeking long-term support from the federal and provincial governments, in view of the price collapse of ginseng in the pandemic-weary world. Photos by Glenn Lowson.

KAREN DAVIDSON

Ginseng growers are expecting better prices for the gnarly root that's prized for its unrivaled quality and medicinal benefits. Prices for Ontario's 168 ginseng growers 2019 and 2020 crops tumbled from industry averages of \$30 to \$40 per pound.

"We traditionally have a vibrant trade with Hong Kong, Taiwan and China, but political tensions and COVID-19 have meant that trade has been suboptimal for the 2019 and 2020

crops," explains Glen Gilvesy, chair of Ontario Ginseng Growers' Association. (OGGA). "Ginseng has been a shining example of an export crop --- but it has diminished in the past two years."

Normal patterns would see up to 50 ginseng buyers arrive in Ontario to inspect and buy the crop in November. Due to COVID-19, international travel was impossible in 2020. Any ginseng sales were on a "sight unseen" basis. Sales were further eroded when the Chinese New Year festivities were greatly

curtailed or cancelled in 2019 and 2020. As Gilvesy explains, half of the ginseng crop targets this holiday window. To add more injury, transportation delays missed this crucial sales season.

Extreme weather patterns have also affected ginseng volumes. In 2021, excessive rain and then hail in some regions of the Norfolk sand plains brought down shade netting. Not all of the 9,000 acres were affected, but for those struck with bad luck, the hot sun and the downed black shade caused damage to the plants.

Unlike other commodities,

ginseng doesn't have a crop insurance plan and most business risk management programs don't fit the crop that takes four years to reach harvestable status. That's why the OGGA is in dialogue with government officials on how best to support growers for the long haul. Recent talks with Ontario agriculture minister Lisa Thompson are focussed on how to support stabilized markets. This might include financing storage and holding the crop until the market stabilizes.

While Ontario ginseng quality remains second to none, hearts

are heavy for what's expected to be a lighter 2021 harvest due to the adverse weather events this growing season. For the second year, many buyers might not be here to grade, touch, smell and evaluate the roots. However, as Gilvesy points out, retail demand has not weakened in foreign markets. Prices are expected to be higher due to Ontario's lighter-volume crop combined with lower yields in the ginseng-growing regions of China.

"There's a lot of pressure on growers right now," says Gilvesy. "They are quite frustrated."



Sorting and grading of ginseng is carried out at the farm of Carl Atkinson near Simcoe, Ontario.

INTERNATIONAL

Koppert launches new range of insect traps



This new range of Horiver traps can target specific insects for better monitoring results says Koppert sales and product manager, Rick van der Pas.

Depending on colour, the Horiver Wet sticky trap is designed specifically for monitoring of adult aphids, whitefly, thrips, Tuta absoluta, fruit flies and sciarids. Its ultra-sticky glue provides large sticky surfaces and capturing capacity. It has a proven above-average score for catching whitefly.

As the glue on the Horiver Dry sticky trap leaves no staining, users might experience this card as more user-friendly. Depending on colour, it is effective for a number of pests including thrips and sciarids. The yellow card is extremely attractive to the

harmful Nesidiocoris bug.

Round in shape, Horiver Disc has been designed to fit around the stem of a plant – ideal to trap pests active both above and below the ground. It has been specifically adapted to trap root aphids and fungus gnats and has two attachment points for drip irrigation. This product is suitable for cannabis cultivation.

With its large sticky surface area, Horiver Delta has glue on both sides of the card and can be folded into a large trap. Apply a pheromone dispenser to the inside of this trap and pests can be caught on both surfaces of this trap designed for flying insects.

Source: Koppert Biological Systems September 7, 2021 news release

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CHAIR'S PERSPECTIVE

Partnership enabled airport vaccine clinics



BILL GEORGE JR.
CHAIR, OFVGA

inconvenience, added stress and extra costs as a result of government regulation, quarantine requirements and inconsistent rules for incoming workers.

However, we were thankfully spared the many outbreaks and relentless media and public scrutiny that we were forced to deal with last year. And that's due in large part to one of the big success stories this year for our sector: the COVID-19 vaccination clinics at Pearson airport for incoming seasonal workers.

This program was established as a direct result of a partnership between the Ontario Fruit and Vegetable Growers' Association (OFVGA) and the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)'s COVID Agri-Food Secretariat. It helped make a tremendous difference in our ability to keep workers safe and healthy throughout this growing season.

Through approximately 80 clinics, more than 10,000 workers

from Jamaica, Mexico, Guatemala, St. Vincent, Trinidad & Tobago, Honduras, and Barbados were given the opportunity to receive a COVID-19 vaccine as they arrived in Ontario to begin their work contracts this year.

Clinics were offered for all incoming flights carrying 25 or more seasonal workers. OFVGA, with funding from OMAFRA, supported these clinics with vaccine and other COVID-19 health and safety resources for workers, interpreter support for flights from Mexico, and funds for bussing workers to the airport vaccination site.

We appreciate the extra efforts of staff at Foreign Agricultural Resource Management Services (FARMS) and CanAg Travel who supported the initiative as part of their ongoing coordination of the seasonal worker arrival process. Clinic operations were also supported by OMAFRA, Ministry of Health, OFVGA, Pearson Airport and consular representatives from the workers'

home countries.

Local health units also need to be commended for stepping up to offer second doses (or first and second doses) to workers with dedicated vaccination clinics, as well as their ongoing outreach efforts to help reduce vaccine hesitancy.

This was an enormous undertaking and one that could not have happened as smoothly and successfully - or perhaps even at all - without the strong working relationship between our organization and the OMAFRA COVID Agri-Food Secretariat.

The joint willingness to plan and prepare meant we were ready to launch airport vaccinations on April 10 with a flight of incoming workers from Mexico. And an ongoing commitment by everyone involved to continually improve the process helped ensure the success of the airport vaccination clinic program.

Last winter, OMAFRA also supported our sector with funding to develop resources for temporary foreign workers around

BY THE NUMBERS

- Vaccination clinic at Toronto Pearson airport**
- 80 clinics
 - 10K workers vaccinated

COVID-19. We now have a library of culturally appropriate videos, posters, ads, information sheets and other resources in different languages and they've been used by workers, growers and public health units throughout this season.

Although we are all hopeful that the end of the pandemic is in sight, there is no doubt its impacts will continue to be felt on-farm into the next growing season. We appreciate the valuable role the Secretariat has played in making all of these positive initiatives happen and we hope OMAFRA will continue to keep this important resource at the disposal of the industry into next year.

WEATHER VANE



At Thanksgiving, we think of all the bounty that Canada has grown and once again, marvel how it all gets done. To harvest carrots, for example, it still takes the skillful coordination of sophisticated equipment and manual labour. This aerial shot was a winning entry for the "Field to Fork" photography award from the Ontario Processing Vegetable Growers in 2019. Photo courtesy of Don Sopuch.

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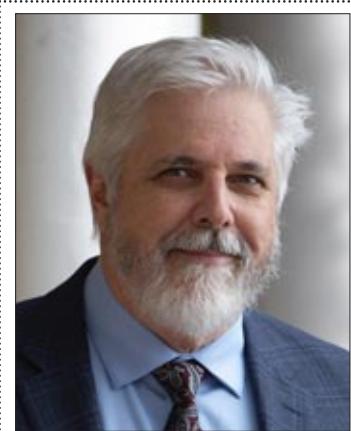
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THE
GROWER

THE GROWER

URBAN COWBOY

Sit down, be cool and eat your veggies

OWEN ROBERTS

I always wondered if my joyless Grade 6 teacher Miss Bush (her real name) hated kids.

Miss Bush, God rest her soul, was a simmering, old-school disciplinarian. She embarrassed students in front of their classmates. She blew her top illogically at the most unlikely targets. And she did everything possible to limit interaction between boys and girls.

