

TEAM GINSENG

Searching for the root of ginseng's replant disease



Ontario's ginseng crop earns a surprising \$250 million in farmgate receipts. At this time of year, the sand-plains growers are receiving bids from Hong Kong buyers who are assessing volume and quality. One of those growers is Carl Atkinson, chair of the research committee of the Ontario Ginseng Growers' Association. He's looking forward to solving the soil health issue of replant disease that may temper the long-term future. Photos by Glenn Lowson.

KAREN DAVIDSON

Down below, underneath the mat of ginseng plants, is a whodunit mystery that's slowly being unearthed. For all the success of the medicinal root, there is something in the soil that results in crop failure when ginseng is replanted in the same garden. In ginseng circles, it's simply called replant disease.

For Ontario's 160 ginseng growers on the sand plains of Lake Erie, replant disease is a serious issue that threatens the long-term future of a \$250 million industry. Since the 1960s, the soil-borne disease has baffled ginseng growers. Basic research shows that several fungi in the soil may be involved. Now that 8,000 acres are planted to ginseng, 2,500 of

which are in mature production, the industry has pledged to manage its destiny.

"It's been a rallying cry," says Carl Atkinson, chair, Ontario Ginseng Growers' Association (OGGA) research committee. "We're closer to solving the replant issue with government funding of \$420,000 over the last five years. But the fact remains that sandy soils are finite in this area and we compete with vegetable crops. We can't own every piece of land."

So fierce is the competition for land that \$800 per acre leasing costs are considered the norm. Ginseng is harvested once, after a three or four-year growth period under shading that replicates its natural forest habitat. Then new planting ground must be sought.

"Replant disease lasts at least 30 years," explains Dr. Sean Westerveld, ginseng and herbs specialist, Ontario Ministry of Agriculture, Food and Rural Affairs, while pointing out that the disease does not affect any other subsequent crop. "We don't know why the disease is so severe in the second planting. This is not the normal pattern of a disease."

Speculation is that the exudates of the ginseng root, the very medicinal components that are so healthy for humans, are actually contributing to disease in the second crop.

"There are a whole range of them," says Westerveld. These exudates are called ginsenosides.

About 70 per cent of Westerveld's time is spent in the ginseng industry,

coordinating and monitoring a 25-person working group. Thanks to Agriculture and Agri-Food Canada (AAFC) funding in the last five years, there is a multi-pronged approach to understanding the disease.

Many university, government and industry experts have joined growers on a methodical approach. Soil testing has been the natural place to start a baseline of knowledge. A fungus called *Ilyonectria mors-panacis* is thought to be the main culprit. Dr. Mary Ruth McDonald, professor in the Department of Plant Agriculture for the University of Guelph, is working on improving soil diagnostics for the fungus. Other researchers are working on next-generation sequencing to scan all fungi in the soil.

Continued on page 3

AT PRESS TIME...

Traceback underway for source of E.coli-contaminated romaine lettuce

For the second time in a year, romaine lettuce is the focus of an investigation by the U.S. Centers for Disease Control and Prevention because it is the common link for 32 consumers sickened by *E. coli* infections. On November 20, the agency warned the public not to eat the salad green.

At press time, November 22, no grower, supplier, distributor or brand of romaine lettuce had been identified. At this time of year, romaine lettuce is sourced from the southern United States and Mexico. More specifically, the current source for romaine lettuce is the Yuma growing region, which incorporates Southwest Arizona, Northeast Baja California (Mexico) and the Southeast Imperial Valley of California. The Imperial Valley is a geographically distinct area separated from the rest of California's growing regions.

The Public Health Agency of Canada also warned consumers in Ontario and Quebec not to eat romaine lettuce. That's because three people in Ontario and 15 in Quebec had been identified with the illness, of which six had been hospitalized. These are the only provinces where illnesses have been linked to the outbreak.

"It's important that we acknowledge the diligent work of the Canadian Food



Inspection Agency as well as the entire supply chain which operates on food safety principles every day," said Jan VanderHout, chair of the Ontario Fruit and Vegetable Growers' Association.

"Canadian producers are committed to supplying the safest food possible." He noted that more than 3,100 operators across Canada currently participate in the CanadaGAP food safety program of which 20 per cent are in Ontario.

Multiple Canadian organizations acted swiftly on the news. Bamford Produce/Freshline Foods, for example, notified customers that they ceased shipments of all romaine products as of November 21, pending more definitive information. These included romaine 24-count, romaine hearts, chopped romaine and spring mix/mesculin blend.

Jeff Hall, food safety specialist with the Canadian Produce Marketing Association, said it's unknown how long the current outbreak will last, but

industry will follow the government's recommendations and take steps to ensure consumers can have confidence in the foods they purchase and consume. He said no additional cases of *E. coli* infection in Canada relating to romaine lettuce had been confirmed after the week of October 28 – November 3, 2018.

In similar proactive news releases, several U.S.-based organizations issued statements that urged health authorities to pledge all resources necessary to find the source as quickly as possible. They included the Florida Fruit and Vegetable Growers' Association as well as United Fresh Produce Association and the California Leafy Greens Marketing Agreement.

Correction: The photo on page 4 of the November issue was incorrectly identified. The photo was taken at Norbest Farms, Fort Saskatchewan, Alberta. Editor's apologies for the error.

NEWSMAKERS

Best wishes to **Dr. Jim Brandle** who has resigned as CEO, Vineland Research and Innovation Centre (Vineland), after more than a decade at the helm. He's led the organization since its start-up in 2008. In other organizational changes, **Dr. Tania Humphrey** has been named chief scientific officer. The Australian joined Vineland in 2008 and most recently served as director of strategic planning and research management.



Dr. Warren Jestin, (L) chair of the board, offers best wishes to Dr. Jim Brandle, outgoing CEO of Vineland Research and Innovation Centre.

As a search gets underway to find a new CEO, **Shelley Martin** has been appointed interim CEO. She retired earlier this year from her role as president and CEO, Nestle Canada, a position which she held in the last five years of a 28-year career there. She joined the Vineland board in 2017, and as such, is familiar with the organization.

Congratulations to all award winners announced at the annual gala of the Ontario Produce Marketing Association on November 9. **Carl Mastronardi**, president DelFrescoPure, was named the Cory Clack-Streef Produce Person of the Year. The Outstanding Achievement Award was presented to **Ken Lyons** for his marketing efforts on behalf of Red Prince apples.



Lewis Collins, Stronach & Sons.

Two Lifetime Achievement Awards honoured **Ron Webb**, Dole and **Lewis Collins**, longtime employee of Stronach and Sons, which operates at the Ontario Food Terminal.

During the 51st Ontario Greenhouse Vegetable Growers (OGVG) Annual General Meeting, members elected three directors to represent District 1 through an online voting system that resulted in a record-setting voter turnout. More than 80 per cent of eligible voters cast ballots in advance of the meeting that resulted in the following outcome: **Paul Mastronardi** (Mastron Enterprises Ltd.); **Rick Mastronardi** (I.P.R. Farms Ltd.); **Peter Quiring** (Nature Fresh Farms Inc.).

In District 2, **Jan VanderHout** (Beverly Greenhouses Ltd.) was acclaimed to one of the two vacancies on the board. The newly elected directors are joined by the existing directors whose terms continue through to October 31, 2019 to form the 2018-19 OGVG Board of Directors: **Kevin Safrance** (Envirofresh Produce Ltd.); **Hilco Tamminga** (Truly Green); **Bill Heeg** (Sun Choice Produce); **Marco Hoogenboom** (Hoogenboom Family Farms Inc.); **James Neven** (Neven Produce Inc.).

The Ontario Greenhouse Vegetable Growers presented its annual Industry Builder award to **Ken Forth**. This award honours his decades of work on the labour file, ensuring that legal workers from Mexico and the Caribbean are respected and compensated fairly during their seasonal work in Canada.

Congratulations to those Ontario growers and wineries at the 2018 40th Legislative Wine Tasting on October 29. The following have been chosen as the official wines of Ontario's Legislative Assembly for 2019:
Red Wine: **Strewn Winery** 2017 Rogue's Lot Cabernet Franc/Cabernet Sauvignon
White Wine: **Georgian Hills Vineyards** 2016 Seyval Blanc
Icewine: **Chateau des Charmes** 2017 Vidal Icewine

Condolences to the family of **Terry Wright**, 79, who passed on November 7, 2018. The long-time processing tomato, grain, squash and apple farmer of Harrow, Ontario was well-known in Essex County where he was a passionate member of multiple farm organizations. At one time, he was chair of the Labour Section of the Ontario Fruit and Vegetable Growers' Association.



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COVER STORY

Searching for the root of ginseng's replant disease



Unwashed ginseng root



Grading ginseng



Washed ginseng

“We’re closer to solving the replant issue with government funding of \$420,000 over the last five years. But the fact remains that sandy soils are finite in this area and we compete with vegetable crops. We can’t own every piece of land.

~ CARL ATKINSON



The Ontario Ginseng Growers’ Association has invested in five years of research on replant disease and hopes to continue another five-year project. In this photo, a fumigated plot is seen to the left of the white stake in the middle of the bed. Compare that healthy bed to an unfumigated plot to the right of the white stake where everything was killed. The fumigated side still had disease but obviously is much better than unfumigated. Different treatments can be viewed in the background. Photo by OGGA.

Continued from page 3

“Remember there are tons of beneficial micro-organisms in the soil,” says Westerveld. “There is so much data that we look at groups of organisms and see how they shift over the time of a ginseng planting. The idea is to see if the exudates are affecting these (micro-organism) populations.”

In another approach, private companies with expertise in biofumigation, fertilizer and pest control have conducted trials on grower plots. To date, the most promise is shown with mustard bio-fumigation and anaerobic soil disinfestation.

“None of these are quick solutions,” admits Westerveld. “In my opinion, it will take another five years of research before any real progress is made.”

If \$2.8 million in federal funding is approved under the Canadian Agricultural Partnership, plans are to dedicate four faculty between the University of Western Ontario and University of Guelph to work on a remedy. That would be significant news, given that there were zero researchers committed to ginseng replant disease just five years ago.

None of this would be possible without growers on the ground. Ginseng is notoriously hard to grow in a laboratory and the soils of the Simcoe Research Station are too loamy,

not sandy enough for real-life trials. About 15 per cent of the association’s growers participate in research, allowing summer students to come to their farms to take root and soil samples.

“We have a lot of involvement from growers,” points out Atkinson. “We have total buy-in from the ginseng community which includes growers, input providers and ginseng buyers.”

Remi Van De Slyke, OGGA chair, agrees that the industry is on the right path with a robust team of experts. He returned November 13 from a trip to Shanghai, China, signing an agreement to partner with a pharmaceutical company for Ontario-grown ginseng. With so much future business on the line, he’s optimistic that the replant issue will be solved in the years to come. “We will stay the course,” he concludes.

Karen Davidson, editor, goes Behind the Scenes of this cover story with Carl Atkinson. To listen to the podcast visit www.thegrower.org/podcast



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CROSS COUNTRY DIGEST

BRITISH COLUMBIA

New legislation to curb urban sprawl in British Columbia's farmland

British Columbia's NDP government has introduced legislation that will curb excessive development in the Agricultural Land Reserve (ALR). Established in 1973 to protect prime farmland, the reserve protects about 4.6 million hectares of agriculturally suitable land in British Columbia. The legislation responds to the building of mega-mansions and the dumping of construction waste in rural areas.

"The old government let wealthy speculators drive the price of farmland out of reach for young farmers and allowed

some of our most valuable agricultural land to be damaged," said Lana Popham, Minister of Agriculture on November 5, 2018. "We are protecting farmland in B.C. to ensure land is available now and for future generations of farmers, so people in British Columbia have a safe, secure supply of locally grown food on their tables for years to come."

If passed, Bill 52, the agricultural land commission amendment act, 2018, will strengthen protections for B.C.'s Agricultural Land Reserve. The proposed legislation makes three key changes:

- Restoring the integrity of the ALR by reinstating one zone for all ALR land in B.C., making it clear that all land in the ALR benefits from the same strong protections.
- Addressing mega-mansions and speculation in the ALR by limiting new house sizes to less than 500 square metres [about 5,400 square feet], except through application to the Agricultural Land Commission (ALC) in cases where it would support farming; and requiring an ALC approval of any additional residences in the ALR to curb non-farm development.



• Cracking down on the dumping of construction debris, toxic waste and other fill in the ALR that can irreparably damage arable soil on valuable farmland, through increased penalties.

The new legislation will advance several recommendations in the independent report released by the Minister of Agriculture's Advisory Committee.

PRINCE EDWARD ISLAND

Potato harvest plagued by rainy weather

Extremes in temperature and rainfall made 2018 a year that Prince Edward Island growers would rather forget. Before mid-November, the province had received more rain than it normally does in the entire month. A short break in the weather around Nov. 7-10 allowed growers to get back on the fields.

According to Greg Donald, general manager of the P.E.I. Potato Board, many worked round the clock on their land and neighbours' farms, in a race against time and Mother

Nature.

"The most experienced potato growers on the Island are saying they've never seen a harvest like this," Donald said.

Kevin MacIsaac, general manager of the United Potato Growers of Canada echoed Donald's sentiments. "Often it's the last part of the harvest that is the grower's profit, after the bills have been paid," he said. "So having to leave crop in the ground, and worry about the quality of the ones harvested is really tough."

The last word for 2018's

harvest goes to P.E.I. potato farmer Bryan Maynard and his brother Kyle. In mid-November, they'd looked out over their fields despairingly, wondering how they'd bring in the last 100 acres before freeze-up. A call from two neighbours offering help – one of whom still had crop in the ground himself, but couldn't get on his wet land – was overwhelming.

"We'll all remember the harvest of 2018 for good and bad reasons, but I think we'll mostly want to talk about how we all came together," said Maynard.



Kyle Maynard, Farmboys Inc., Summerside, PEI.



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ALBERTA

Record number of delegates attend AGM of Potato Growers of Alberta

For the first time, the annual general meeting of the Potato Growers of Alberta was held in Edmonton November 13 -15, attracting 413 delegates this year. Of this number, 190 growers attended representing 69 Alberta licensed farms.

Russ Van Boom, who remains chair, welcomed J.P. Claassen from Vauxhall to the director-at-large position for a three-year term.

Some of the speakers included: Dr. Maria Trainer, CropLife Canada; Fred Gorrell, Agriculture and Agri-Food Canada; Dr. Andy Jensen, manager, Northwest Potato Research Consortium. The Honourable Oniel Carlier, Alberta Minister of Agriculture and Forestry, brought greetings.

Kim Keller, executive director and co-founder of Do

More Ag Foundation spoke about "Mental Health in Ag." With the many challenges of agriculture, it's important to raise awareness and reach out to people who are generally too afraid to talk about mental stress. Other speakers included: John Walsh, associate principal scientist, potato storage with McCain Foods Limited in New Brunswick; Dr. Mike Harding, plant pathologist with Alberta Ag & Forestry.

The Alberta Agricultural Products Marketing Council administered a plebiscite vote that was brought about by the repeal of Section 26-1 of the Marketing of Alberta Products Act. The membership voted in favour of a change to a "non-refundable service model" from the current refundable service model.