I'm sure trying to teach a class of 30 or so adolescents like me -- many of whom were experiencing bussing from the country to the city for the first time and interacting with town kids -- wasn't (and still isn't) easy. But she made it tougher than it needed to be.

One of her isms was total silence for the first part of lunch. She claimed neither your head nor your body would be right if you didn't commit a specified

amount of time -- about 20 minutes, she figured -- to nothing but eating. No cutting that time short to goof off or flirt.

But did Miss Bush actually have a crystal ball? Nutritionally, maybe so.

Researchers at the University of Illinois have just released a study showing that more time spent at the school lunch table increases kids' likeliness of picking up healthy foods.

Melissa Pflugh Prescott, assistant professor in the Department of Food Science and Human Nutrition, says longer school lunch breaks can help improve children's nutrition and health.

She says modern realities such as crowded schools mean students have an increasingly hard time trying to mow down lunch.

"Ten minutes of seated lunch time or less is quite common," she says. "Scheduled lunch time may be longer, but students have to wait in line to get their food. And sometimes lunch periods are shared with recess. This means the amount of time children actually have to eat their meals is much less than the scheduled time."

Pflugh Prescott and her co-investigators looked specifically at fruit and vegetable consumption. Times have changed, but what's remained consistent is the nutritional importance to young people of

fruit and vegetables.

The researchers examined consumption during 10- and 20 minutes of seated lunch time. They say the results were clear.

"During shorter lunch periods, children ate significantly less of the fruit and vegetable parts of their meal, while there was no significant difference in the amount of beverages or entrees they consumed," says Pflugh Prescott. "It makes sense that you might eat the part of the meal you look forward to first, and if there's enough time left you might go towards the other parts. But if there's not enough time, those items suffer, and they tend to be fruits and vegetables."

Fruits were consumed at an overall higher rate than vegetables. But consumption of both food types was significantly higher for longer seated lunch times.

The researchers say this particularly impacts children from low-income families who participate in the U.S. National School Lunch Program. They may not have resources to bring their own lunch from home to avoid lunch line wait times.

So like Miss Bush, the researchers want "protected time" for students to eat, at least 20 minutes of seated lunch time at school.

But that's where their commonality with my Grade 6 teacher ends: The researchers say



“During shorter lunch periods, children ate significantly less of the fruit and vegetable parts of their meal, while there was no significant difference in the amount of beverages or entrees they consumed.”

~ MELISSA PFLUGH-PRESCOTT

that if the seated kids are allowed to socialize from their desks, they accrue added benefits.

"The amount of seated time children have is a really valuable time for them to connect with their peers," they say. "They might have limited opportunities to do so throughout the school day. We found significantly fewer social interactions during the 10-minute lunch times. That indicates other positive outcomes

may come from longer lunch breaks as well."

Some measure of lunchroom decorum and respect is important. But so is talking to your Grade 6 crush...and maybe someday, once again sharing your carrot sticks.

Owen Roberts is a faculty member at the University of Illinois at Urbana-Champaign.

SCENE ON TWITTER



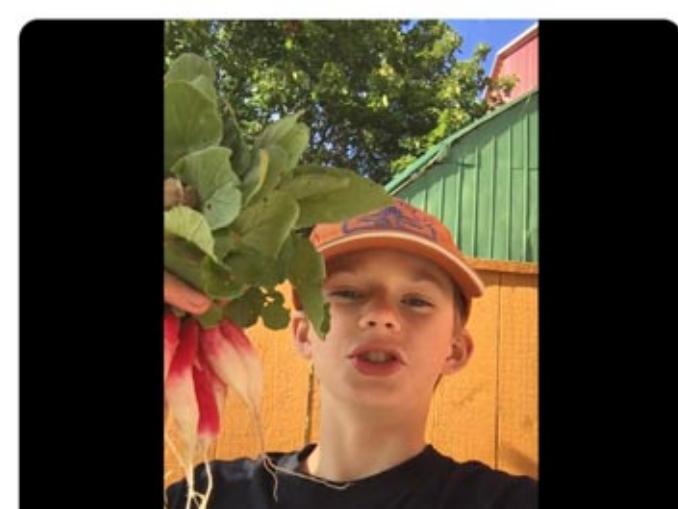
More than a Migrant Worker @MtaMigrantWrkr · Sep 9

In the latest issue of Chatelaine, meet Felena Pereira, a migrant farm worker from Simcoe, ON. Felena has been coming to Schuyler Farms for the past 8 yrs and is now on her way to becoming a Canadian citizen. Full article: ow.ly/mkLV50G70dF Visit: ow.ly/jpe950G70dH



Forsythe Family Farms @ForsytheFarms · 1h

Kid Reporter Thomas is talking French Breakfast Radishes this week - they are French, but they aren't really a breakfast item (unless you want!) #farmfoodfacts #natureunfiltered #radish



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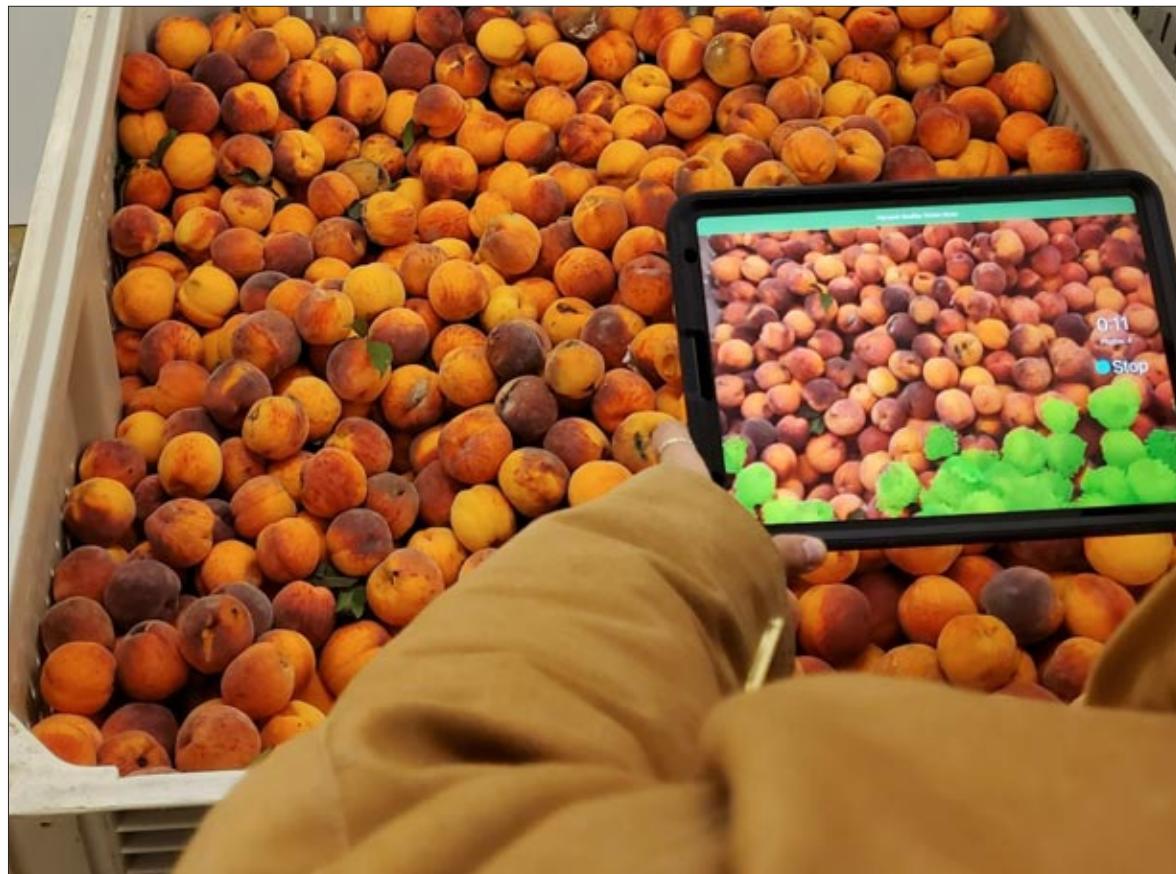
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NEW TECHNOLOGY

Automated vision technology in development



Ontario's tender fruit and apple growers have joined forces with a local agtech company to further develop its smartphone-powered computer vision system for Ontario tree fruit.