CROSS COUNTRY DIGEST

NOVA SCOTIA

Meet Anthony, dedicated seasonal worker from Jamaica

Chris (Anthony) Ellis is an authentic personality in the Canadian Horticultural Council's (CHC) first video in its 'Labour Awareness Campaign.' Specifically, the video highlights the close bonds between the Jamaican seasonal worker and farm owner Josh Oulton at TapRoot Farms, Port Williams, Nova Scotia.

"He's like a brother to us," says Ellis. "When he comes to Jamaica, he doesn't go to a hotel, he comes our house . . . We just respect Josh."

This is the first of 20 videos to be released in the next few months chronicling the lives and contributions of seasonal agricultural workers to Canadian horticulture. In their own words, they share their feelings and lessons learned from working on Canadian farms and how that translates to better lives for their families, whether in the Caribbean or Mexico.

Seasonal agricultural workers

QUEBEC

Farm workers



Another video in the CHC's "Labour Awareness Campaign" has been released in French.

Philippe Quinn, a berry farmer from Quebec, talks about the Guatemalans who work for him – especially Jose. It's an amazing, heart-warming story full of generosity and love.

"These people are family to us," says Quinn. One of his Guatemalan workers built the first high school in his county and was able to send his daughter to the school.

"We don't talk enough about the impact of these relationships at a human level," says David Folkerson, communications manager, CHC. "Both sides learn so much from each other, and the compassion, respect and admiration forged over months and years of working together remains long after the season is over and they have said their goodbyes."

Here is the link to the video: <https://www.facebook.com/hortcouncil/videos/2062467497136994>

are essential to Canadian fruit and vegetable production, comprising 53 per cent of Canada's paid agricultural workforce. Ellis, and thousands like him, help to fill a critical gap between the demand for workers and the supply of available Canadian workers.

The CHC's goal is that these stories will bridge the gap in knowledge that consumers have

about how food comes to the table, and accurately portray the mutually beneficial relationship between employers and employees. About 30,000 workers come to Canada's fruit and vegetable farms and greenhouses every year.

Here's the direct link: [/www.youtube.com/watch?v=JoWtpOYxkZA&feature=youtu.be](https://www.youtube.com/watch?v=JoWtpOYxkZA&feature=youtu.be)



Chris (Anthony) Ellis; "Josh Oulton is like a brother to us."

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10th year anniversary marks more than 3,100 participants

HEATHER GALE

CanadaGAP is a food safety program for companies that produce, pack, repack, store, wholesale and broker fruits and vegetables. 2018 marks the 10-year anniversary of CanadaGAP certification becoming available. The program officially launched in September 2008 with the enrolment of 500 potato growers, and has grown to more than 3,100 participating companies today from across the Canadian and U.S. fresh produce industry.

The program enjoys strong support from Canada's retail, processing and food service sectors, as well as international recognition across the range of export markets in the U.S., Latin America, Europe and Asia. Working together, a dedicated team of staff members, board of directors, stakeholders and program participants contribute to strengthening food safety implementation across the horticultural sector.

Key Achievements for 2018

- Alignment with new Safe Food for Canadians Regulations: CanadaGAP achieved full Government Recognition in March 2017 under the Canadian Government Food Safety

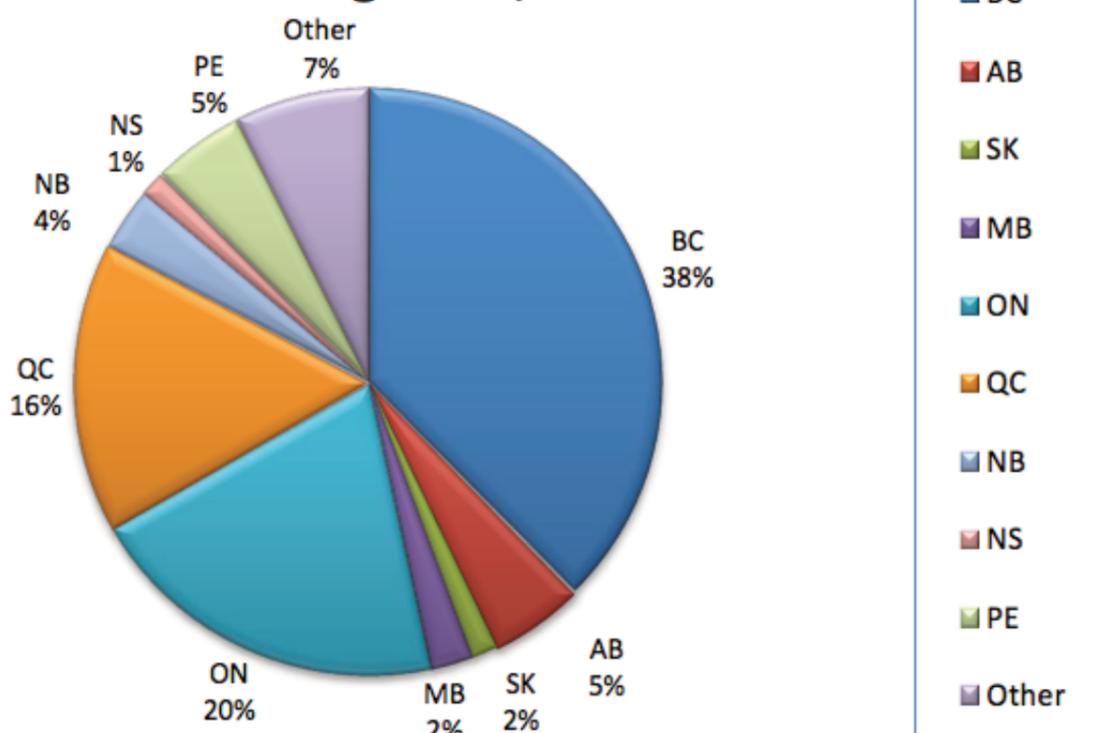
Recognition Program.

This stamp of approval by federal and provincial governments positions the program favourably in the context of the Safe Food for Canadians Regulations that will come into force on January 15, 2019. CanadaGAP is recognized as a "model system" for food safety preventive controls that fresh produce operations will need to have in place under the new regulations.

In addition, CanadaGAP participated in a pilot project with the Canadian Food Inspection Agency (CFIA) to ensure that program requirements are aligned with the new federal regulations. Some welcome changes to the legislation were introduced in response to technical comments submitted by CanadaGAP. The positive results of the comparison, as well as further details about how CanadaGAP fits with regulatory initiatives, are published at www.canadagap.ca/publications.

- Highest Average Audit Score: 2018 saw the average audit score peak at 94.34%. CanadaGAP-certified companies have set record-high scores in the tenth anniversary year of the program! Congratulations to program participants for showing great commitment to continuously improving their audit results.

Operations Enrolled by Province August 31, 2018



- GFSI Recognition: Re-benchmarking of the CanadaGAP program to GFSI (Global Food Safety Initiative) requirements Version 7.1 was successfully completed in 2018. CanadaGAP has been GFSI-recognized since 2010. Re-benchmarking occurs each time GFSI updates its requirements. Significant effort and resources are devoted to securing and maintaining GFSI recognition, which enables program users to access markets both within and outside Canada.

- Growth in Option D: Since receiving GFSI recognition for Option D in 2016, interest in CanadaGAP certification for repacking, wholesaling and brokerage operations has grown steadily. Customer demands for supply chain certification continue to drive uptake of Option D, leading to a 13 per cent growth rate over the last year. With 90 participating companies, we are close to reaching the target of 100 clients that was set when the Canadian Produce Marketing Association (CPMA) Repacking and Wholesaling standard was integrated into the CanadaGAP program four years ago.

- Unannounced Audits: Program participants and certification bodies undertook the first full year of implementation of the Unannounced Audit programme over the course of the past season. Five percent of CanadaGAP-certified companies are selected each year by their certification body to undergo an audit "unannounced" – i.e., with only 2 to 5 business days' notice. This initiative aligns CanadaGAP with GFSI requirements and contributes to improving the integrity and credibility of certification.

- FSMA Resources: CanadaGAP has maintained and updated a series of resources first published in 2017 on the CanadaGAP website. The purpose of these materials is to help CanadaGAP-certified companies understand the impact of the U.S. Food Safety Modernization Act on their export or U.S.-based business. The following resources can be

found at www.canadagap.ca under "Food Safety Links":

- o Information for Canadian exporters to the United States about the Foreign Supplier Verification Program (FSVP)

Report from the Board

CanAgPlus, the not-for-profit corporation that owns and operates the CanadaGAP program, holds its Annual General Meeting (AGM) for members each December. At the 2017 AGM, one resolution related to Unannounced Audits was debated. The 2018 AGM will take place in Ottawa on December 6, 2018.

The Board of Directors is comprised of eight volunteer directors. In keeping with the by-laws developed by the corporation's founding organizations, four directors are approved by the Canadian Horticultural Council (CHC) and two by CPMA, with another two directors at-large. Directors serve two-year rotating terms, with four directors elected annually. Four positions are available to aspiring candidates at the 2018 AGM.

The Board meets face-to-face twice annually and holds regular conference calls. The full list of directors and their biographies are posted at: www.canadagap.ca/about-us/governance/

The Board will elect a new chair and vice-chair following the 2018 AGM.

Thank you

Thanks to retiring chair Jack Bates and departing vice-chair Hugh Bowman.






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10th year anniversary marks more than 3,100 participants

Participation Trends

The following participation trends are significant for 2018:

- Participation rates have been stable since 2016. While new participants continue to enrol in the program, a significant number of retirements and farm sales have also occurred, offsetting significant growth in enrolment figures.

- Participation rose slightly among producers in British Columbia and Saskatchewan, and declined marginally in Manitoba. Among commodity groupings, moderate increases were seen in the Combined Vegetable sector.

- BC maintains the highest enrolment levels overall, representing 38% of all CanadaGAP-certified companies.

- Growth in Option D enrolments for repacking, wholesaling, and brokerage operations continues to increase, up 13%

over last year.

- CanadaGAP continues to attract U.S. growers, many of whom are organized into groups to pursue food safety certification.

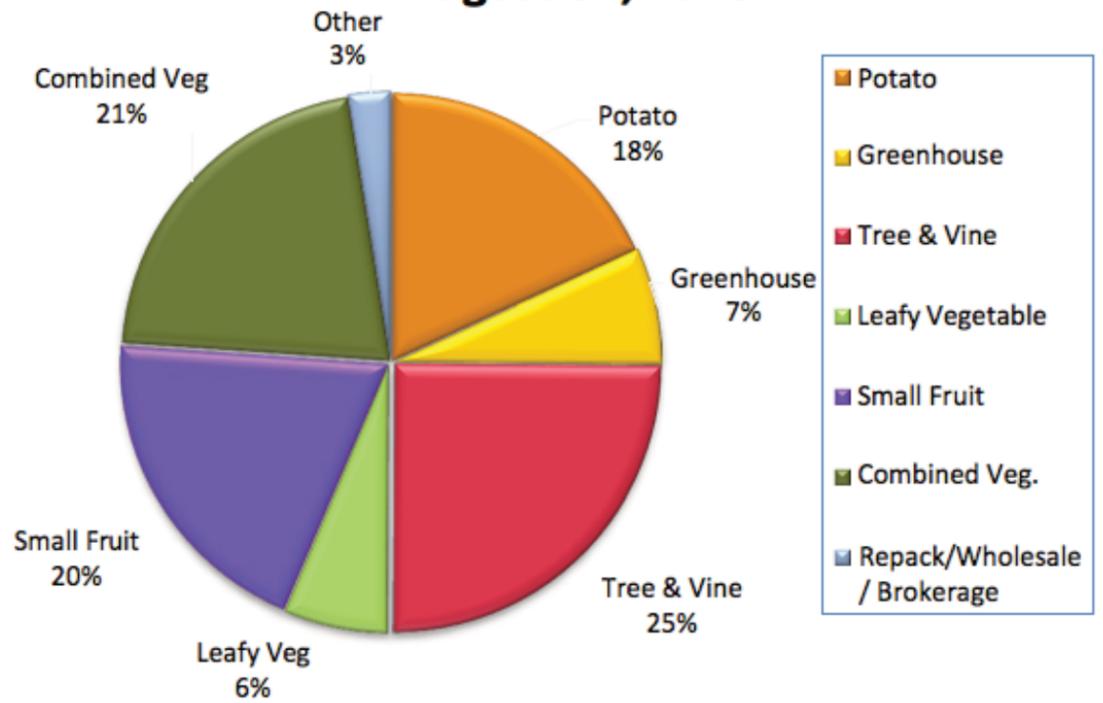
- Group certifications comprise 21% of all enrolments, while 25% of certified companies are enrolled in the four-year audit cycle.

- More than half (52%) of program participants are enrolled in Option C and undergo an annual audit.

- For the purposes of analyzing participation trends, enrolment figures are broken down by five crop groupings:
 - o Tree and Vine Fruit
 - o Field Vegetables
 - o Potatoes
 - o Small Fruit
 - o Greenhouse

Heather Gale is executive director CanadaGAP Program, CanAg Plus.

Proportion of CanadaGAP participants represented by crop grouping August 31, 2018



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INTERNATIONAL

U.S. 2018 potato production estimates released

Nov 8 2018 (million cwt.) NASS



Top Nine States

State	2016	2017	2018	Percent
Idaho	139,320	134,850	138,600	+2.8%
Washington	105,625	99,220	106,425	+7.3%
Wisconsin	27,840	28,475	26,800	-5.9%
North Dakota	21,600	24,420	23,725	-2.8%
Colorado	22,236	21,220	21,623	+1.8%
Oregon	22,951	21,395	28,458	+33.0%
Minnesota	16,800	18,428	18,060	-2.0%
Michigan	17,020	17,205	17,390	+1.1%
Maine	15,113	15,200	15,840	+4.2%
Total Fall Crop	406,638	400,565	417,482	+4.2%
Total U.S. Crop	441,411	442,034	452,619	+2.4%

USDA National Agricultural Statistics Service Nov 2018

The United Potato Growers of Canada (UPGC) have released production estimates for the top nine U.S. states, courtesy of the National Agricultural Statistics Service. Overall, production is up 2.4 per cent.

Kevin MacIsaac, general manager, UPGC, provided the following commentary.

Idaho

The National Agricultural Statistics Service (NASS)

estimates 2018 production will be up 3.7 million hundred weight. Processing acreage increased this year to meet the needs of the Burley plant expansion. Fresh acreage is less this year. Yields are estimated to be 5 cwt./acre higher moving from 435 cwt./acre last year to 440 cwt./acre this season.

Washington

Production is estimated to be up 7.2 million hundred weight. Planted acreage was about the

same however some fresh acreage has shifted to processing. Yields have returned from 600 cwt./acre last year to 645 cwt./acre in 2018.

Oregon

Planted acreage in Oregon increased by about 7,000 acres to meet processing expansion in the Columbia Basin. Production is expected to increase by 7.2 million hundredweight. An increase in yields to 620 cwt./acre from 2017's 550

cwt./acre is also a big contributor to overall volume.