Croptracker, headquartered in Kingston, Ontario, will expand its Harvest Quality Vision (HQV)

system with new crop load and defect detection tools.

These enhancements will enable scanning of both harvested and unharvested fruit to identify possible defects. As well, growers will be able to scan fruit growing in their orchards early in the growing season to determine size

and colour accuracy, which will greatly improve the accuracy of yield and harvest timing predictions.

"An enhanced Harvest Quality Vision system will help growers have more consistent, higher-quality fruit and less reliance on manual processes," says Ontario

Tender Fruit Growers chair Phil Tregunno. "For many growers, labour represents the biggest share of their cost of production and adding automation will help offset some of those costs."

Harvest Quality Vision uses artificial intelligence to determine fruit size, colour and crop load. Growers are automatically alerted if it finds deviations from any acceptable standards. Not only does this eliminate time-consuming manual inspection of harvested fruit, but it also lets growers and field/orchard managers respond to crop load issues, quality defects or disease issues before the fruit is packed.

"This smart technology will let

us respond more quickly to crop load problems, quality defects or disease issues not just before harvested fruit is packed, but also even while the crop is still growing in the orchard," adds Ontario Apple Growers vice-chair Brian Rideout. "It's another tool for growers to ensure we're producing and delivering the best quality local fruit for consumers."

The project is funded in part by the Canadian Agricultural Partnership, a five-year provincial-territorial initiative.

Source: Ontario Apple and Tender Fruit Growers September 13, 2021 news release

COMING EVENTS 2021

| | |
|--------------|---|
| Oct 5-11 | Norfolk County Fair & Horse Show, Simcoe, ON |
| Oct 6-7 | Canadian Greenhouse Conference, VIRTUAL |
| Oct 13-14 | Public Trust Summit, Canadian Centre for Food Integrity, Toronto, ON |
| Oct 28-30 | Produce Marketing Association Fresh Summit, New Orleans, LA CANCELLED |
| Nov 3-5 | North American Plant Protection Organization AGM, VIRTUAL |
| Nov 5-14 | Royal Agricultural Winter Fair, Exhibition Place, Toronto, ON VIRTUAL |
| Nov 4-6 | Interpoma, Bolzano, Italy |
| Nov 13 | Farm and Food Care Ontario Gala-in-a-Box, VIRTUAL |
| Nov 21 | Induction Ceremony, Canadian Agricultural Hall of Fame, Fairmont Winnipeg, Winnipeg, MB |
| Nov 22-24 | Alberta Potato Conference and Trade Show, Cambridge Hotel and Conference Centre, Red Deer, AB CANCELLED |
| Nov 29 | CanAgPlus Annual General Meeting, VIRTUAL |
| Nov 30-Dec 2 | Grow Canada Conference, Hyatt Regency, Calgary, AB |
| Dec 7-9 | Great Lakes Expo, DeVos Place Convention Center, Grand Rapids, Michigan |

2022

| | |
|-----------|--|
| Jan 5-6 | National Potato Council Potato Expo, Anaheim Convention Center, Anaheim, CA |
| Feb 8-9 | Pest Management Centre Priority Setting Workshop C VIRTUAL |
| Feb 9-11 | Fruit Logistica, Berlin |
| Feb 16-17 | Pest Management Centre Priority Setting Workshop B VIRTUAL |
| Feb 22 | Canada's Agriculture Day |
| Feb 22 | Ontario Fruit and Vegetable Growers' Association Annual General Meeting, Hilton Hotel, Niagara Falls, ON |
| Feb 23-24 | Ontario Fruit and Vegetable Convention, Scotiabank Centre, Niagara Falls, ON |

Robotic weeders take a turn in strawberry fields



The Berry Growers of Ontario held its recent twilight tour at Meadow Lynn Farms, Simcoe, Ontario, spotlighting two robotic weeders. Chuck Baresich, Haggerty Creek Crop Inputs and Marketing, explained that battery life is improving significantly to operate a weeder up to eight hours per day.

The smallest robot, Oz, is suited to market gardens. It can weed one to two acres per day. The larger robot, ROAM-IO, can be set up with a hood sprayer and can carry a 1,000-pound pay load.

As some observers noted, the rural broadband

infrastructure is not dependable in many parts of Ontario to line up these machines with GPS. Signals are particularly weak in fields ringed by trees.

Kristen Obeid, OMAFRA weed management program specialist-horticulture, points out that these robotic weeders may have a role in controlling herbicide-resistant weeds. She is still compiling 2021 trial results in different crops on different soil types. More details will be published in the months to come.

UPCOMING EVENT

OFVGA invites nominations for Award of Merit

The Ontario Fruit & Vegetable Growers' Association is inviting nominations for the Award of Merit. It's a way to recognize outstanding contributions to the fruit and vegetable industry. This recognition may include strategic leadership, technical input and/or the dedication shown by this person or organization to the sector.

The winner will be announced at the OFVGA's annual general meeting which will take place in Niagara Falls, Ontario on February 22, 2022.

Note that all nominations must be submitted either electronically or in hard copy by 4 pm on December 15, 2021. The 2022 Award of Merit Nomination Form can be found here: <https://bit.ly/3hzKg5p>

RETAIL NAVIGATOR

Your own business can tell you a lot about your customers



PETER CHAPMAN

other person's challenges. When you talk to your category manager, discuss the input costs in your business and ask them about their business. If they agree packaging has increased 20 per cent in bakery, then it is also more difficult to argue with you about your increase. You can also enquire if category margins are likely to change. You do not have to like the change, but you do need to know about it.

Labour is a challenge

There are two issues we hear about with regards to labour: how difficult it is to get people and when you do find them, they might not have the skills you need. This is also true for retailers. It has led to self-check-out in many stores and process improvements where they ship products from the warehouse by aisle so the store employees will be able to get the stock on the shelf. Retailers are also using robots to check inventory in categories. Once the robot looks at the shelf, it prints a list for a store employee to find the stock. Retailers are challenged to find people to work in many parts of their business.

If you see your customer struggling to buy properly, they might be having a difficult time filling positions with qualified people. If this is happening, watch your purchase orders carefully and you might even need to suggest orders. An inexperienced buyer can have a serious impact on your business. By looking at your forecasts and helping them keep the right amount of inventory on hand, you are protecting your own sales and giving them support.

Efficiencies are difficult with new regulations

You have likely had to operate your business very differently since the start of the pandemic. Your plant might not be as efficient and your office staff are working remotely. We have all been in the stores to see the changes they have made. Your

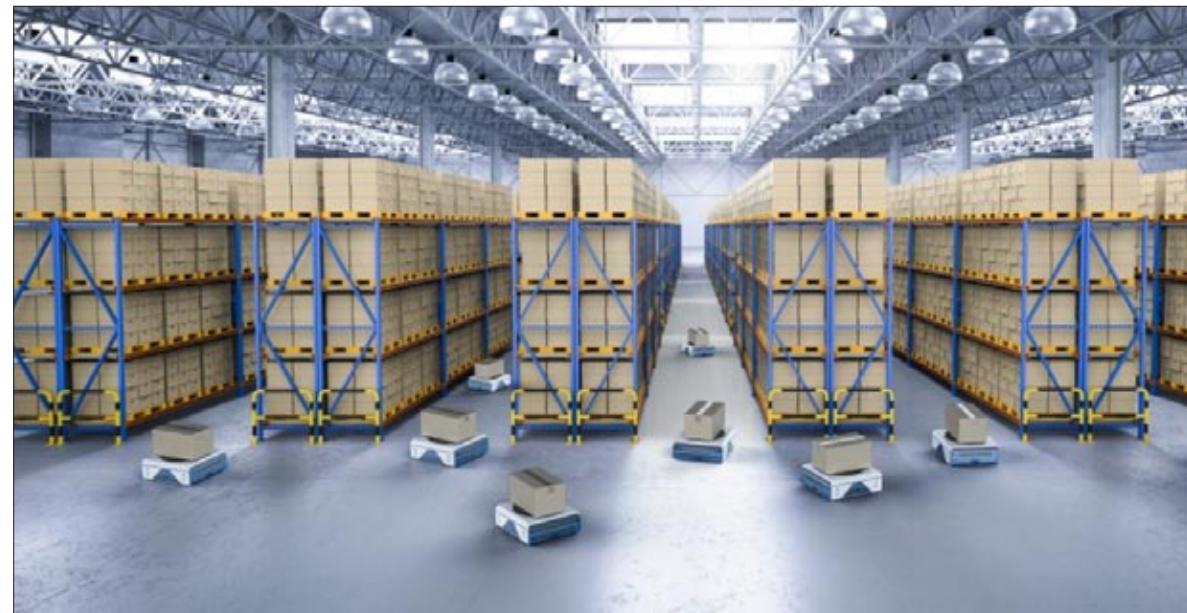
Fresh food retailer, Farm Boy, opened its 41st fresh market location on September 16 in Toronto. Store management emphasizes local farm-fresh produce with organic in-season products.

"As we continue to introduce our concept in Toronto and the Greater Toronto Area, we are grateful to all Torontonians who have become, and continue to be, loyal Farm Boy customers," said Jean-Louis Bellemare, president and general manager, Farm Boy. "We are excited to be opening our second

location in Etobicoke and look forward to providing our customers with a true fresh market shopping experience."

Farm Boy currently operates 40 locations in Ontario and will open two more new locations by the end of 2021. For a full list of future store locations, visit: www.farmboy.ca/future-store-locations/

Source: Farm Boy September 1, 2021 news release



Here's an example of robotic order picking in a smart warehouse.

customers have also had to implement a lot of new practices in their distribution centres and many of their people are working remotely as well.

Learn the technology and develop virtual relationships with your category managers and buyers. It is actually easier to get time with them right now as they are not in marathon meetings at the office. Plan shorter, more frequent communication. Figure out how to get the product samples to them effectively and grow your sales.

Look in the mirror to understand your customer

Despite the animosity that can exist, you can learn about your customer when you think about what is happening in your business. Both companies are in business in the same market so the challenges are likely similar. Yes, the big retailers have some advantages in terms of economies of scale and purchasing power, but they also face some of the same issues your business does.

We are coming into the critical fourth quarter where sales on many items are much higher than other times of the year. It is a great time to consider what your customer is going through and take the opportunity to improve the relationship with the end goal being for you both to sell more.



WHAT'S IN STORE

Frozen fruit is a great opportunity to extend the season. A lot of sales are generated in this part of the store. In a crowded category it can be difficult to stand out.

These wild blueberries from Nova Scotia differentiate the offering by making the claim of fresh frozen and hand raked. The other unique feature of this product is the size. Many other SKUs are packed in a stand-up pouch which might be more convenient for consumers.

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.

RETAIL NEWS

Farm Boy opens 41st store in Etobicoke

Fresh food retailer, Farm Boy, opened its 41st fresh market location on September 16 in Toronto. Store management emphasizes local farm-fresh produce with organic in-season products.

"As we continue to introduce our concept in Toronto and the Greater Toronto Area, we are grateful to all Torontonians who have become, and continue to be, loyal Farm Boy customers," said Jean-Louis Bellemare, president and general manager, Farm Boy. "We are excited to be opening our second

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Source: Farm Boy September 1, 2021 news release



FOCUS: STORAGE, CONTAINERS & PACKAGING

Look at the life cycle of packaging to be truly sustainable

This thermoformed cardboard tray features a water-based barrier coating to protect produce and extend shelf life.

More than ever, growers are asking for eco-friendly packaging solutions to protect and preserve fresh produce. One of the suppliers is Cascades.

According to the company, products are made from recycled material and design criteria are followed to optimize different produce.

One example is a thermoformed cardboard tray that's suited for small cucumbers and Nantes carrots. It's made of 100% recycled and recyclable fibre and uses SurfSHIELD Plus, a water-based barrier coating that is just as effective as polymer. No plastic or wax is used in this product. Cascades manufactures a matching

corrugated master tray to go along with it. This combination is part of a new Cascades Fresh product offer.

Another example of a recent improvement related to produce is Cascades 100% cardboard basket. Cascades was the first to replace the plastic handle for cardboard, making it easier to recycle. The line was extended with different style handles.

The company is always working on new solutions to provide a product offering that corresponds to market needs and sustainability goals. One example is a new package for cauliflower, a heavyweight produce item that requires double-walled boxes.



This basket, including the handle, is 100% cardboard.

Education is important in the area of sustainability. Greenwashing is not intentional. As an example, in a circular economy, it is better to aim for the recyclability of a product vs its compostability in order to keep the material in the system. Many people are not aware of this.

Prioritizing criteria for packaging is a good place to start when looking at new packaging. In some cases, packaging can be designed to optimize space on a truckload.

Kwik Lok offers new closing and printing solutions for produce

Kwik Lok, based in Yakima, Washington, is now offering new closing and printing solutions. The Kwik Fresh 093A closing machine, provides an affordable, flexible option to the in-store retailer and the Kwik Lok 915 thermal ink jet printer comes

The Kwik Fresh 093A is a

semi-automatic bag closing machine that is versatile and easily adaptable. Closing up to 30 bags per minute, the Kwik Fresh 093A offers retail, in-store bakeries and produce departments the convenience and flexibility of being portable or permanently mounted.

"We are proud to offer a convenient solution for the needs of retail bakery and produce departments with the Kwik Fresh 093A. This solution provides food safety and security while keeping products fresh," says Kwik Lok's senior vice president of customer engagement, Ron Cardye.

Kwik Lok's new 915 thermal ink jet printer is low maintenance and comes with a lifetime warranty that has no exclusions on labour or hardware. The 915 thermal ink jet printer prints tracking and traceability information on Kwik Lok bag closures. This efficient printing solution allows customers to add up-to-date, necessary information on packaged products.

Kwik Lok's vice president of engineering, innovation and manufacturing, Gary Tong, states, "We know that printers



can be a big problem when they don't work properly. Our 915 TIJ printer ink cartridge uses patented resin ink technology to prevent it from drying. This cuts down on operational costs for our customers. We are proud to offer

a thermal ink jet printer that comes with a lifetime warranty, giving customers one less thing to worry about."

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Prize-winning packaging gets full marks for sustainable materials

KAREN DAVIDSON

Editor's note: *The Grower* asked Emily Murracas, director of marketing for Mucci Farms, for an update on packaging initiatives.

What new types of packaging has Mucci Farms adopted in the last one to two years to reduce waste?

Over the past two years, Mucci Farms has introduced two sustainable packaging options that have been recognized by the industry. Paper Top Seal and the Naked Leaf Living Basil sleeve were awarded the top prize for Packaging Innovation at the CPMA Trade Show in 2020 and 2021, respectively.

With Paper Top Seal, we took an existing sustainable package and took it a step further by replacing the plastic lidding film with a paper film, allowing both the PET tray and lid to be fully recyclable.

The Naked Leaf Living Basil sleeve innovation reduces plastic by 50 per cent by converting half of the package to paper. Additionally, the exterior pot that holds the product in place is reusable or recyclable, and the interior growing pot is 100 per cent compostable.

What hurdles did you encounter to maintain shelf life, appearance of product?

Paper Top Seal – We worked very closely with our packaging partner to develop the idea of replacing the plastic lidding film with paper. We didn't encounter any shelf-life challenges but worked through a rigorous process that included various modifications to the new lidding paper and our machinery to allow for seamless application to the tray.