Wisconsin

The 2018 growing season was a difficult one with excessive rainfall, reducing yields from 425 cwt./acre last year down to 400 cwt./acre. In addition, extreme harvest conditions have reduced the overall production by 1.7 million hundred weight.

North Dakota and Minnesota

These states are the other two with expected declines in production for the 2018 crop. Minnesota's yield moved up from 405 cwt./acre to 420 cwt./acre, reflecting a better crop but with reduced acreage. North Dakota's yield was estimated to be 5 cwt./acre lower for the 2018 crop.

Source: United Potato Growers of Canada November 14, 2018 news release



BERMEO 65 Day • Cauliflower

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SAFRANE 106 Day • Yellow Long Day Storage

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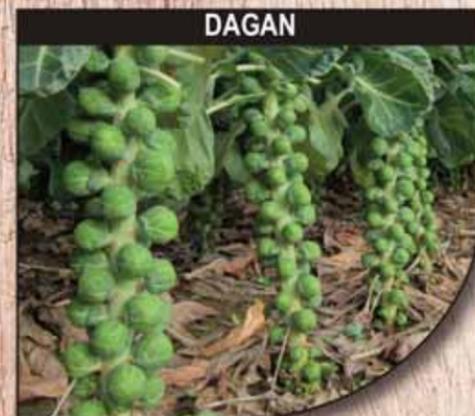
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CANADIAN CENTRE FOR FOOD INTEGRITY

Eroding trust in Canadian food system

When asked to rate their level of concern on a number of issues ranging from health care, economy and unemployment to climate change and rising energy costs, Canadians indicated they're most concerned about the rising cost of food (67%). Keeping healthy food affordable was rated second, together with rising energy costs and rising health care costs, all at 63 per cent. Rounding out the top five concerns for Canadians was the safety of food imported from outside of Canada at 55 per cent.

"The results tell us today's consumers are not only looking for affordable food options, they are also unsure about many aspects about food and the food system and are looking to know more from credible sources," said Crystal Mackay, CCFI president, at the opening day, November 13, of the annual conference in Gatineau, QC.

Four in 10 Canadians are unsure if the food system is

headed in the right direction. After a significant increase in 2017, survey results show a sizable drop in the number of consumers who feel Canada's food system is headed in the right direction – just over one third (36%) in 2018 compared to 43 per cent in 2017.

The overall impression of agriculture in Canada also decreased for the first time in 12 years - falling from 61 per cent in 2016 to 56 per cent in the latest survey. This follows a steady increase since 2006. The decline in positive impressions is driven by a significant increase in Canadians who say they don't know enough about agriculture and food to have an opinion (12% in 2018, compared to only 2% in 2016).

"This research demonstrates that the food system can't take trust for granted; it must be earned," said Mackay.

"Canadians desire balanced, credible information about food so they can feel confident in their decisions for themselves



Photo by Glenn Lowson.

and their families. It's up to the entire food chain to turn up the volume and efforts to openly share information about food and how it's produced, processed and packaged with consumers."

The 2018 web-based survey was completed in July by 1,509 respondents who reflect the general Canadian consumer

population aged 18 or older. The survey results from the 2018 CCFI Public Trust Research can be downloaded at www.foodintegrity.ca in French or English.

The Canadian Centre for Food Integrity is a non-profit organization that helps Canada's food system earn trust by coordinating research, resources,

dialogue and training. Members, donors and project partners, who represent the diversity of the food system, are committed to providing accurate information and working together to address important issues in food and agriculture. The CCFI does not lobby or advocate for individual companies or brands.

INTERNATIONAL TRADE

What's next for USMCA?



With the U.S. midterms over and the Democrats winning the House of Representatives, NAFTA 2.0 -- now called the U.S. Mexico, Canada Agreement or USMCA -- may be signed on the sidelines of the G20 meeting in Buenos Aires, Argentina on November 30-December 1. However, the agreement still needs approval by the U.S. Congress. When the House reconvenes in January, it's likely that the Democrats will ask for changes.

The American horticultural industry is urging a bipartisan approach. The United Fresh Produce Association, issued a statement November 7 in response to the 2018 mid-term election results:

"Americans across the country showed up in record numbers to elect a new Congress," said Robert Guenther, senior vice-president, public policy. "With a new Democratic House, and a Republican Senate, much is at stake in the next two years. We look forward to continue working in a bipartisan manner to advance the priorities of the fresh produce industry. Passing a new Farm Bill, ensuring a

reliable workforce and creating new trade opportunities will remain our top priorities in the 116th Congress."

Coincidentally, Canadian horticultural leaders were lobbying parliamentarians in Ottawa on November 6 and 7 with similar messaging: access to labour and international trade. For the Canadian produce sector to build on its current \$2.8 billion in exports, it will need less red tape and more tax reform to be competitive.

In the near-term, expect the Chinese-American tariff war to cause more shifts in trading patterns. Washington state, for example, has a smaller apple crop than first forecast in August, now at 116.9 million 40-pound box equivalents. That 11 per cent decrease in the forecast may in fact be good news. In the northeast, growers have been worried that apples normally destined for China will now be looking for an alternative home in North America.

Overall, the disruption in trade patterns means that all countries are scrambling for new markets.



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INNOVATION

Yes! to niche markets

KAREN DAVIDSON

With only about 50 acres under glass, strawberries are a niche market for a handful of Ontario's greenhouse growers. Carl Mastronardi, president, Del Fresco Pure, spotted the potential after testing one acre of strawberries in July 2016.

The samples sent to local and national retailers were a hit. Enough of a hit for Mastronardi to retrofit 10 acres of a cucumber greenhouse to grow strawberries with high-pressure sodium lights to produce a crop all year long.

"In 2018, Del Fresco Produce was the only Ontario grower to offer greenhouse-grown strawberries for January 2018," says Mastronardi. "We were the only source of greenhouse-grown strawberries for the winter months."

As Fiona McLean, marketing director explains, Del Fresco Produce promoted the new Yes! branded strawberries from Kingsville, Ontario with a robust communication plan.

- Local registered dietitian promoting the message of locally grown strawberries

- Double signed billboard rental at the Ontario Food Terminal
- Social media outreach with Produce Made Simple campaign
- TV segments with registered dietitian and influencers
- Feature ads with retail partners all year long
- In-store demos with consumer-facing point-of-sale material on the strawberries are grown
- Editorial coverage in the *Windsor Star*
- Multiple interviews with consumer media
- Produced a video on "How We Grow Greenhouse Strawberries"
- Outreach with trade publications promoting YES!BERRIES Your Everyday Snack strawberries.

In 2018, feedback from the local and national retailers and consumer uptake has prompted another expansion to six acres. That brings the sum of Del Fresco Produce strawberry production to 17 acres.

For this product innovation and multi-channel marketing program, Carl Mastronardi was honoured with the Ontario Produce Marketing Association's 2018 Cory Clack-Streef Produce Person of the Year Award.



Carl Mastronardi, president, Del Fresco Pure, Kingsville, ON



Yes! Berries

Detecting a fly's DNA in fruit may be key in reducing crop damage

Quick and accurate identification is one way fruit growers can stay ahead of Spotted Wing Drosophila (SWD). The pest, which the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has been tracking since 2011, affects berry crops and caused significant losses in cherries in 2017. Its impact on other Ontario stone fruit and grapes isn't yet known.

SWD can penetrate the skin of

healthy fruit to lay eggs inside, where the larvae develop and promote rot – and often growers can't see the problem until it's too late to save the crop.

That's why field monitoring is important, but the current method is a lengthy, time-consuming process.

Now, researchers are working on a new molecular method to identify and quantify SWD through the fly's DNA, with the

goal of improving the speed and accuracy of pest detection.

"Through the Canadian Agricultural Partnership our government is helping the sector continue to innovate, grow and prosper," said Lawrence MacAulay, Minister of Agriculture and Agri-Food. "Improving pest management methods is important for Ontario fruit growers as well as for all sectors of agriculture and we are



Spotted Wing Drosophila trap

pleased to invest in collaborative agricultural science that directly addresses on-farm challenges." The Niagara Peninsula Fruit and Vegetable Growers' Association, in collaboration with Ontario Tender Fruit, has accessed funding through the Canadian Agricultural Partnership to develop and validate this technology. A network of pest traps across the province will support validation of the new identification method.

"Our government is pleased to help make promising collaborations like this come about. This innovative project could make a real difference in how farmers deal with this damaging pest," said Ontario Minister of Agriculture, Food and Rural Affairs, Ernie Hardeman.

Through the Partnership, the project is eligible for funding in excess of \$80,000.

"The idea is that eventually this will be a service where growers can do their own monitoring and send samples into the

University of Guelph pest diagnostic clinic for analysis," explains Dr. Wendy McFadden-Smith, OMAFRA horticulture integrated pest management specialist.

The project is also evaluating whether both current and test varieties of plums, peaches, nectarines and grapes are susceptible to SWD, which will help growers with pest management in orchards and vineyards.

"Funding from the Partnership is invaluable to the industry as neither grower organization has the resources to carry out this work on our own," says Sarah Marshall, General Manager of Ontario Tender Fruit. "Being able to monitor our orchards for emerging pests and diseases is absolutely critical to the future of our sector and our growers take pride in being able to produce healthy, safe fruit for consumers."

Source: Agricultural Adaptation Council November 19, 2018 news release




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National policy issues coming into focus



GORDON STOCK
SENIOR POLICY ADVISOR &
GOVERNMENT RELATIONS,
OFVGA

This column is to keep you informed about the key issues that OFVGA is tackling on behalf of Ontario's fruit and vegetable farmers.

National policy issues

OFVGA continues to work closely with the Canadian Horticultural Council (CHC) by bringing in additional government relations expertise from McMillan Vantage as needed on national issues. A recent example of this work includes a final push to ensure the federal government was aware of the significant negative implications of the federal carbon tax on heating and cooling of agricultural buildings, specifically for greenhouses, if an exemption or relief was not granted.

OFVGA is also collaborating with CHC on addressing ongoing concerns with re-evaluations conducted by the Pest Management Regulatory Agency (PMRA) and strategies for solving these concerns for the long term.

A number of OFVGA representatives attended CHC and the Canadian Produce

Marketing Association's Fall Harvest lobby event on Parliament Hill in November. The event was successful in holding more than 50 meetings with politicians and staff. The focus of the meetings included trade, labour, crop protection and the national food policy.

Staying focused on federal issues is becoming more and more important with the federal election looming next October.

Crop protection

OFVGA recently submitted comments to the Pest Management Regulatory Agency (PMRA) in response to the proposed decisions from the special reviews on clothianidin and thiamethoxam in support of continued use, citing the value to fruit and vegetable production, and the limited risks associated with horticultural use patterns.

Work continues with respect to mancozeb and developing a response to the most recent proposed decision, which is available for comment until January 3. Ontario Agriculture Minister Hardeman recently wrote to the federal Minister of Health expressing the importance of mancozeb to the horticultural sector. OFVGA is hopeful that increased government awareness of the impact of PMRA re-evaluation decisions can be leveraged to develop support for an improved re-evaluation process.

Labour

OFVGA was pleased with the Ontario government's release of Bill 47, Making Ontario Open for Business Act, which has been proposed to make changes to Ontario's labour legislation, including minimum wage. Support for Bill

47 has been demonstrated through a submission to the Standing Committee on Finance and Economic Affairs, highlighting that the pause on minimum wage until October 2020 is needed for farmers to adjust. Monitoring of this legislation will continue to ensure that it is passed and implemented before January 2019.

Environment and conservation

The Environmental Commissioner of Ontario recently released a report titled Back to Basics which highlights a number of ongoing water quality issues, including references to commercial fertilizer use and phosphorus run-off from farms. OFVGA will be monitoring the government's response to this report and ensuring that government understands the steps taken by the industry to mitigate environmental concerns.

OFVGA is awaiting the Ontario government's plans for environmental and climate change policy for the province. While the cap-and-trade program has officially been repealed with the passing of Bill 4, The Cap and Trade Cancellation Act, the province has signaled its intent to implement a new environment strategy. OFVGA will be providing horticulture's perspective once more information is known.

The federal government recently announced additional details on its federal carbon tax backstop. OFVGA was pleased with the relief offered for heating fuels for greenhouses, however there are still aspects of primary food production that will not experience exemption or carbon tax relief. The Ontario government has



fruits and vegetables raising more than \$453,000 for their schools.

Along with providing a healthy school-fundraising alternative, the Fresh from the Farm program helps to increase the awareness and consumption of healthy Ontario-grown fruit and vegetables in the school communities. It also supports Ontario growers while opening up a new market for their products that didn't exist

before the program started six years ago.

On behalf of Ontario fruit and vegetable growers, The Fresh from the Farm program partners wish to thank the school communities for their continued support of the program and look forward to the program continuing in years to come. For more details check out www.freshfromfarm.ca
Photo by Mikayla Streef

Canadian Horticultural Council @CHC_CCH · 2m

Another great #FallHarvest meeting with @DVK_CKL . We're very fortunate to have advocates like you supporting our sector! #cdnpoli #cdnag



L-R: Mike Furi, The Grocery People; Bill George, vice-chair, OFVGA; Dave Van Kesteren, MP; Alison Robertson, executive director, OFVGA; Allan Gordon, CPMA visit Parliament Hill for the Fall Harvest lobbying event.

indicated that it will be releasing its environmental and climate change plans for public comment soon, which OFVGA will be monitoring closely.

Red tape

OFVGA continues to support the government's goal to reduce red tape and regulatory duplication for farmers. As OFVGA prioritizes red tape reduction opportunities, the fruit and vegetable sector is encouraged to identify specific examples and relay them to the OFVGA.

AGM resolutions

December 11, 2018 is the deadline for resolutions to be submitted to dhutton@ofvga.org so that they can be presented and voted on at the OFVGA annual general meeting on February 19. This is a great opportunity for the Ontario industry to help shape the focus and direction of the OFVGA moving forward.

For more information on any industry issues, please contact Gordon Stock, senior policy and government relations advisor, at gstock@ofvga.org.

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CHAIR'S PERSPECTIVE

Fall Harvest experience



JAN VANDERHOUT
CHAIR, OFVGA

The Ontario Fruit and Vegetable Growers' Association is working diligently on interacting with the provincial government, but we are also part of something bigger. We are part of the Canadian Horticultural Council and as such have a certain obligation and incentive to participate in the influence of agriculture policy in Canada. The Canadian Horticultural Council, in collaboration with the Canadian Produce Marketing Association, recently spent three days in Ottawa with a group of more than 50 produce representatives from across Canada to do just that. The event is called FALL HARVEST.

On Monday morning produce industry representatives arrived in Ottawa and met as a group to review the messaging for this year's Fall Harvest lobby event and to discuss presentation strategies for the meetings "on the Hill" on the following two days. Under the theme of competitiveness, we had four main pillars to this year's speaking points to the different MPs, senators and staff.