Another challenge we encountered was with product visibility since paper would replace the transparent film. We tackled this challenge by using high-impact graphics to show consumers our favourite recipes and added some vent holes for breathability and product visibility.

Naked Leaf Living Basil Sleeve – We had no hurdles with this product. We have a strong research and development program which has taken us to all ends of the world in search of sustainable solutions to modern-day challenges. On our travels, we saw this sleeve that was already in use, that had 50 per cent paper and 50 per cent plastic. It was a no-brainer for us to adopt this package and introduce it to the North American market with our Organic Living Basil product. There are no issues with shelf-life or product visibility, so it was a smooth transition.

What features/attributes/key messaging are prioritized on the packaging when there's so little space?

Our two packages had the opposite effect because paper gave us much more



real estate for graphics and callouts as opposed to a plastic film, which is largely transparent. We were able to maximize the space by using mouth-watering recipes to attract consumers at retail and list appropriate callouts to highlight the sustainability features of the packages.

Any difficulties in sourcing these alternatives? Are they available in Canada? U.S? abroad? Any late deliveries in the supply chain?

- No challenges in sourcing alternatives.
- Some hiccups due to supply chain impact from pandemic.
- Our final product is available at retail in Canada and the U.S.
- Where we source materials is confidential.

Mucci Farms grows several crops: tomatoes, peppers, cucumbers, strawberries. Do any one of these crops require a different mindset for packaging? Why?

There is certainly some overlap but for the most part, our approach is different for every item. Above and beyond sustainable options, we have to consider many different factors including shelf stability, travel, merchandising and who the target demographic is. Every product is different and the packaging we use should maintain and maximize quality, freshness and flavour while accounting for food safety and sustainability.

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FOCUS: STORAGE, CONTAINERS & PACKAGING

Harvest timing and storage of 'Ambrosia' apples

JENNIFER DeELL

'Ambrosia' harvested at optimum maturity for storage can be held long-term (i.e. ~8 months) with little firmness loss or disorder development. Optimum fruit maturity at harvest for good storability generally consists of more green than yellow background colour (2 to 3 on the BC colour chart), <1 ppm internal ethylene concentration, fruit firmness around 17-19 lb, and starch index between 2.5 to 4 (Cornell starch chart). Apples harvested later tend to become mealy and soften

more rapidly, as well as develop more disorders and greasiness during storage.

It is very important not to wait until the background colour is yellow to start harvesting 'Ambrosia' that will go into storage (Figure 1). When background colour is yellow, fruit will be over-mature and more prone to internal browning and splitting.

The starch index is a useful overall indicator of 'Ambrosia' maturity and fruit with values above 4 should not be stored for long periods of time. On the other hand, internal ethylene concentration is a poor indicator



Figure 1. Ontario Apple Growers' version of BC colour chart for Ambrosia. OAG members can contact their office for a copy of the colour chart.

| Internal Browning (%) | |
|--------------------------------------|------------------|
| <1% O₂ (LabPod) | |
| No SmFr | 0.7 ^D |
| +SmFr | 0.4 ^D |
| 1.7% O₂ | |
| No SmFr | 8 ^C |
| +SmFr | 8 ^C |
| 2.5% O₂ | |
| No SmFr | 24 ^A |
| +SmFr | 16 ^B |

Table 1. Incidence of internal browning in 'Ambrosia' apples after 8 months in CA storage at 0.5°C.



Figure 2. LabPod technology (Storage Control Systems Inc., Michigan) used for measuring fruit respiration to determine the lowest safe <1% oxygen regimes.

of fruit maturity for 'Ambrosia'. Very little ethylene is produced during fruit maturation and as starch degrades and colour changes, there continues to be only trace amounts (<1 ppm) of internal ethylene present.

IAD readings from a delta absorbance (DA) meter can be helpful for determining fruit maturity in 'Ambrosia'. It has been suggested that 'Ambrosia' should be harvested when IAD readings average 0.7 to 0.6 for storage. Fruit with values near 0.5 and below should not be stored for extended periods, while those with less than 0.3 should be marketed as soon as possible. Be sure to take DA meter readings on the margin (interface) between the blush and non-blush areas, and not directly on the blush or shaded sides of the fruit.

'Ambrosia' responds well to 1-MCP, with reduced firmness loss and mealiness, lower internal ethylene, higher acidity, and reduced greasiness. There is no consistent effect of postharvest 1-MCP treatments on internal browning, whereas preharvest 1-MCP application (Harvista) significantly reduces the incidence.

Controlled atmosphere (CA) storage improves 'Ambrosia' fruit quality retention during storage and oxygen levels below 2% are best. In past studies we found that after eight months of storage at 0.5°C, 'Ambrosia' held in 2.5% oxygen were softer (less ~1 lb)

and had more internal browning than those held in 1.7% oxygen (Table 1, Figure 2). In contrast, 'Ambrosia' held in <1% oxygen had very little internal browning (<1% incidence). No other storage disorders or fruit splitting were noted. The <1% oxygen regime (average 0.6%) was based on fruit respiration measurements using LabPod technology (Figure 3, Storage Control Systems Inc., Michigan). In other trials we found that higher carbon dioxide levels with the same oxygen

concentration increased the incidence of internal browning (i.e. 9 versus 1.5% incidence in 2 or 1% carbon dioxide, respectively, with 1.2% oxygen at 0.5°C).

Dr. Jennifer DeEll is fresh market quality specialist, horticultural crops, OMAFRA, based in Simcoe, Ontario.

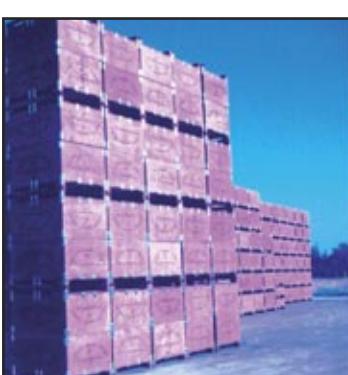


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ONvegetables

Ontario Ministry of Agriculture, Food and Rural Affairs

Incorporating biofungicides into vegetable disease management

Appendix Figure 1.

Number of new active ingredients registered by PMRA from April 1, 2010, to March 31, 2020



This figure provides the number of new active ingredients registered over the course of the last 10 fiscal years. It represents active ingredients that have been registered for use in Canada, and excludes any new active ingredients for which only a maximum residue limit on imported food was established.

Figure 1. 2019-2020 PMRA Annual Report

KATIE GOLDENHAR

Biopesticides have become widely available for growers of horticulture crops. While this market used to be served by small companies, biopesticides have recently caught the interest of larger agrochemical companies such as BASF, Syngenta, and Bayer. In the past decade, 55 per cent of new active ingredients registered by Health Canada's Pest Management Regulatory Agency (PMRA) were biopesticides (Figure 1).

Biofungicides are a type of biopesticide that target diseases. While biofungicides can be classified as organic and useful in organic production, there is also a benefit to using these products with conventional fungicides for disease management.

Using biofungicides in conventional disease management can have many advantages including:

- Providing protection during lower disease risk periods, allowing for the use of conventional products during higher risk conditions
- Lower restricted-entry and

pre-harvest intervals

- Reduced risk of fungicide resistance and allowing for less use of single-site fungicides with higher resistance risk
- Generally considered low risk to off-target organisms

Biofungicides typically fall into two groups: those that are derived from natural substances and those containing microorganisms. Both types can have direct and indirect efficacy on the target disease. Many have multiple modes of action, including inducing natural defences in the plant that help to reduce disease incidence or severity.

Biofungicides derived from natural substances include products made from inorganic material such as copper, sulphur, salts as well as natural extracts such as tea tree oil, lactic acid and garlic powder. Microbial biofungicides contain one or more living organisms (fungi or bacterial species) that are non-pathogenic and can outcompete the plant pathogen, affect the pathogen directly or induce a plant response that increases its ability to prevent or reduce infection. The Fungicide Resistance Action Committee

(FRAC) recently created two new FRAC groups, BM01 and BM02, to include the growing number of biological fungicides with multiple modes of action. Both these groups are considered to have a low risk of resistance.

Often, biofungicides are referred to as "softer" products and may only provide suppression of diseases. As a result, they may have to be used under lower disease risk situations. Examples of practices that lower disease risk include improving air flow, removing crop residue, planting cover crops, rotating crops, planting earlier, etc. Just like conventional fungicides, the majority of biofungicides need to be used preventatively, i.e. before the pathogen infects the crop. Getting the most out of biofungicides requires knowledge on how the biopesticide works, the pathogen's biology and preferred environmental conditions for disease development.

Biopesticides, like conventional pesticides, are regulated and need to be registered by PMRA before use in Canada. This requires the registrant to provide efficacy data



Figure 2. Hot spot in celery field.

Figure 3. White mould of lettuce – *Sclerotinia sclerotiorum*. There are a few biological products registered for this pathogen on lettuce.

on the product against the disease on the label. However, there is limited accessible data on biofungicides being used with conventional fungicides. This can make it challenging to decide how to use these products. If you are trying a new biofungicide (or any new product for that matter!), leave a strip in the field untreated and evaluate the difference in disease level. This can give you an idea if there is benefit in your production system.

The incorporation of biofungicides can depend on the disease and the tolerance level in your crop. If there is low tolerance for disease (such as late blight or cucumber downy mildew), it might be harder to incorporate a product that only suppresses the disease. Frequent applications may also be required to provide the most effective control as well as a higher water volume. Consider the use as a tank mix with a conventional product for resistance

management or use when there is lower disease pressure.

For vegetable-specific information on biofungicides,

summary of their efficacy against diseases in vegetable crops. While not all products are registered here in Canada, this information can give a better idea on how to use biofungicides in your management. Always consult the Canadian label before use. Cornell's guide is available at vegetables.cornell.edu/ipm/diseases/biopesticides/

With the recent re-evaluations of group M fungicides resulting in reductions in uses, extended pre-harvest intervals and cancellations, there is an opportunity to incorporate effective biofungicides into conventional disease management. For information on what biofungicides are available for vegetable crops in Ontario, refer to Publication 838, Vegetable Crop Protection Guide. Reach out to your local retailer, agronomist, or OMAFRA crop specialist if you are interested in learning more about biopesticides.

Katie Goldenhar is pathologist-horticulture, OMAFRA.

BITS AND BITES

BC cranberry harvest underway

September 15th kicked off the annual harvest says Kalpana Solanki, chair of the BC Cranberry Marketing Commission. Most of the BC cranberry growers belong to the Ocean Spray Cooperative. About 95 per cent of BC's crop is turned into Craisins because of the high quality of colour and firmness. The remainder of the crop is sold fresh.

Over the next few weeks, British Columbia's cranberries will be seen floating in the bogs

around the lower mainland and Vancouver Island.

"We are looking forward to a safe and successful cranberry harvest for all our growers," says Solanki.

One of the newest cranberry vendors is Hopcott Farms in Pitt Meadows as well as The Bog at Riverside Cranberries and Glen Valley Cranberries in Langley, Yellow Point Cranberries in Ladysmith, Bremner Cranberries, Pacific Cranberry or Maybog Farms in Richmond. These



vendors can be found here: <https://www.bccranberries.com/sellers>.

The BC Cranberry Marketing Commission has been a part of BC cranberry farming since 1968.

The BCCMC regulates in any and all respects, the transportation, processing, packing, storage and marketing of any variety of cranberries grown in the province of British Columbia.

Source: BC Cranberry Marketing Commission September 15, 2021 news release

Ontario apple crop down about 15 per cent

Ontario's apple harvest is underway with expectations for a crop that's about 15 per cent smaller than in 2020. Supplies will still be plentiful, but consumers looking for specific varieties or hoping to visit a pick-your-own orchard are encouraged to make their plans early.

"If you have your heart set on a certain variety, make sure you don't put off getting your apples for too long," says Ontario Apple Grower chair Cathy McKay, who farms near Port Perry, Ontario. "The good news is that apples are maturing a few days to almost a week sooner than usual this year, so it's a great time to take advantage of nice fall weather and plan a visit to a farm market or

pick-your-own operation."

Spring frosts in some of the province's apple growing areas contributed to the lower crop volume this year. As well, last year's harvest was a bumper crop and because apple trees have a natural tendency to "rest" the following year, they will produce less fruit.

"When we consider the large crop we had last year and the frost concerns in the spring, overall the crop is looking good," adds Kevin Martin, chair of the Apple Marketers' Association of Ontario and president and CEO of Martin's Family Fruit Farm. "The combination of heat and regular rainfall are providing better than average sizes for most varieties."

Ontario farmers grow approximately 15 main varieties of apples along the shores of Lake Ontario, Lake Erie, Lake Huron and Georgian Bay. The farm gate value of the Ontario apple crop is approximately \$90 million, which includes sales to fresh and processing markets as well as on-farm/pick-your-own.

The Ontario Apple Growers represents the province's 200 commercial apple farmers. Visit www.onapples.com for recipe ideas and grower profiles or follow Ontario Apple Growers on Twitter and Instagram (@ontarioapples) and Facebook (@Ontarioapples).

Source: Ontario Apple Growers September 16, 2021 news release



NOTICE OF MEETING

NOTICE

is hereby given that the

163rd Annual Members and Directors' Meeting of the Ontario Fruit and Vegetable Growers' Association

will be held in Niagara Falls, ON
at the Hilton Niagara Falls Fallsview
on February 22nd, 2022



Election of Directors of the Association will take place as well as dealing with resolutions and any other business that may arise.

The 2022
AWARD OF MERIT
Nomination Form can
be found here:
<https://bit.ly/3hzKg5p>

UN Food Systems Summit gathers world-wide input

The United Nations Food Systems Summit (UNFSS) took place on September 23, 2021, engaging people around the world to ensure the future of sustainable food systems and the achievement of the Sustainable Development Goals.

"The UNFSS gives us the opportunity to reflect on our achievements as Canadian growers and farmers but also to reflect on where we want to go," says Jan VanderHout, president of the Canadian Horticultural Council. "I am inspired by the goals set by many of the agriculture associations and individual businesses. I have no doubt that agriculture and agri-food have the solutions to many of our biggest challenges."

Through science, effective policy and programs, governance, and application of best management practices, Canadian farmers, ranchers, input providers and food and beverage producers are committed to advancing safe, secure, nutritious and sustainable food systems through the following:

• **Climate Smart Solutions.**

Investing in and advocating for innovation, research, and strategic and collaborative goal setting and action plans in relation to climate change mitigation, adaptation and resiliency.

• **Farmers & Ranchers of the Future.** Providing pragmatic, solution-oriented ideas, strategies and practices to ensure food production is economically viable, diverse, and a meaningful place to work for the current and the next generation.

• **Reducing Food Loss and Waste.** Continually evaluating food loss and waste along the value chain and investing in and providing innovative solutions for the future.

• **Sustainable Agriculture and Production Practices.**

Employing practices that advance nature positive agriculture, respect our planetary boundaries and further enhance our environmental contributions while ensuring farmers remain profitable.

• **Collaborative Approaches.** Recognizing the interconnectivity of agriculture systems.

• **Safe and Affordable Food**

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COMING UP



Here is a list of The Grower's upcoming focus sections. There are always early-booking incentives, so plan ahead and save.

November -
Seed & Rootstock

December -
Soil Health & Crop
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January -
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CROP PROTECTION

Spraying efficiency is not only a question of rate and chemical!



LUC BÉRUBÉ

Each crop season brings new challenges in crop protection. Weather is constantly changing and is almost unpredictable. New pesticides are registered while older ones are taken off the market. Sometimes we are facing new pests. Resistance to pesticides is now more frequently observed. Reducing the footprint of pesticides is more and more of a concern. Growers need to handle these facts and many more in making decisions in crop protection – and sometimes there are poor results. Let's go over some checkpoints I like to look at when a grower faces some trouble.