International trade is very much a national issue and this year after securing the USMCA agreement we focused on developing future markets for Canadian-grown produce. Two ways that government can help us are by giving us support as we try to establish the contacts and relationships in potential trading partners. This can be an onerous task with language and cultural barriers making these conversations difficult to navigate. Secondly once connections are made, government must support us as we develop these trading relationships and in avoiding phyto-sanitary and other border crossing issues. With government support we can hope to supply enormous markets in Asia giving us an

opportunity to expand production without the concern of oversupplying Canadian or American markets.

Crop protection is another area where the federal government plays a huge role. To have ongoing access to crop protection materials that are an integral part of our production model we assert ourselves with government and the PMRA, so they understand the vitally important role crop protection plays on our farms. The main ask this year was that, as they review registrations, they take into consideration the economic impact of their decisions. We also reminded them that there is often more residue on the products we import than on the products we grow. Eliminating product uses domestically will in some cases make it unviable to produce certain crops, creating a dependence on imported product and increasing the amount of pesticides on Canadian food. Crop protection is a key component to the competitiveness of all produce growers in the province.

Labour access is the life blood of food production in Ontario. Some growers have been bringing workers into Canada since the beginning of

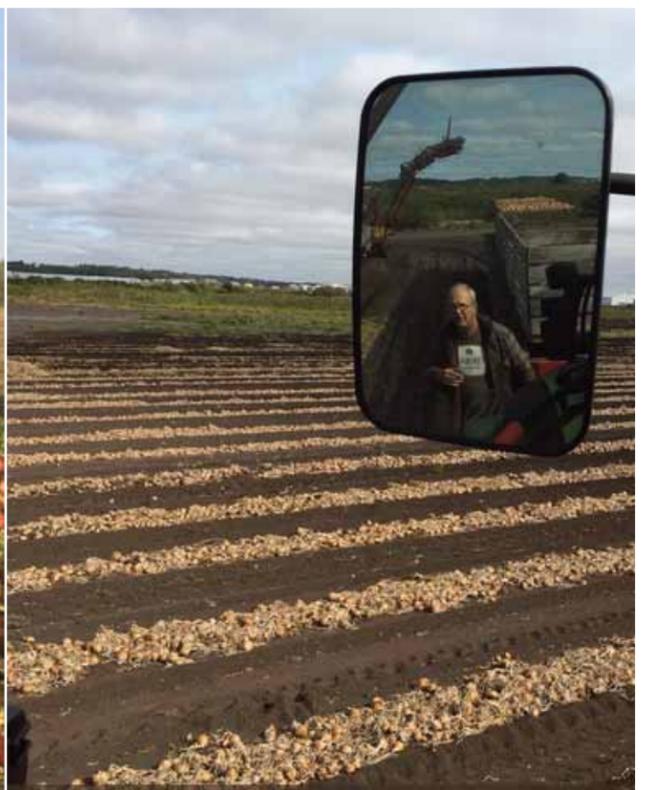
the program over 50 years ago and the debt of gratitude grows as year after year workers make the journey to Canada to help with the farm work. Those who participate in the program know too well that the process of applying for workers becomes more and more challenging every year. We ask that a trusted employer program could be put in place to allow farmers in good standing who have been employing similar numbers of workers to the same farms for a few years to have a streamlined application approval process for the Seasonal Agricultural Worker Program. Spending less time reviewing "trusted employers" would speed up the process for approving Labour Market Impact Assessment (LMIA) applications for all applicants while allowing more time for Service Canada to review new employers, employers with significant changes to their LMIA and randomly verifying a sample from the group of trusted employers. For growers this would mean faster approvals and less time reviewing with Service Canada the information they filled in on their form. This would likely mean a small reduction in the number of Service Canada staff.

Increased produce consumption has been a part of our federal lobby messaging for several years now. Close to 80 per cent of Canadians do not eat enough fruits and vegetables as set out by Canada's Food Guide adding billions of dollars to economic burden. Government was encouraged to set food policy that will improve the health of Canadians while increasing demand for the products we grow.

For me the highlight of the week was the reception on the Tuesday night. Many MPs, senators and staffers joined us through the two-hour event. Everyone at the event was eager to visit and talk through how our sector is doing. This event is as much about relationship building as it is about messaging and many connections are made and enhanced at this event.

There is a federal election scheduled for October 21, 2019 which will make scheduling Fall Harvest 2019 all but impossible. Whenever our next lobby event is, it will be important to once again plan our messaging and gather as a group of industry leaders to help shape the future of agriculture policy in this great nation we call Canada.

WEATHER VANE



Thanks to Twitter, we've assembled a collage of photos showing "the last row" of harvest 2018. Grapes by Phil Tregunno, field tomatoes by Jim Brush and onions by Bill Eek.

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That kind of migration from municipality to municipality is very much on the mind of professionals such as planners — including rural planners — who try to forecast the need for roads, housing, education and other services.

As the Rural Ontario Institute says, Ontario's demographic structure is such that more people are reaching retirement age, compared to the age group who are potential labour market entrants.

That means regions wishing

to grow their workforce must attract immigrants or migrants from other regions in Canada, as well as from abroad. Workforce shortage is a reality agriculture knows all too well.

Not that it's overly easy for immigrants to move once they've arrived in Canada. But it's much easier than getting here in the first place. So communities are dedicating at least some of their promotional efforts on attracting immigrants or migrants from other regions in Canada.

In the ongoing and sometimes uphill battle to equip decision makers with facts — so that policy and decisions can be based on research rather than emotion — the institute is working through a new set of fact sheets about rural Ontario. The first of this new series deals with migration in and out of rural communities in the province.

According to the institute, migration into communities is very active. Most non-metro census divisions, which encompass rural communities,

are augmenting their populations by attracting what they call in-migrants, compared to the number of out-migrants.

Among those census divisions with a positive net migration, the major contributor was the net in-migration of individuals 45-64 years old.

This age group includes the more-experienced members of the workforce, plus early retirees.

That's good for the short term, if your community needs investment and stability.

But for the longer term, there's a problem. Among the non-metro (rural) census divisions with people moving out, the loss of young adults 18-24 years old was the major contributor.

The biggest problems are in the north. There, across all age groups, net migration contributed to a population loss of 0.5 per cent or more per year in the census districts of Sudbury, Cochrane, Rainy River and Timiskaming. Closer to major agricultural regions, Huron also took a big hit.



But it's not all bad news. At the other end of the spectrum, net migration across all age groups represented a population growth of 0.5 per cent or more per year in the census district of Oxford, as well as Haliburton, Northumberland, Muskoka and Kawartha Lakes.

Many rural communities are doing something to attract investment. But what about attracting new residents, too? The University of Windsor model could be a good one to follow.



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GUEST OPINION EDITORIAL

Remove impediments to growth and create an environment for expanded trade



RON LEMAIRE
PRESIDENT, CPMA



The Fall Harvest lobbying event included 56 horticultural industry participants visiting more than 50 parliamentarians and their staff in Ottawa on November 6 and 7. The first day was capped with a meeting with Prime Minister Justin Trudeau who was congratulated on the recent USMCA trade agreement.

L-R: Rebecca Lee, executive director, Canadian Horticultural Council; Les Mallard, chair, Canadian Produce Marketing Association; Prime Minister Justin Trudeau; Brian Gilroy, president, Canadian Horticultural Council; Ron Lemaire, president, Canadian Produce Marketing Association; Jane Proctor, vice-president, policy and issues management, Canadian Produce Marketing Association.

The Government of Canada has rightly identified the importance of supporting the competitiveness of the economy and targeting Canada's key industries. Strengthening Canada's fruit and vegetable supply chain presents an opportunity to support a key pillar of our economy and improve the sustainability of our domestic food system.

We have long been advocating with our health partners that when the new Canadian Food Guide is released later this year, it should include recommendations for Canadians to increase their daily consumption of fresh fruits and vegetables. Currently, 80 per cent of Canadians do not eat the recommended amount of fresh fruits and vegetables indicated in the Food Guide, creating an economic burden of \$4.4 billion on the economy. Increased fruit and vegetable consumption will both improve the health of Canadians and grow the Canadian economy, but the industry must be positioned for success including removing impediments to growth while creating an environment for expanded trade.

As an industry, we have been working hard to promote the scope and importance of the fresh fruit and vegetable industry in Canada. In fact, the Canadian produce industry and its supply chain had an estimated economic impact of \$14 billion in GDP in 2016, and supported more than 181,000 Canadian jobs across the country. The Canadian economy was greatly boosted by the export of fruits and vegetables, representing 47 per cent of production within Canada and accounting for a farm gate value of more than \$2.8 billion.

We know that the Advisory Council on Economic Growth focused extensively on the agri-food sector in its report, arguing that it presents a unique opportunity to boost inclusive economic growth with the right balance of innovation,

competitive markets, and capital investment. Additionally, the Economic Strategy Roundtables, which produced their final report this past September, also highlighted Canada's agri-food sector, recommending ambitious growth targets of \$140 billion in domestic sales by 2025, and \$85 billion in exports by 2025.

One of the key ingredients for success is expanding our export markets to new and emerging economies. We applaud the Government for successfully concluding negotiations on the new United States-Mexico-Canada Agreement (USMCA) and the recent ratification of the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP). While both the USMCA and CPTPP will be a net positive for the fresh produce industry, now is the time to enter into negotiations with the world's second largest economy: China. With our strong international reputation for food safety, quality and flavour, Canada's fruit and vegetable industry is uniquely positioned to take advantage of the many opportunities in the Chinese market whose consumers are becoming ever more sophisticated.

Additionally, we must reform our tax system so that businesses can be more competitive and attract investment. With the significant tax cuts this past year in the United States, there exists some "low-hanging fruit" in terms of tax reform that we can address.

On tax reform, one needs only to look at the Small Business Deduction to find major gains for small businesses of any sector. The capital limits of the Small Business Deduction have not been updated since their establishment 24 years ago. Anyone would be hard-pressed to find a small business today that operates the same way it did back in the 1990s, let alone a small farming operation.

Furthermore, we need to expand the exemption provided to agricultural cooperatives to all agricultural-affiliated corporations seeking to claim the Small Business Deduction. In order to be competitive, split marketing costs among growers and meet retail requirements, many growers use affiliated corporations to lower costs and ensure Canadians have access to high-quality Canadian-grown products when in season.

We are at an important juncture for our industry and our economy. The Government's focus on competitiveness is an opportunity that we are ready to seize. These targeted changes will make a big difference for Canada's fresh produce industry, so that we can continue to feed Canadians fresh, healthy and affordable fruits and vegetables.

Ron Lemaire is president of the Canadian Produce Marketing Association. This opinion editorial first appeared in the November 5 edition of The Hill Times, coinciding with the Fall Harvest lobbying event on Parliament Hill.

COMING EVENTS 2018

- | | |
|-------------|---|
| Dec 4-6 | Great Lakes Expo, Devos Place Conference Center & The Amway Grand Plaza Hotel, Grand Rapids, MI |
| Dec 5 | Ontario Potato Board Annual General Meeting, Delta Hotel, Guelph, ON |
| Dec 6 | CanAgPlus Annual General Meeting, Canadian Pork Council boardroom, Ottawa, ON 1 pm |
| Dec 12 | Garlic Production and Pest Management Workshop, OMAFRA office, 1 Stone Road, Guelph, ON |
| Dec 13 | Fresh Vegetable Growers of Ontario Annual General Meeting, OMAFRA boardroom, Woodstock, ON |
| 2019 | |
| Jan 3-4 | Southwest Agricultural Conference, "The Road Ahead," University of Guelph Ridgetown Campus, Ridgetown, ON |
| Jan 9-10 | NPC Potato Expo, Austin, TX |
| Jan 15 | Safe Food for Canadians Regulations come into force |
| Jan 24 | Apple Growers of Quebec Annual General Meeting, Plaza Rive-sud, La Prairie, QC |
| Jan 24-26 | Pacific Agriculture Show, Tradex Exhibition Centre, Abbotsford, BC |
| Jan 24-27 | 38th Annual Guelph Organic Conference, Guelph University Centre, Guelph, ON
www.guelphorganicconf.ca |
| Jan 29-30 | Nova Scotia Fruit Growers' Association Annual General Meeting, Old Orchard Inn, Greenwich, NS |
| Jan 29-31 | Manitoba Potato Production Days, Keystone Centre, Brandon, MB |
| Jan 29-31 | Mid-Atlantic Fruit & Vegetable Convention, Hershey Lodge and Convention Center, Hershey, PA |
| Jan 30-31 | Ontario Processing Vegetable Growers' Industry Conference, Four Points by Sheraton Hotel, London, ON |
| Feb 3-6 | North American Strawberry Growers' Association Annual General Meeting and Strawberry Symposium, Wyndam Orlando Resort, Orlando, FL |
| Feb 12 | Canada's Agriculture Day |
| Feb 12-13 | British Columbia Fruit Growers' Association 130th Annual General Meeting, Ramada Penticton, Penticton, BC |
| Feb 19 | Berry Growers of Ontario Annual General Meeting, Embassy Suites, Niagara Falls, ON |
| Feb 19 | Ontario Fruit and Vegetable Growers' Association Annual General Meeting, Sheraton on the Falls, Niagara Falls, ON |
| Feb 19-20 | PEI Potato Conference and Awards Banquet, Charlottetown, PE |
| Feb 15 | BC Tree Fruit Horticultural Symposium, Kelowna Trinity Baptist Church, Kelowna BC |
| Feb 20-21 | Ontario Fruit and Vegetable Convention, Scotiabank Convention Centre, Niagara Falls, ON |
| Feb 24-28 | International Fruit Tree Association Annual Conference, Rochester, NY |

RETAIL NAVIGATOR

More than \$88 million of produce sold each week in Ontario



PETER CHAPMAN

As we continue to move from market to market in Canada, this month we will explore the largest market by population: Ontario. This is the area with the largest weekly food potential and all of the national retailers are fighting for share in this lucrative marketplace. Volume is key to success in the food industry and although competition is tough, Ontario remains the best opportunity to generate sales per square foot.

Ontario is home to more than 38 per cent of Canadians with just over 13.242 million people as reported by Statistics Canada in the 2016 census. We see estimates of the total food industry in Canada being \$120 billion per year, which means based on the Ontario population, there are approximately \$882 million worth of food purchased in Ontario stores each year. If produce is a 10 per cent penetration in these food sales, there is more than \$88 million up for grabs in the produce department each week.

One of the characteristics of the Ontario market is ethnic diversity. In the urban area of Toronto there has been an incredible change in the population in recent years. Of the more than 13 million living in Ontario, more than 3.852 million or 29 per cent have immigrated to Canada. This diverse population has a significant impact on product demand and the products that can be offered for sale.

According to the 2016 census the breakdown of the ethnic origin of Ontario immigrants is listed in the chart above.

Customers influence the buying decision

All of the national food retailers have a presence in Ontario. One of the biggest challenges in a market that is growing is the availability and cost of real estate to build stores. It can be difficult to match a capital expenditure program to the population

growth and geography. Retailers continue to strive to put the right stores in the right markets.

Loblaw roots are in Ontario where the company has expanded through organic growth and acquisitions such as Fortino's and Zehrs. The company is the leading retailer in Ontario market share. The company is divided into three retail divisions: discount, market and Shoppers Drug Mart. In Ontario, the discount division operates Real Canadian Superstores and No Frills. The market division operates Loblaw, Zehrs, Independent and Fortino's with the company also operating T&T stores but more autonomously than the other banners. We continue to see more and more food in Shoppers Drug Mart stores in the drug division. Produce is supplied out of the Maple Grove warehouse that services all stores in all divisions.

Sobeys have been restructuring their business nationally and Ontario is part of their new national structure. Sobeys, Foodland and FreshCo stores dominate the store banners and there are still six Safeway stores and three Price Chopper stores left in Ontario. Recently, Sobeys purchased the 26 Farm Boy locations in the province. To date they have said the stores will maintain their

Statistics Canada-Ethnic origin of Ontario immigrants		
	Population	% Total Immigration
Total immigration	3,852,145	100%
Americas	598,950	15.5%
Europe	1,144,295	30%
Africa	226,770	6%
Asia	1,869,805	48%
Oceania	12,330	.5%

autonomy and operate as they have been. The company operates FreshCo separately to ensure it functions as a discount banner. Produce is distributed to Ontario stores from the distribution center in Whitby.

Metro purchased the A&P stores in Ontario to provide entry into the food industry in Canada's most populous province. The company operates Metro and Food Basics discount stores, two Adonis stores and recently Jean Coutu in the province. Many stores were renovated after the A&P acquisition to bring a more consistent store offering.

Walmart has continued to expand the number of Supercenters in the province. Walmart operates the Ontario stores from its national office in Mississauga, however as in many Walmart markets, stores do have some autonomy to ensure they meet the needs of consumers in the market. Recently the company opened a new produce distribution center in Cornwall to service the market.

Costco has 35 warehouses in Ontario. The Ontario stores are managed out of the Ottawa Costco office. These

warehouses offer similar assortments to warehouses in other regions. Obviously the concentration is in Metro Toronto however they cover the province from one end to the other including Windsor and Sudbury.

Whole Foods have a presence in Ontario with six stores in the Greater Toronto Area and one in Ottawa. They have continued to increase their footprint from the first store in Yorkville to reach west to Mississauga and east to Markham. Most Whole Foods stores will display where their produce comes from so you can figure out who the suppliers are. They prefer organic first but have to make concessions in some categories, depending on availability.

The Ontario Food Terminal in South Etobicoke is a big asset to the industry in this market. Growers have access to all chains and independents through the terminal. Certainly the major chains build direct supply programs with growers, but the terminal is a second option for them and a first choice for independents. On the Ontario Food Terminal website they claim there are more than

5,000 registered buyers.

The Ontario market

Ontario is the biggest market and retailers would tell you the most competitive. Consumers have access to the broadest range of selection and pricing because there are more market niches and the growing conditions are generally favourable, not to mention the huge greenhouse industry in Leamington.

If you have any questions about selling your products or developing strategies for specific customers please give me a call at (902) 489-2900 or send me an email.

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 GPS Business Solutions and a partner in SKUfood.com, an on line resource for food producers. Peter works with producers and processors to help them navigate through the retail environment with the ultimate goal to get more of their items in the shopping cart. peter@skufood.com

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MAKING MOVES

Ocean freight: the basics



JENNIFER MORRIS

Referred to as the biggest business people know nothing about, ocean freight, has been a go-to way of transporting goods throughout history. Even as this article is being written there are more than 200,000 cargo vessels on the water all over the globe. Since this is the most common mode used to transport goods around the world, with 90 per cent of all things being shipped by ocean freight, it is important to understand the fundamentals. So here is the basic information about shipping product by ocean.

Advantages

Economical - ocean freight is the best value for both volume and weight when shipping internationally.

Environmental Impact - ocean freight is the less impactful mode of transportation for the environment. The CO₂

emissions from ocean freight are extremely low when compared to air freight and even over-the-road transport. Two tonnes of product shipped 5000 km via ocean leads to 150 kg of CO₂ emissions compared to 6605 kg of CO₂ emissions via air.

Flexibility of Cargo - As opposed to air freight there are fewer restrictions on the type of freight you are able to ship. Due to regulations there are a lot of commodities that cannot be shipped via air -- ocean is a lot more flexible with the types of commodities that can ship. Also large and heavy items are much better suited to ocean freight.

Disadvantages

Reliability - delivery dates are not guaranteed, subject to weather and tides. It is not uncommon for ships to be a few days off schedule. This makes arrival dates unpredictable.

Speed - time-frames for ocean freight are lengthy and are not well suited to sensitive or quickly perishing freight.

Delays - containers can be delayed due to the ocean company not releasing them or issues with paperwork that can cause delays and added costs.

Temperature-controlled goods

Many different types of temperature-controlled freight



are shipped by ocean. Even what some may consider sensitive produce such as blueberries are shipped by ocean. Controlled Atmosphere Containers extend the shelf-life of your fruits and vegetables by slowing the ripening process. The container can help maintain ideal temps and levels of O₂ and CO₂.

Options for ocean shipping
LCL (Less than a Container Load) or FCL (Full Container Load) -

There is flexibility with shipping ocean freight. There is the option of paying for a full container or just booking based on volume and weight which is less than a container. Full container gives you more control over the release of the container and how much or how little you want to load. LCL is good for inconsistent shipments that fluctuate in volume -- this way you only pay for what you move. However, your product can be delayed for release if the container is inspected and there is an issue with other product sharing your container.

Door-to-Door or Port-to-Port - The options for level of service

are based on where you want the ocean company to take and give up possession of the freight. Door-to-door is as it sounds and the product is picked up from a warehouse or facility and brought to the port, then from the destination port to the final destination warehouse. Port-to-port means that the vendor and/or receiver is responsible for getting the product from a warehouse to the port and then from the destination port to the final destination warehouse. This option is good for companies that have their own fleets that they can use to pick up the product.

Cost structures

Cost for ocean is broken out by Basic Ocean Freight rate and then additional mandatory fees which are listed below. Basic Ocean Freight rate is only the cost of the product movement by the vessel. This rate is based off of either a full container flat rate or a rate based on weight and volume for LCL. Basic Ocean Freight rates tend to change quarterly and increase based on seasonality and demand.

Additional fees

There are mandatory fees that are not covered in the typical Basic Ocean Freight rate. These costs cover items and services that are pass-through charges

(eg. from the terminals) or are beyond basic transport services.

Bunker Adjustment Factor (SBF) - charge to account for fluctuations in bunker costs (oil used by the vessel) that changes quarterly

Terminal Handling Charges (THC) - based on the cost of handling the container in the terminals, including loading and discharge of the container to and from the vessel

Documentation Charge - service provided where the necessary transport documents are provided at the origin and destination based on shipping instructions

Container Demurrage - is the charge for a container that is not moved out of the port/terminal for unpacking within the allowed free days offered by the shipping line. Charge is levied by the shipping line to the importer.

Jennifer Morris is president of Two Roads Logistics based in Toronto, Ontario. She is an international shipping and logistics consultant with 15 years of experience in produce transportation. Her passion for helping small and innovative businesses is a welcome addition to the Education Committee of the Canadian Produce Marketing Association. She holds a degree in psychology from the University of Windsor.

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Kuehne + Nagel is expanding its digital seafreight platform

The Switzerland-based logistics company, Kuehne + Nagel, has announced the expansion of its digital seafreight platform. Called Sea Explorer, the program offers smart connections between more than 1,200 ports around the globe through an advanced pathfinding algorithm. More than 63,000 port pairs are connected either by 750 direct weekly services or by a multitude of trans-shipment options.

"For the first time a platform provides full visibility on CO₂ emissions across carrier and individual services," says Otto Schacht, a member of the board. "Also in the light of the

upcoming IMO 2020 regulations, this will enable shippers to contribute towards a green economy and sustainable global maritime transportation. Kuehne + Nagel leverages big data technology capabilities and information from operational system to grant unique insights to sea transport options."

Schacht is referring to the United Nations agency, the International Maritime Organization (IMO) which is mandating a limit to sulfur content of bunker fuel to a maximum of 0.5 per cent as of January 1, 2020.

Source: Kuehne+ Nagel November 15, 2018 news release

FOCUS: SOIL HEALTH AND BIOSTIMULANTS

Consider your cover crop strategy for 2019

KAREN DAVIDSON

Chances are that cover crops will be on many winter meeting agendas in 2019. The Southwest Ontario Agricultural Conference in early January, for example, has scheduled several topics: Cover Crop Reality, Rampant Roots and Your Soil is Talking.

Anne Verhallen, soil management specialist horticulture, OMAFRA, offers a heads-up on her topic: Your Soil is Talking. As basic as it sounds, soil samples and the tactile experience of taking a soil sample can reveal a lot.

Prevent compaction

“I was doing a project with processing tomatoes on sandy soils near Harrow,” Verhallen explains. “On the surface, the field looked consistent but the soil probe told me something different. I could feel in the palm of my hand an area of resistance. That was compaction.”

As surprising as it sounds, sandy soils compact with heavy equipment traffic. And that’s not healthy for root development or ability to cycle nutrients to the plant. Yields then suffer.

Plant multi-mixes

Soil health requires year-round stewardship over many years. Forage seed companies that normally cater to the livestock sector, are now counselling various sectors in horticulture. Kevin Crispin, forage specialist with Speare Seeds, Harriston, Ontario, exhibited at last year’s Ontario Fruit and Vegetable Convention, in order to meet a different crowd. He recommends ryegrass for vineyards

and a mix of cover crops for potato growers.

“The interest in cover crops is coming back,” Crispin notes. “Growers want more diversity in cover crops to support pollinators and for erosion control.”

Annual ryegrass is planted along with clovers and phacelia. Brassicas are grown for their biofumigant properties.

“There is no right way or wrong way, although everyone seems to be looking for a recipe,” says Crispin. “Mixtures depend on the soil conditions.”

About 90 per cent of the forage seed that he sells are custom mixes, he says. A mix can consist of two or three species then range up to 18. Crispin warns that seed rates should be kept low – “you’re not looking to harvest this crop for feed.”

Mustard seed, for example, is a very small seed, and should be planted at the rate of about half a pound per acre as part of a multi-species mix. One caveat: that rate is not enough for bio-fumigant purposes. Fall ryegrass, on the other hand, is planted at a rate of 15 pounds per acre.

One trend is that potato growers, in particular, are planting more cover crops in the rotation years. They are covering the headlands where there is machinery traffic and they’re aware of the pollinator benefits.

Potato growers in Prince Edward Island are looking to cover crops for a number of reasons.

“We are in the early days of cover crop trials but a lot of growers are forging ahead,” reports Ryan Barrett, research and agronomy coordinator, PEI Potato Board. “Growers are changing rotations to build soil organic matter and combat soil-borne diseases. I see fewer fields of red clover and more

fields of mustard, buckwheat, or sorghum sudangrass, among other crops. They are looking to improve soil quality and to battle soil-borne diseases at the same time.”

Suppress pests

Wireworm is a persistent pest in PEI potato fields, so mustard and buckwheat are most often grown as green manure crops during the growing season. Fall cover crops such as winter cereals are generally grown after potatoes are harvested. The hurdle is that the 2018 fall harvest was plagued with so much rain, and was so late, that fewer fall cover crops were planted.

Improve nitrogen supply

Dr. Judith Nyiraneza, nutrient management specialist, Agriculture and Agri-Food Canada, Charlottetown is one researcher to watch. In collaboration with other scientists at Charlottetown Research and Development Centre, they are assessing the impact of diversified cover crops with and without manure on nitrogen cycling, soil nitrogen supply, on subsequent potato yield and quality, on the overall soil health and on economic return.

At meetings across Canada this winter, look for the trial results that are pertinent to your crop and region.



Kevin Crispin, Speare Seeds, counsels on custom mixes for cover crops. Photo by Glenn Lowson.



Pearl millet with no manure is one trial conducted in Prince Edward Island by researcher Dr. Judith Nyiraneza.



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FOCUS: SOIL HEALTH AND BIOSTIMULANTS

Soil: what's below is now top of mind

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fao.org/soils-2015

Soil degradation leads to the loss of soil micro and macronutrients

Nutrient-poor soils are unable to produce healthy food with all the necessary nutrients for a healthy person

Over 2 billion people suffer from micronutrient deficiencies

Role of 18 nutrients necessary for plant growth and human health

Soil macronutrients: N (Nitrogen), P (Phosphorus), K (Potassium)

Soil micronutrients: B (Boron), Ca (Calcium), Cl (Chlorine), Cu (Copper), Fe (Iron), Mn (Manganese), Mo (Molybdenum), Na (Sodium), Si (Silicon), S (Sulfur), Zn (Zinc)

Human Health Benefits:

- Plays a key role in brain and muscle function
- Contributes to perception of taste
- Needed for immune system health
- Key component of protein
- Essential for muscle and nerve activity
- Important in immune system health, blood clotting and pressure regulation
- A component of proteins, DNA, RNA and blood
- Promotes digestive process
- Maintains acid-base balance
- Needed for proper fluid balance
- Essential to fetal development and functioning of reproductive system
- Key component of enzymes
- Helps deliver oxygen to the tissues
- Important for healthy bones
- A component of enzymes, DNA, RNA, proteins and promotes immune system health
- A component of enzymes and involved in Fe metabolism

Plant Health Benefits:

- Promote plant growth
- Improves winter hardiness
- Involved in photosynthesis
- Increase disease resistance
- Reduces plant respiration
- Promotes root formation and growth
- Increases water-use efficiency
- Stimulates microbial activity
- Promote nodule formation on legumes
- Involved in carbohydrate metabolism and translocation of starches
- Promote reproduction
- Aid translocation of photosynthesis from leaves to fruiting organs
- Acts as an O₂ carrier
- Fruit formation
- Quickens maturity
- Fruit quality
- Fruit flavour
- Seed formation
- Seed quality
- Enhances maturity of small grains
- Aids in enzyme functionality and plant use of Fe and P
- Responsible for enzyme activity
- Helps enzyme activity and increases the availability of P and Ca

Soil Management Practices:

- Reduce erosion
- Ensure crop rotation
- Keep soil surface covered
- Minimize tillage
- Increase soil organic matter content

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30 years of growing knowledge

KAREN DAVIDSON

The paradigm shift has been coming for awhile, but in 2015, the United Nation's Year of the Soil put a spotlight on an asset that's been taken for granted. The soil microbiome is an underworld of microbes that supports plant health and cycles carbon. The interdependence of these bacteria and fungi is still to be completely understood for their positive effects on plant health.

About the same time that the Food and Agriculture Organization published its riveting poster (see above), the son of an Annapolis Valley apple grower made a life-altering decision. As Harrison Van Meekeren studied social sciences and psychology at Mount Allison University, he had an opportunity to return to Van Meekeren Farms in Lakeville, Nova Scotia. The 110 acres of both high-density and free-standing trees of high-value apple varieties were operated by his father. By 2017, he was orchard manager.

With fresh eyes, Van Meekeren soon observed random trees that weren't faring well as he drove equipment and managed the spraying program. To benchmark each block's fertility as well as to investigate the root cause of collapsing trees, he took soil and leaf samples as part of a measure-before-you-manage approach, and then in his words, "I went down the rabbit hole."