Plan

First step is to plan the crop protection season to come. It begins as soon the actual season is finishing by analysing the results of the work. It is important to plan to react quickly to prevent losses. Example: what am I doing in drought conditions about good weed control? If the season is rainy and humid, what are the adjustments to make with a fungicide program?

Planning is important to prevent loss of efficiency of crop protection products. It also helps to put in place good cropping practices. That way, you don't have to rely as much on pesticides.

Read

Be well informed on the latest news about crop protection. Keep an open mind about any new technology that could be adapted to your program. Be aware of your needs. It is important to always stay critical. By reading or listening about crop protection

you will develop your critical mind. Finally, read the pesticide label carefully. It contains all the information needed to achieve good results using a pesticide. Often, weather conditions, soil conditions, rate of application, size of droplets and many more that have influence on the results are all written on the pesticide label.

If you need to find the pesticide label easily, the Pest Management Regulatory Agency (PMRA) has a cell phone app available. After downloading the app, you simply use it to search and get the latest label of any approved pesticide in Canada.

Scout

Scouting pests is essential. It is critical to adapt your plan to scouting results. Sometimes treatment is not needed, sometimes it is delayed, sometimes it is executed as planned. Scouting should be performed after any intervention to see if control has been achieved.

Spray efficiently

Here is a big point! Growers buy pesticides at a high price and need to have a payback on them. To do so, spraying needs to be efficient. Spray needs to get to the target. Products are now registered with the lowest efficient rate which means there is not any room for any mistakes.

Water quality is important not only in keeping the nozzles and filters free from blockage, but also in improving the efficiency of the chemical being applied. Filling a sprayer with water coming from a stream or a ditch can result in loss of efficiency. If water is clean but still suspicious about its chemical quality, don't hesitate to send a sample for analysis.

Rate of water should not be underestimated. Pesticide labels show the volume of water needed to be applied with the product. We should stay within the intervals written in the label and tend toward the lower level. That could affect the efficiency of the application. Using the right volume of water helps to get good coverage of the canopy.

Droplet size is important too. Big drops will drift less, but mean

there will be fewer drops by square inch. In the case of a contact herbicide, will all weeds be touched by the spray? Especially with a lower rate of water used. With a well-developed canopy, bigger droplets will help to get into the canopy. A higher volume of water sprayed could result in a better canopy penetration. So, what's the best?

The best is to accurately evaluate your sprays by using water-sensitive papers and test your spraying conditions. This is the best way to evaluate your spraying coverage and canopy penetration and it means a lot! Over the years we have done some trials with those papers and have had good discussions after using them. Here are some situations we encountered.

A grower was spraying against aphids and was pretty sure that his spray was going deeply into the canopy. With a rate of 350 l/ha, no droplets touched the water-sensitive paper at the middle of the canopy.

Questioning the real foliage movement caused by a spray in strawberries, we tested it. Result: we observed a water-sensitive paper having no droplet impact on half of it. That part was covered by a higher leaf showing the non-movement of the foliage.

These examples show how important it is to check your spray coverage. Water-sensitive paper doesn't cost a lot and can significantly improve your spray efficiency. To easily evaluate spray coverage, it is possible to download the app «SnapCard» on your cell phone, then place papers in the canopy and perform a spray. The «yellow» paper changes to a blue-violet colour when water is touching it. Using the app, you take a picture of the water-sensitive paper and it calculates the covered area realized during the spray.

Write and analyse your results

Taking notes will help you to find weaknesses in your crop protection plan and to improve your plan. Without notes, it is impossible to find how to do better. Reviewing your notes after your crop season will help you to plan the next year!

At the end, crop protection



Plant a stick in the potato canopy with water-sensitive paper to measure spray penetration.



Water-sensitive paper is used in potatoes.

can be an easy operation or a difficult one. When facing hard times protecting your crops, your best response is to review all steps, especially spraying activity. Remember that computers and GPS only tell that you are at the right place in the field and the total volume of water applied, but they do not tell you the result. As I say: "There is no bad product. There is only the right product, applied at the right time, the right way."

Luc Bérubé is a 1997 graduate in agronomy from Laval University, specializing in phytology. Since then, he's been a member of the "Ordre des Agronomes du Québec." Since 1999, Bérubé has worked as a consultant with producers within the Pousse-Verte Group which supports nearly 200 agricultural businesses. Advising 30 companies, he specializes in all aspects of potato and berry production. He is a part of the plant protection mentor team for club advisors across Québec. Additionally, he is a trainer for certification for the application of pesticides.

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CROP PROTECTION CANADA

CROP PROTECTION

Veltyma fungicide registered for potatoes

BASF Canada Agricultural Solutions has received registration from Health Canada's Pest Management Regulatory Agency (PMRA) for Veltyma fungicide. Veltyma contains the unique active ingredient Revysol which is the first and only isopropanol-azole, a unique chemistry discovered and developed by BASF, that provides broader, stronger, and longer control against various diseases on multiple crops.

Veltyma will be available for purchase in the 2022 growing season.

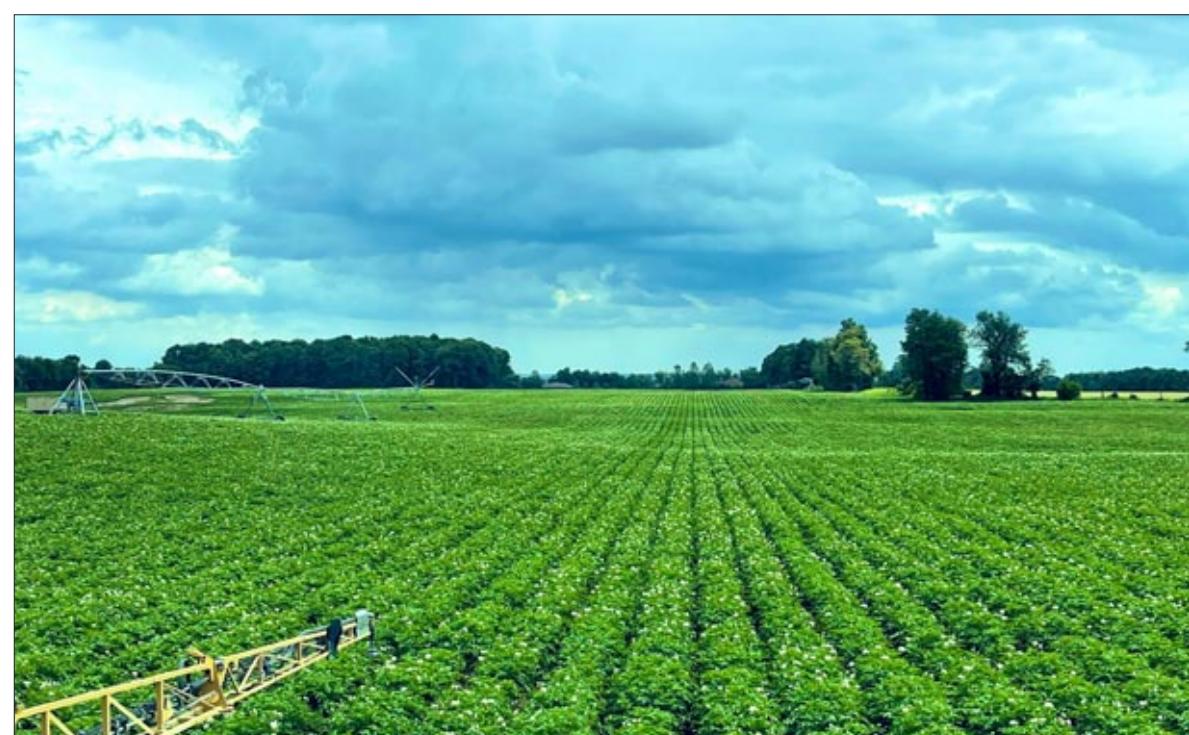
Veltyma is registered for use on multiple crops including corn, potatoes, wheat and soybeans. It provides broad spectrum control against key foliar diseases in potatoes, such as early blight, black dot and brown spot.