The Mulder's chart

The complexity of interactions between

different minerals captivated him, especially the Mulder's chart. Essentially, this chart explains the synergies and antagonisms between minerals. He discovered one should never just 'top up' on NPK fertilizer every season, for this could put a soil further out of balance, creating an issue with the availability of other key nutrients. All decisions should be based on fresh soil tests and management should be taken on a nutrient balance basis.

Here's an example. Van Meekeren Farms applied lime and gypsum at the beginning of the season, but did not observe the added calcium gains when looking at the leaf tests through the season. After studying the Mulder's chart and looking at the soil tests, he realized the soil needed boron. Calcium is the trucker of all minerals through the plant, while boron is the steering wheel -- very crucial but often overlooked. After applying boron to the soil, Van Meekeren Farms has observed higher calcium levels in the leaf tests.

In the Honeycrisp apple, notoriously finicky to grow, the calcium to potassium ratios are critical. To build strong cell walls in an apple, you need calcium. But if potassium levels are too high, then calcium uptake will be inhibited. Since the cell walls are twice the size in a Honeycrisp than other varieties (giving it that juicy crunch), it has a higher demand for calcium to build the extra cell structure of the apple. Unfortunately, Honeycrisp tends to hyper-accumulate potassium. And then the apples are prone to developing bitter pit.

"I looked to the Mulder's chart to achieve the right balance between these

minerals," says Van Meekeren.

Manganese, for instance, helps to balance potassium in the plant -- it is essentially the gate keeper for potassium. During and before cell division he mixes manganese with calcium sprays. This helps to keep the potassium levels in balance in this timeframe and allows optimum calcium translocation into the growing fruitlets.

"We not only need to look at the balance of minerals and how they interact but also the impacts that conventional practices can have on our farming ecosystem," says Van Meekeren. "One practice, spraying herbicides such as glyphosate, can hinder the group of bacteria and fungi that unlock manganese and make it plant-available. I don't want to leave trees deficient in this mighty micro-nutrient," says Van Meekeren. "If using herbicides such as glyphosate, then it would be a good idea to spray manganese on the foliage of the trees to compensate for the 'locked up' nutrient in the soil. But again, measure with the tests you have available before making a management call."

Cover crops

Apple trees and other plants work hard to convert sunlight into energy. That energy is converted into sugars which go into producing fruit, vegetation and roots but the remainder, about 30 per cent of the converted sugars, are pumped down and out through the root system. At the microbiome level, the root exudates (sugars) provide food for different bacteria and fungi.

Continued on next page

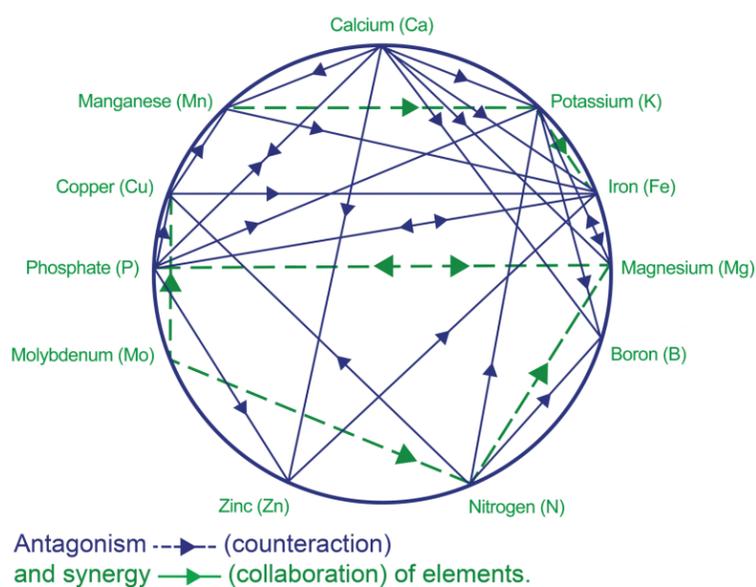
FOCUS: SOIL HEALTH AND BIOSTIMULANTS

Soil: what's below is now top of mind



We not only need to look at the balance of minerals and how they interact but also the impacts that conventional practices can have on our farming ecosystem.

~ HARRISON VAN MEEKEREN



The Mulder's chart explains synergies and antagonisms between minerals.



Harrison Van Meekeren, Lakeville, Nova Scotia.

In return, these beneficials scavenge and unlock nutrients within the soil matrix for the host plant.

“If you walk in a forest, there is a diverse ecosystem of plants, animals, and microbiology, all working together without applied fertilizer,” says Van Meekeren. “My goal is to mimic nature by providing a large diversity of plants exuding a diversity of sugars from the root systems and creating a diverse microbiome in the orchard. This will in turn create a healthier environment and ecosystem for the trees that are now more disease-resistant and will require less chemical intervention. Sustainability really brings the fun back into farming.”

Van Meekeren has introduced a “cocktail cover crop” with as many plant species as possible between the apple rows. The year before establishing a new orchard, he is planting a mixture of oriental mustard, sorghum sudan grass, millet, clovers and alfalfa. The biofumigant properties of mustard and other plants suppress parasitic nematodes and soil pathogens. The biomass is chopped up using a

flail mower in the fall. A tractor follows with a rototiller to work the plant matter into the soil and seal it for decomposition.

As the cell walls within the plant break down and are converted into humus, a volatile gas is released. They suppress pathogens associated with replant disease.

It's been only two years under this new regime of mineral management through soil and leaf tests and orchard floor management, but Van Meekeren observes some evidence of improvement in fruit quality. In Honeycrisp blocks for example, he used to see trees that were ripening unevenly and dropping their fruit. He also saw bitter pit issues and excessive vegetative growth. In 2018, the apples were holding on to their fruit to the extent that 90 per cent of the crop was harvested during the first pick and bitter pit was minimal. Additionally, he observed good fruiting wood development for the season to come. These results save labour and time, increase packout quality, and indicate a good start to next year's season.

Biostimulants

Consider adding biostimulants such as molasses, seaweed, humates, fish oil and chitin from lobster shells -- essentially carbohydrates and proteins -- that provide food for soil microbes. Companies that promote biostimulants claim better germination and root development, more efficient energy and nutrient uptake and transport as well as optimization of metabolic processes. Careful examination of the labels is recommended.

“My dad has been very encouraging,” says Van Meekeren, admitting his approach is at the other end of the spectrum to how his father has managed the orchard. “He empowers me to follow my new ideas into action.”

Replant disease was the topic explored when the Nova Scotia Apple Tour visited the farm in early August 2018. Soil improvement practices were at the heart of the talk. Van Meekeren's hope is that more growers will explore these new ideas.

He concludes: “You can feel the energy of a healthy farm.”

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FOCUS: SOIL HEALTH AND BIOSTIMULANTS

Improving yield with biological products in garlic

TRAVIS CRANMER

The terms biofertilizers, biopesticides and biostimulants are often used interchangeably when discussing biological products, but there are key differences between these terms. Biofertilizers describe microbials that contain nitrogen-fixing bacteria or microbials that improve nutrient uptake from the soil and are regulated similar to conventional fertilizers. Biopesticides are microbes, microbial extracts, plant extracts or other products derived from natural materials that target specific pests which are regulated under the Pest Management Regulatory Agency (PMRA). Biostimulants in the form of microbials, plant extracts, amino acids or organic acids are used to aid in nutrient assimilation and this class of products is not currently regulated under the PMRA or Fertilizer Act.

These biological products have been said to stimulate the crop to induce immune defenses, increase nutrient availability, suppress pests or pathogens and/or promote a healthy microbial rhizosphere. Last fall, garlic was planted at two field sites near Dashwood, Ontario in Huron clay loam and Mount Forest, Ontario in Harriston loam to determine if five biological products had an effect on yield, bulb size or overall plant health.

The treatments were: Synergro by ConcentricAg (previously Inocucor); Phyter by Endo Plant Health; Rhizovital 42 by Sylvar; ON-Gard 5-0-0 by BioWorks; LCFX by TerraBioGen, as well as a non-inoculated check. Of these products, Synergro, Phyter and Rhizovital 42 contain living microbes. ON-Gard 5-0-0 contains plant-derived amino acids and peptides and LCFX contains microbial extracts. These products were applied in the

fall, at planting in a randomized complete block design. Weights for each plot of 30 cloves were measured prior to planting to remove potential starting bias for each of the four replications. Neither field site was irrigated throughout the growing season.

Both locations showed no significant differences in plant emergence in the early spring or differences in a mid-season height and leaf stage assessment roughly six weeks later. Harvest was conducted in late July when an average of 50 per cent of the leaves had senesced. Bulb basal plates were rated for damage (Table 1; Figure 1C) by assessing the percentage of basal plate missing using a 0-4 rating scale: where 0 = no damage, 1 = 1-24% basal plate missing; 2 = 25-50% basal plate missing; 3 = > 50% basal plate missing and 4 = completely desiccated bulb. Bulbs were hung to dry in a mesh bag in a forced air drying shed and dry weights were collected to determine yield (Table 1).

While not statistically significant, Rhizovital 42 performed well across most measured variables at harvest and had less basal plate rot at both locations. It was interesting to note that the fresh weight of the entire plant that the product LCFX performed significantly better at the Mount Forest location while it was approximately the same as the control at the Dashwood location (Table 1). It is likely that the different soil types with different nutrient deficiencies or microbial communities are bound to drastically alter the effectiveness of biological products in the field. Next year's trial is already in the ground at two new sites testing six products including some from the 2017-2018 trial.

Travis Cranmer is a vegetable crops specialist with the Ontario Ministry of Agriculture, Food and Rural Affairs.

Dashwood							
Treatment	Plant Fresh Weight (g)	Diameter (cm)	Bulb Circumference (cm)	Basal Plate Rot ¹	Bulb Fresh Weight (g)	Marketable Weight (kg) ¹	# Cloves
Synergro	91.6ns	4.8b	15.8ns	0.2ns	63.1ns	1.35ns	6.4ns
OnGard 5-0-0	90.3	4.8b	15.9	0.2	63.4	1.17	6.5
LCFX	89.4	4.9ab	16.2	0.2	65.0	1.24	6.6
Rhizovital 42	95.2	5.3a	16.5	0.1	67.6	1.38	6.4
Endo Plant Health	93.0	5.1ab	16.5	0.2	68.1	1.30	6.5
Non-inoculated control	90.2	5.0ab	16.3	0.2	64.6	1.22	6.5
Mount Forest							
Treatment	Plant Fresh Weight (g)	Diameter (cm)	Bulb Circumference (cm)	Basal Plate Rot ¹	Bulb Fresh Weight (g)	Marketable Weight (kg) ¹	# Cloves
Synergro	73.1ab	4.5ns	15.2ns	0.5ab	52.3ns	0.92ns	6.5ns
OnGard 5-0-0	84.6ab	4.8	16.0	0.3ab	57.1	1.10	6.7
LCFX	85.6a	5.2	16.0	0.3ab	56.5	1.01	6.8
Rhizovital 42	84.1a	4.8	15.8	0.2b	56.8	1.12	6.9
Phyter	72.6b	4.5	15.1	0.5a	50.0	0.89	6.5
Non-inoculated control	74.9ab	4.6	15.4	0.5ab	54.2	0.73	6.9

¹ Basal plate rot rating is calculated by assessing the percentage of basal plate missing using a 0-4 rating scale: where 0 = no damage, 1 = 1-24% basal plate missing; 2 = 25-50% basal plate missing; 3 = > 50% basal plate missing and 4 = completely desiccated bulb

² Marketable weight was determined by combining all marketable cloves within a single replicate

³ ns = no significant differences were found among the treatments

Table 1: Harvest assessments collected July 23rd and 24th and dry weights collected 13 August for various biological treatments on garlic grown near Dashwood and Mount Forest, Ontario, 2017-2018.

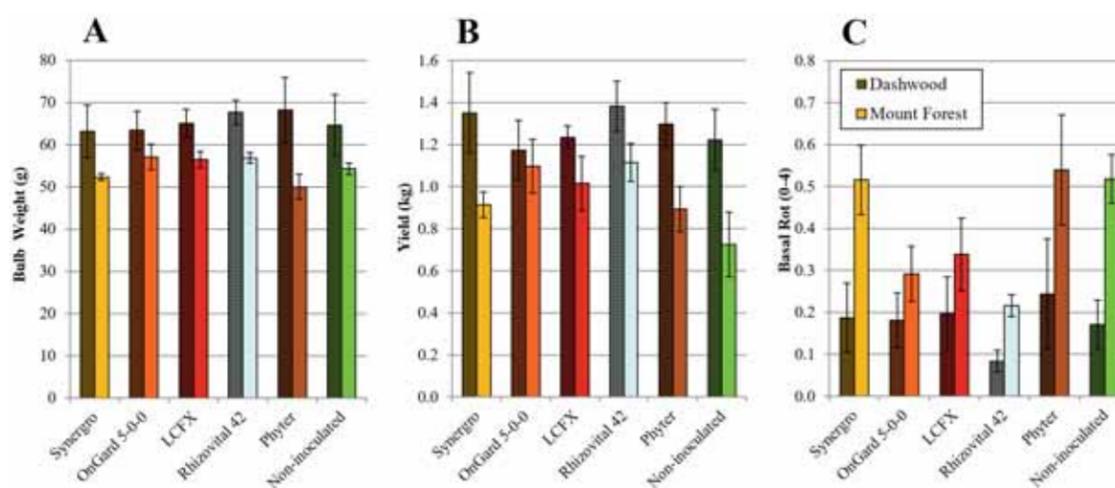


Figure 1. Bulb fresh weight (A), dry marketable yield per plot (B) and basal rot at harvest (C) for various biological treatments on garlic grown near Dashwood (shaded bars) and Mount Forest (solid bars), Ontario, 2018-2018.



Figure 2: Harvesting at Dashwood, Ontario July 23rd, 2018.



Figure 3: Trial near Mount Forest, Ontario June 15th, 2018.

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FOCUS: SOIL HEALTH AND BIOSTIMULANTS

A farmer-to-farmer approach to soil health

A Soil Health Certificate program is part of a new project to promote agri-environmental stewardship in Ontario. With the support of funding from the Canadian Agricultural Partnership, the Ecological Farmers' Association of Ontario (EFAO) is offering farmer-to-farmer based soil health training and mentorship.

"Soil is an extremely important component in a strong agri-food sector," says Katie Baikie, training and resources program manager with EFAO. "This project builds on EFAO's foundation of knowledge generation by farmers for farmers."

The certificate includes farm tours, workshops and online learning for farmers new to ecological practices and those looking to expand their knowledge. It will also include soil organic matter testing to help establish baseline data, and training on sample collection.

Additional education on various soil health topics will be offered through standalone workshops across Ontario. Two research and demonstration sites are showcasing soil health management strategies and are part of farmer-led soil health research studies.

EFAO is also adding several farmer-leaders to its advisory service as Soil Health Champions to offer soil health mentorship, advice and consultation to other farmers by phone, online or through a farm visit.