"We know that farmers need new and innovative solutions to manage issues today, while at the same time, addressing the challenges of tomorrow. We are thrilled to be able to bring Veltyma – with the new active

ingredient Revysol – to Canadian growers," says Trevor Latta, brand manager for corn, soybean & horticulture, BASF Canada.

"Veltyma provides growers with the best of both worlds: multiple modes of systemic residual activity while delivering proven plant health benefits, including increased growth efficiency and greater yield potential. With the launch of Veltyma, we are setting a new standard of disease control."

Veltyma contains the active ingredients pyraclostrobi (Group 11) and mefenentrifluconazole (Group 3) – also known as Revysol. Revysol's unique molecular structure binds target enzymes more powerfully than other Group 3 products on the market, providing best-in-class performance on a broad spectrum of diseases, including some disease strains that have become resistant to other Group 3 fungicides. It also contains pyraclostrobin, which provides proven plant health benefits for increased growth efficiency, better



management of minor stress, and greater yield potential.

"Our testing has shown that Revysol binds to the target site up to 100 times more powerfully than conventional triazole fungicides, including where target

site mutations have developed. This means that Revysol gives growers a highly effective tool to not only protect their crops, but to effectively manage resistances while increasing their yield in a sustainable way," says Latta.

Source: BASF Canada September 14, 2021 news release

Photo courtesy of Nick Ploeg

Have you seen me?

The Canadian Council on Invasive Species (CCIS) is encouraging all Canadian citizens to observe and report invasive species to help protect biodiversity.

Invasive species are plants, animals and micro-organisms that have been accidentally or deliberately introduced into areas beyond their native range. Invasive plants are alien species whose introduction or spread negatively impact environment and the economy.

A few examples affecting horticulture are: phragmites (plant); spotted wing drosophila (insect) and tomato brown rugose fruit virus.

Every report helps scientists track and protect Canada's biodiversity from unwanted impacts. To participate, visit www.reportcanadainvasives.ca and



join the "I Spy and Identify" project. Known invasive species can also be reported to your

provincial or territorial invasive species hotline or phone app.

10 THINGS YOU CAN DO TO STOP INVASIVE SPECIES:

1. Clean your footwear with a **BOOT BRUSH**
2. Remove **INVASIVE PLANTS** and dispose properly
3. Pick **SEEDS** and **BURRS** off of clothes and gear
4. Clean **MUD** and **SEEDS** from your dog
5. Buy Local, Burn Local: Don't move **FIREWOOD**
6. HOSE your bike or ATV with water or compressed air
7. Boaters: **CLEAN, DRAIN, DRY, DISPOSE**
8. Feed your horse **WEED-FREE** certified hay
9. Clean your horse's **HOOVES, MANE, and TAIL**
10. **PLEDGE** to always Play, Clean and Go!

Source: Canadian Horticultural Council August Hort Shorts

SEED & ROOTSTOCK

coming up in the NOVEMBER edition of The Grower
contact advertising@thegrower.org by OCTOBER 16

GREENHOUSE GROWER

Nature Fresh Farms expands organic acres in Ohio

Headquartered in Leamington, Ontario, Nature Fresh Farms plans to expand its Delta, Ohio footprint from 45 to 90 acres, with the future building dedicated to year-round organic tomatoes and peppers. The plan also includes a new 60,000 square-foot distribution center.

"This U.S. expansion is primarily due to the constantly growing demand for locally grown and organics from consumers," says Matt Quiring, director of sales. "We want to be

the market leader in organic greenhouse produce and this will strengthen our position."

Construction is planned to begin in summer 2022, with finish date of a year from then.

The original facility broke ground in Delta, Ohio in 2015, Nature Fresh Farms' first facility built across the Canadian border creating more than 200 jobs.

Source: Nature Fresh Farms September 9, 2021 news release



Sunset-branded produce to be grown in Colorado

Gourmet produce industry leader, Mastronardi Produce, and VetaNova, operator of energy-efficient solar powered greenhouses, have announced a long-term exclusive distribution agreement of all fruits and vegetables from the operator's solar-powered greenhouse located in Avondale, Colorado. The greenhouse will be starting with a 25-acre range with plans of expanding up to 157 acres.

"Colorado has a particularly

strong desire for local fresh fruits and vegetables, and this new farm bolsters our supply alongside production from our current greenhouse in Brush, Colorado," says Paul Mastronardi, president and CEO of Mastronardi Produce. "The Controlled Environment Agriculture (CEA) space is rapidly evolving, and solar-powered greenhouses increase what we know is already the most sustainable way to grow. This is a significant milestone for



the Colorado-area farming and food sectors."

The new Avondale facility is also within close proximity to several major retailers and foodservice operators and will

create more stable access to locally-grown Sunset-branded tomatoes, peppers and leafy greens, even on the coldest Colorado winter day.

The Avondale, Colorado

location is expected to start shipping in spring/summer 2022.

Source: Mastronardi Produce September 8, 2021 news release

Biobest invests \$10 million in ecoation

Biobest's CEO Jean-Marc Vandorne and COO Karel Bolckmans are joining ecoation's board of directors, after announcing a \$10 million investment to develop new IPM-related technologies.

This investment follows \$10M in public funding from the Canadian government and an earlier infusion of \$2.5M from existing investors.

"This infusion of \$22.5M

CAD will support a successful commercial roll-out of ecoation's cutting-edge dynamic data harvesting platform based on a combination of deep biology, computer vision, sensor technology, AI, and robotics," says ecoation CEO Saber Miresmailli.

Traditionally, a greenhouse environment is controlled by means of spot measurements of a number of parameters. IPM related information is traditionally

recorded by technical "scouting" staff walking the greenhouse and taking notes.

"The ecoation human + machine technology platform takes all this to a different level: the robots and sensors deliver an incredibly fine-mazed data-matrix with unrivalled detail in time and space," says Miresmailli. "Sensors allow us to pick up early signs of stress and disease in plants and interpret these signs before they



are even noticed by a human scout."

Source: Biobest and ecoation September 3, 2021 news release

South Essex Fabricating partners with Robovision

Based in Leamington, Ontario, South Essex Fabricating (SEF) has signed a partnership agreement with Robovision to pave the way for the research and development of deep-learning software and enhanced AI robotics for the agriculture industry.

Peter Quiring, owner and CEO of South Essex Fabricating, virtually sat down with Jonathan Berte, CEO, and co-founder of Robovision to finalize details on their partnership which is now rapidly underway.

"Over the next few years, we will see the horticulture industry rapidly shift towards an automated, data-driven system —

not designed to take away from industry jobs, but instead to remove the mundane processes attributed to many of the day-to-day growing functions," says Quiring. "Simply, AI advancements will give us a greater output both in quality and quantity without changing the natural elements throughout the growing process."

SEF, a leader in premier greenhouse fabrication with more than 20 years of horticulture experience, is teaming up with AI powerhouse Robovision to develop advanced robotics and algorithmic software. Both companies will be at the forefront

of their industries by combining much-needed high-tech machines backed with AI capabilities to standardize and regulate labour-intensive tasks.

The goal is to use AI in a way to enhance the wisdom and experience of the head grower, by allowing the continual exchange of information between human and machine. Sustainable vegetable production relies on utilizing the abundance of plant science, which now can be clearly accumulated with Robovision's algorithmic platforms. Using those science-based findings will allow us to create customized, automated products that result in



high-quality yields with less contamination and waste.

"No matter what industry you do business in, AI is the future, and we are here to embrace that," concludes Quiring.

Robovision can close the gap between European technology

start-ups and concepts and the North American market," says Jonathan Berte, co-founder and CEO, Robovision.

Source: South Essex Fabricating September 1, 2021 news release