According to Baikie, the benefits to farmers will range from cost savings through lower input and fuel costs to increased soil water-holding capacity and infiltration.

"Overall, better soil health means improved resiliency in face of extreme weather, letting farmers increase yields and grow more nutrient-dense crops," she says. "The goal is not only to improve environmental sustainability but also the economic survivability of the farm for farmers."

"This funding means we have the capacity to reach farther and do more with this program, and expand beyond our day-to-day activities to generate learnings that will be more broadly accessible and more widely felt," she adds.

This project was funded in part through the Canadian Agricultural Partnership (the Partnership), a federal-provincial-territorial initiative. The Agricultural Adaptation Council assists in the delivery of the Partnership in Ontario.

Source: Agricultural Adaptation Council November 5, 2018 news release



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Ontario Ministry of Agriculture, Food and Rural Affairs

Active hurricane season = increased sweet corn pest pressure

ELAINE RODDY

If I had to choose one tool to assist with integrated pest management in sweet corn, it would be the corn earworm trap.

Traps are available for a number of different sweet corn insect pests including European corn borer, fall armyworm and Western bean cutworm. For these pests they can provide interesting data and help to monitor population hot spots across the province. However, at the individual farm level, these pests can be just as easily monitored through field scouting.

Corn earworm is an entirely different challenge. It is a stealthy little creature. It arrives unexpectedly in summer weather fronts, and offers only the briefest amount of time during which it can be controlled. The critical control period is literally less than two inches long. That is the amount of space it takes for the young larvae to move from where it was hatched on the silk to the protective cover of the husk. Once inside the husk, it is no

longer controlled through pesticide applications. Even natural predators, such as trichogramma wasps, have a hard time navigating through the husk. As a result, the timing and coverage of insecticide applications is of utmost importance.

Sweet corn becomes attractive to corn earworm moths at the green silk stage. Insecticides applied prior to this time will do little to control the corn earworm. From tassel emergence through pollen shed, visually scout for pests such as European corn borer or Western bean cutworm. Both pests are easily identified at this stage by their egg masses. Pyrethroid (group 3A) sprays are still very effective for these pests.

Earworm moths travel from the southern United States in the summer storm fronts. As the Atlantic storm season becomes active, we start to see increased numbers of moths in the Great Lakes Region. Once green silks are present, pheromone traps become a valuable tool to monitor the movement of this pest into the region, and identify fields or areas at risk of

becoming infested by the earworm. Unlike the other two Lepidoptera pests, earworm eggs are not easily found while scouting.

Corn earworm is resistant to the pyrethroid class of insecticides. Currently, earworm control is achieved with the diamide (group 28) class of insecticides, including Voliam Xpress and Coragen. Lannate (a group 1A insecticide) is also registered.

In order to get the best performance from earworm insecticides, they need to be applied at green silk. If moth numbers are high during silking, more than one may be required. While these products do have residual activity, the fast growing nature of the silks means that the newer silk tissues are not protected.

Once the silks dry down, the female moths are no longer attracted to them as egg-laying sites.

For more information on the corn earworm, visit www.omafr.gov.on.ca/IPM/english/sweet-corn/insects/corn-earworm.html.

There are a few sites that



Figure 1. European Corn Borer Egg Mass



Figure 2. Western Bean Cutworm Egg Mass



Figure 3. Heliiothis Trap for Corn Earworm Monitoring

monitor and predict the movement of insect pests into the Mid-west and North Eastern United States.

If you are struggling with corn earworm control, despite having used all of the above tools, let us know. It is important to hear directly from

growers as we set priorities for insect and pesticide research and registrations.

elaine.rodody@ontario.ca

Elaine Roddy is vegetable crops specialist for OMAFRA based in Ridgeway, Ontario.

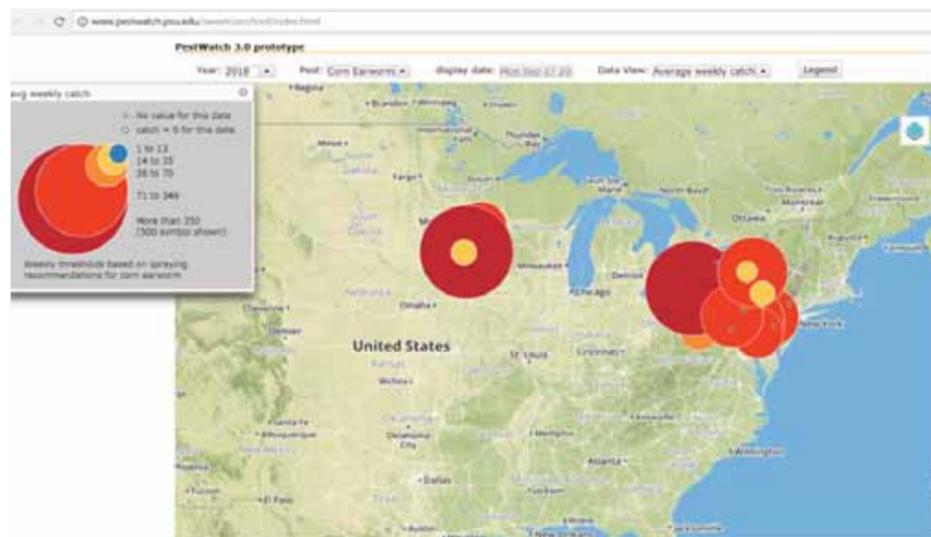


Figure 4. http://www.pestwatch.psu.edu/sweet_corn.htm

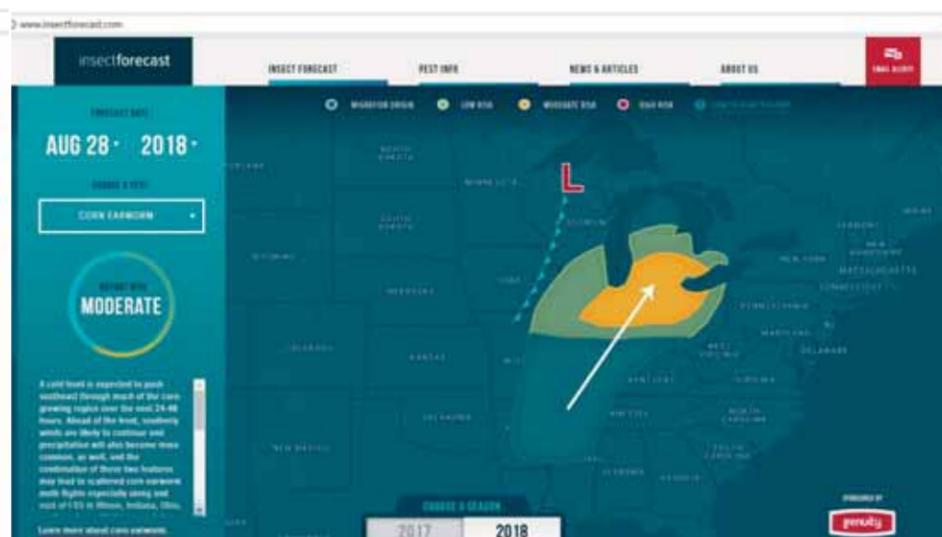


Figure 5. <http://www.insectforecast.com/>

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ONTARIO VEG NEWS

Pepper weevil survey update



Pepper weevil adult on pepper



Pepper weevil damage to jalapeno



Pepper weevil on trap

AMANDA TRACEY

The growing season has come to an end and so too has the pepper weevil (PeW) survey. Traps were monitored for 25 weeks from the first week of May to the middle of October. There were 34 sites across six Ontario counties (Essex, Chatham-Kent, Lambton, Norfolk, Elgin and Brant), predominantly in Essex and Chatham-Kent, as these areas were the most impacted in previous years. The traps were placed strategically near high traffic areas (e.g. entrances) and along the field perimeters to catch incoming weevils. Each site had two traps, which were checked weekly and replaced every two weeks, as recommended by the manufacturer.

So, what did we find?
 We caught our first adult pepper weevil on September 12, 2018 or week 37 on the calendar. This is a sharp contrast to surveys and observations made in previous years. In 2017 we caught our first PeW at the end of July, a full seven weeks earlier than 2018. A similar activity pattern was also observed in 2016. Once PeW is found on a farm, it has to be aggressively managed until the end of harvest. In years where PeW shows up early, populations can build to levels that are impossible to control effectively, resulting in growers walking away from a fall harvest. Although everyone would prefer if PeW didn't show up at all, growers had seven extra weeks of picking uninfested fruit compared to the previous growing season, when harvest shut down early due to management challenges with this

pest. This also means less chemical control was needed in 2018, which translates to a significant amount of savings.
 What does this mean for next season?
 It is hard to predict what next year is going to look like regarding PeW. Population growth is highly dependent on temperature, so weather conditions will have an effect on pest pressure next year. Just because we had a "good" year in 2018 does not mean that PeW is going to be easy to manage every year. We need to continue monitoring for PeW presence in the crop by using pheromone traps and scouting. If we all remain vigilant and aware, we can successfully manage pepper weevil together.

Amanda Tracey is vegetable crop specialist, Ridgeway, ON.

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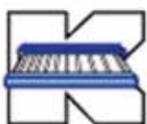
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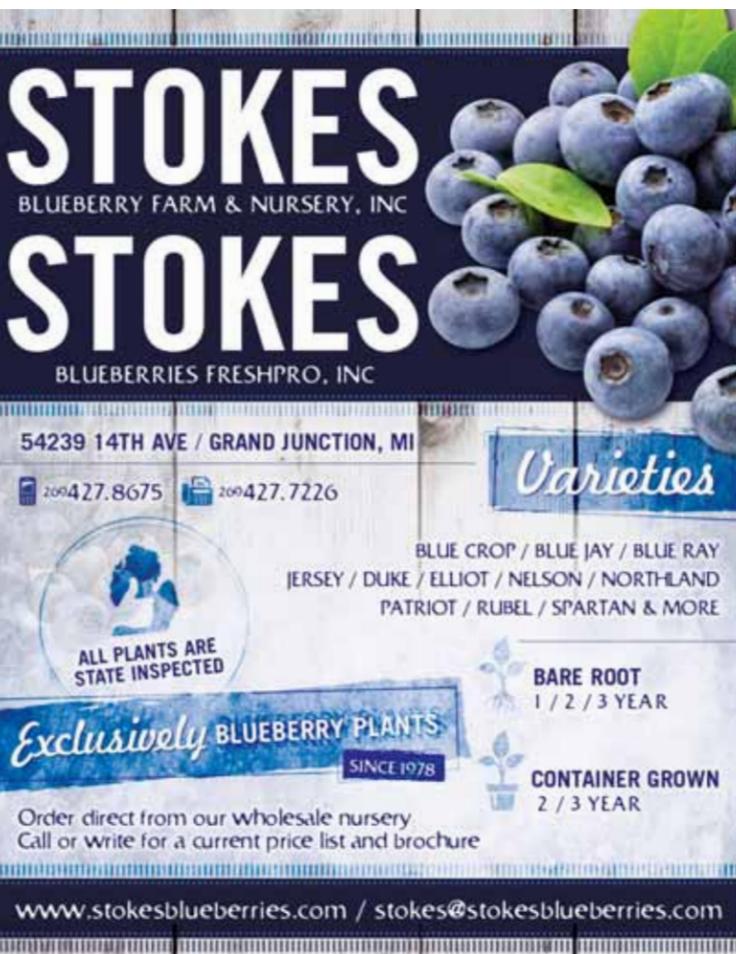
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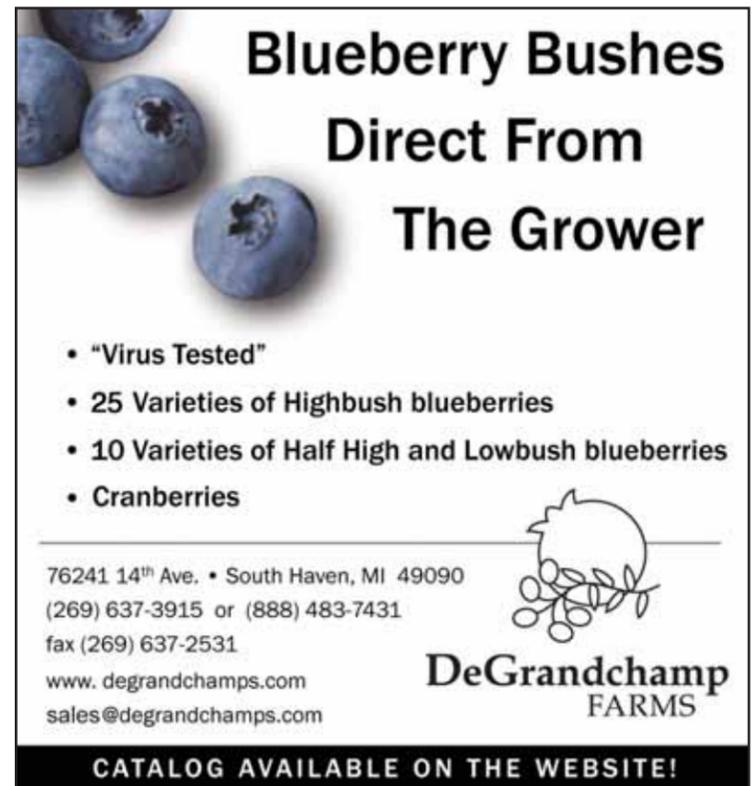


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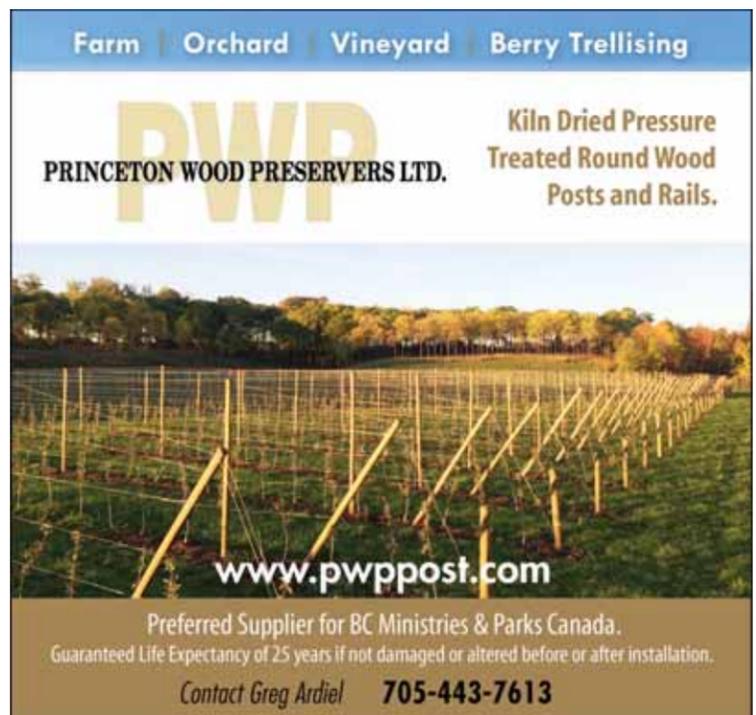
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MINOR USE

Benefit analysis: the other side of the story



CHRIS DUYVELSHOFF
CROP PROTECTION ADVISOR,
OFVGA

One major difference separates the regulatory systems for crop protection product re-evaluations in Canada compared to its counterpart in the United States. Both countries have the regulatory requirement to protect human health and the environment. No one objects to this goal. We can be thankful as Canadians that we have a robust system in place for protecting ourselves and the environment in which we live. However, in the context of food production, the risks of using crop protection products should also be balanced with the benefits of their use. This is the crucial advantage that the U.S. has over Canada in our regulatory systems – the benefits side of the equation.

Crop protection products

have provided tremendous benefits to society by allowing farms to produce far more food using less labour and less land with huge reductions in year-to-year variability of the food supply, its quality, and its cost. Increased access to fruit and vegetables throughout the year has without doubt improved the nutritional quality of our diets leading to better human health. Everyone in society has benefited from our increased ability to control pests, diseases, and weeds over the past century. This should not be forgotten. So how can this be acknowledged in the regulatory context?

An example can be found by looking south. Under the United States Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), the Environmental Protection Agency (EPA) must consider the benefits of use in making its regulatory decisions. When evaluating acceptable risk for product registration or re-evaluation, there must be consideration of “economic, social, and environmental costs and benefits of the use of any pesticide.” The United States government acknowledges that access to crop protection products has substantial benefits to society. Therefore, to ensure all aspects are considered, FIFRA requires EPA to balance these risks and

benefits in the decision-making process.

To accomplish this careful balancing task, the EPA conducts complex risk and benefits assessments that employ the best scientific and economic analyses currently available. There are still rigorous evaluations of risks for human health and the environment and this must importantly weigh into any decisions. It is up to EPA’s Biological and Economic Analysis Division (BEAD) to conduct the benefit analysis for a particular use. Benefits that are considered in the analysis include improvements in yield, quality, and/or decreased cost of production, taking into account the efficacy and cost of alternatives. Benefits may be achieved through many different ways with crop protection products that, for example, reduce management complexity of the crop, provide a new mode of action facilitating resistance management, or have lower impact on non-target organisms compared to alternatives. These are not necessarily directly financial outcomes but lead to improved crop management and also minimize overall impact on human health and the environment.

Benefit assessment includes consideration for the consequences of eliminating or



greatly restricting the use of an active ingredient. A decision to mitigate one risk might have consequences by increasing risks from other sources. Purdue University Extension in Indiana provides an example of such considerations in the Purdue Pesticide Programs publication ‘Pesticide Benefits Assessment.’ If a key herbicide is eliminated in a cropping system, increased tillage to control weeds might be the only alternative. While tillage may be an effective option for weed control, its costs might include: additional time, increased fossil fuel emissions, soil erosion, soil sedimentation of water bodies, and decreased land productivity over time from lost topsoil. While there may be certain risks related with the use of the herbicide, the risks associated with alternative methods need to be considered. It is the role of the Risk Manager at EPA to balance the risks with the benefits assessment in its decisions.

In Canada, to date, we do not have consideration for the

benefits side of the equation weighing in our re-evaluation decisions on crop protection products. The risk assessment to human health and the environment is conducted and a regulatory decision is made. End of story. But is this the right balance for society? If the availability of alternatives is not considered in Canada, how can we be sure that the quantity, quality, or cost of domestic food production will not be severely impacted by a particular decision? Or will the mitigation of one particular risk lead to an increase in another, such as in the tillage example?

We are currently regulating our crop protection products with only one side of the story. Protecting human health and the environment is indeed of critical importance. However, until we make regulatory decisions with a holistic view of crop protection – including an understanding of the benefits of use – it will be impossible to make regulatory decisions that ultimately provide the best outcomes for society.

Genetic testing for problem weeds

Vegetable growers often use herbicides to control weeds that affect production and cause yield losses. However, some weeds can develop resistance to herbicides. Not only does this impede weed management and cause yield losses, it also duplicates costs from having to try multiple weed control strategies, such as buying herbicides and hiring workers to manually remove weeds.

This is a major issue for vegetable growers in Ontario and Quebec where 19 cases of suspected herbicide resistance have been reported since 2016 alone. That is why scientists at Agriculture and Agri-Food Canada (AAFC) are studying this problem.

To start with, the team surveyed vegetable cropping

systems in Ontario and Quebec to look at the occurrence and distribution of herbicide-resistant weeds. Traditionally, identifying resistance in a weed sample took six months and involved growing and evaluating the plants in a greenhouse. But because these resistant weeds can spread quickly within fields and to adjacent farms, the scientists developed several genetic tests that can help them detect herbicide resistance much faster.

These new tests provide results in only a few days, enabling experts to recommend alternative weed control strategies within the same growing season. These tests have already been shared with the provincial pest diagnostic lab in Quebec, and additional tests will be

developed as needed.

The rapid proliferation and spread of herbicide-resistant weeds affects the sustainability of field vegetable crop production in Canada, an industry that generated more than \$1.7 billion in farm cash receipts in 2017. This research will help growers quickly detect resistant weeds and enable them to use alternative weed control strategies much earlier to protect their crops.

This research is thanks to AAFC researchers, including: *Saint-Jean-sur-Richelieu Research and Development Centre*: Dr. Marie Josée Simard, Dr. Martin Laforest, Sylvain Fortin, Luc Marchand, Manon Bélanger (retired), Brahim Soufiane, and Katherine Bisailon



Here, amaranth is resistant to herbicides in peas.
Photo by Kristen Obeid.

Harrow Research and Development Centre: Dr. Robert Nurse, Kerry Bosveld

Pest Management Centre: Dr. Cezarina Kora

External Collaborator: Kristen Obeid (Ontario Ministry of

Agriculture, Food and Rural Affairs)

This project is partly funded through Pesticide Risk Reduction at the Pest Management Centre.

Source: *Pest Management Centre*



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MINOR USE

BASF launches Serifel fungicide with three modes of action

New for 2019, BASF is introducing Serifel, an innovative, new fungicide with three modes of action to target powdery mildew and botrytis in grapes. BASF believes Serifel's strong performance, low use rate and the company's research-based understanding of how to maximize its performance will make Serifel fungicide an excellent addition to growers' current disease management

programs. "Serifel is an excellent fungicide that just happens to be a biological," says Scott Hodgins, horticulture crop manager with BASF.

"Serifel provides an opportunity for BASF to increase growers' confidence level of biologicals. We have conducted extensive research that allows us to advise customers on when and how to apply Serifel under the actual

field conditions they face every day."

Whether it is used as a tank-mix or rotation partner with products such as Kumulus, Sercadis or Vivando, Serifel complements established disease management programs, offering enhanced performance as well as alternate modes of action for resistance management. Serifel can also be used for organic production.



For more information about Serifel fungicide or other BASF crop protection products, visit

AgSolutions.ca/horticulture or contact your retailer. Source: BASF Ag Solutions

Syngenta launches Minecto Pro insecticide in potatoes, fruit and vegetable crops

Syngenta Canada Inc. is launching Minecto Pro foliar-applied insecticide for broad-spectrum control of key pests in potatoes, apples, pears, and a variety of vegetable crops. Specifically, the insecticide is registered in potatoes for control of Colorado potato beetle, European corn borer, spider mite, potato psyllid, and flea beetle. It controls key chewing and sucking pests including codling and Oriental fruit moth, leafrollers, and mites, in apples and pears.

It is also registered to control labelled pests in various vegetable crops

Minecto Pro delivers rapid

activity through two complementary active ingredients – abamectin (Group 6) and cyantraniliprole (Group 28). Both active ingredients use translaminar movement within the plant to achieve excellent coverage, providing a reservoir of activity for extended residual control of targeted pests to help keep crops healthier, longer.

"The introduction of Minecto Pro offers potato growers the strength of cyantraniliprole, bolstered by abamectin, to protect their crop from Colorado potato beetle," says Sam Livesey, commercial projects lead with Syngenta Canada.

Minecto Pro is also registered for control of European corn borer, spider mite, potato psyllid, and flea beetle in potatoes.

In apples and pears, Minecto Pro provides effective control of a number of key pests, including labelled species of mites, aphids, and leafminers, plus economically important Lepidopteran species, including codling moth and Oriental fruit moth.

"The formulation of Minecto Pro gives apple and pear growers a simple solution for protection from a number of sucking and chewing pests, without the requirement of



mixing products to target multiple pests," Livesey says.

An adjuvant must be used with Minecto Pro. The liquid formulation can also be easily tank-mixed with several fungicides, including Aprovia Top and Orondis Ultra.

Minecto Pro will be available for the 2019 season and will be

sold in 4 x 3.78 L jugs.

For more information about Minecto Pro insecticide, visit Syngenta.ca, contact your local Syngenta Representative or Customer Interaction Centre at 1 877 SYNGENTA (1 877 964 3682).

Source: Syngenta Canada

Vibrance Ultra Potato seed treatment registered

Vibrance Ultra Potato has been registered by Syngenta Canada Inc. as a new seed piece treatment for the suppression of pink rot and control of key seed- and soil borne diseases, including late blight.

Vibrance Ultra Potato combines difenoconazole (Group 3), sedaxane (Group 7), and mandipropamid (Group 40) in a convenient liquid pre-mix formulation. It protects potato seed pieces and seedlings to help ensure strong stand establishment, so the crop gets off to the best possible start.

"Vibrance Ultra Potato will help producers to start strong and finish strong," says Shaun Vey, seedcare and inoculants product lead with Syngenta Canada. "During the cutting and treating phase, it helps prevent the spread of seed borne late blight from infected seed to healthy seed. After planting, it moves within the plant, providing protection from diseases such as seed borne silver scurf, Fusarium dry rot, and seed-borne black scurf, stem, and stolon canker (Rhizoctonia), as well as suppression of pink rot."

Vibrance Ultra Potato is a

strong addition to the Syngenta potato portfolio, giving growers an excellent liquid fungicide-only option.

The product also gives growers greater flexibility when treating their seed pieces. The unique Vibrance Ultra Potato jug features a built in second container with a colourant, so growers can visually evaluate coverage of seed pieces and also consider additional pest protection by mixing it with colourless formulations, such as Fortenza insecticide for control of Colorado potato beetle, if needed.

As per the label, Vibrance Ultra Potato should be applied at a rate of 32 mL/100 kg of seed. Each case contains 4 x 4.8 L + 4 x 0.8 L (colourant) jugs. One jug will treat 330.6 cwt.

For more information about Vibrance Ultra Potato insecticide, visit Syngenta.ca, contact your local Syngenta Representative or the Customer Interaction Centre at 1 877 SYNGENTA (1 877 964 3682).

Source: Syngenta Canada Inc. November 5, 2018 news release

The 'AQUA Wetland System' "A new breed of constructed wetland"

AQUA Treatment Technologies Inc. designs and installs the 'AQUA Wetland System' (AWS) for tertiary treatment of many types of waste water including sanitary sewage, landfill leachate, dairy farm & abattoir wastewater, greenhouse irrigation leachate water & mushroom farm leachate water (i.e. manure pile leachate) and high strength winery washwater.

The 'AQUA Wetland System' is operated out of doors and can achieve year-round tertiary treatment of wastewater. This sub-surface, vertical flow constructed wetland consists of sand & gravel beds planted with moisture tolerant plant species. Water is pumped vertically from cell to cell. There is no open or standing water. Treatment occurs through physical filtration & biological degradation. Plants shade & insulate the cells, cycling nutrients while preventing algae growth. There is no production of sludge.

The AWS has been approved for use by the Ontario Ministry of Environment through over 40 Environmental Compliance Approvals. Recently the Region of Niagara began approving the AWS for treatment of 'small flow' winery washwater i.e. < 10,000 liters per day. Other agencies who have issued approvals include Health Canada, USEPA and OMAFRA. Recent projects include:

- 1) treatment & re-use of greenhouse irrigation leach water at greenhouses in Niagara & Haldimand
- 2) treatment of winery wastewater at Greenlane Estates Winery & numerous other in Niagara
- 3) treatment of landfill leachate at sites in Pembroke, Niagara and Alabama

For additional information please contact Lloyd Rozema at 905-327-4571 or email lrozema@aqua-tt.com



ADVANCING WOMEN IN AGRICULTURE CONFERENCE

How to say “boo” to scary headlines

BRIDGET VISSER

See if this sounds familiar: You turn on the news or log on to Facebook and see a story about how a technology or chemical is a tool of the devil intent to destroy the world. This is confusing as you know or even use the product and are aware of the strict research, testing, and regulations that govern it. How does something that was introduced with the best of intentions turn evil overnight?

Julie Gunlock, the director of the Independent Women's Forum's Center for Progress and Innovation, discussed the concept of alarmism at the Advancing Women in Agriculture Conference, held October 15 and 16 in Niagara Falls, Ontario.

Alarmism happens in a cycle. First, a study, whether bad, misguided, or with an intentional bias, produces some results or conclusions. Activist organizations promote the study's results, which they may or may not have paid to have completed. The press picks up the story, often without appropriate scientific facts or context that would be considered when the product was going through the commercialization process. These stories are also commonly given inflammatory headlines meant to draw people's attention and scare them.

Due to the combination of alarming title and intentionally limited details, the public is understandably terrified. Regulators or public officials then step in to save the day (or may not!) and protect the people from the boogeyman product. It begins again when the next study appears.

As recently as August 2018, agriculture faced such an example when a California jury ruled in favour of paying damages to a groundskeeper who claimed that his cancer was caused by the weed-killer glyphosate. The CBC News headline read: Monsanto ordered to pay \$289M US in California Roundup lawsuit over cancer claims." At least in the body of the story, Monsanto's rebuttal was quoted: "Today's decision does not change the fact that more than 800 scientific studies and reviews... support the fact that glyphosate does not cause cancer, and did not cause Mr. Johnson's cancer."

The CTV News headline was more inflammatory: "Weed-killing chemical found in popular breakfast foods." This scenario happens often in relation to modern agriculture as pesticides and GMOs are common targets. For the

horticultural industry, the challenge is how to cope with the frequency of these outcries in a way that both explains the facts and calms the fears without belittling the public or angering citizens further.

There are strategies to handle the headlines, but it won't always be comfortable. Gunlock began her list of recommendations by reminding the audience "that modern agriculture can be confusing and intimidating. Acknowledge concerns, even the unreasonable ones." The

misinformation and myths should be corrected with facts. It is also important to remind people who have no connection to farming that modern agriculture produces affordable food and helps the environment using these technological advances. This can be done through social media – videos of how a crop is grown or harvested are reassuring. Also send letters to the editor or volunteer to tell the story at schools or community events.

Producing food that is safer for people and the environment

is something to be promoted and celebrated, not defended. It's a massive task and it may seem the challenges outweigh the benefits but the industry must persevere. As Gunlock pointed out, the audience you reach may not be the person you're arguing with. Instead, it may be the person reading the Facebook comment section or eavesdropping at the next table.

Bridget Visser grew up in Ontario's Holland Marsh and is a blogger for The Grower.



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