THE GROWER

APRIL 2018 CELEBRATING 139 YEARS AS CANADA'S PREMIER HORTICULTURAL PUBLICATION THEGROWER.ORG

NEW REALITY

Altered state: an old leaf disrupts the greenhouse industry

Canada's greenhouse vegetable industry is in flux as investment shifts to new crops ... and cannabis. The first trend is playing out at Mucci Farms, Kingsville, Ontario where head grower Blake Fischer will oversee 36 acres of strawberries by fall 2018. The facility is now the largest indoor-strawberry greenhouse in North America. Photos by Glenn Lowson.

KAREN DAVIDSON

A greenhouse with troughs of cascading strawberries is no pipedream. At Mucci Farms, Kingsville, Ontario, every powder-white surface is designed to direct sunshine into a flavourful berry.

"Inclement weather is very hard on field berries," says Danny Mucci, president, Mucci Farms. "We noticed that strawberry prices go through the roof when weather is bad in California and Florida. Europe has been growing indoor berries for 20 years. So we saw an opportunity in the northeast to grow strawberries under glass where it's a perfect environment and the berries are as clean as possible."

Sweet on strawberries

Since commercial operations began in 2016, Mucci Farms have grown strawberries rooted in pots. The growing pots are notched so that the strawberry plant can produce the optimum number of trusses to bear berries that will droop down. This plant architecture, at shoulder level, is one of the aspects of indoor production that produces a perfect-looking berry. Each pot is serviced by a dripper that contains the precise amount of nutrients in water.

Proprietary sources of genetics are one of the initial inputs to competing on flavour with field-grown strawberries. The Europeans have proven that flower mapping, a predictor of yield, is an important criteria of quality nursery stock. This risk-reducing technique is employed in the plants propagated for Mucci Farms.

Unlike field berries nestled in straw or plastic, this pristine product is meeting retailer expectations for appearance, taste and shelf-life of 12 to 14 days from harvest. The strawberries – cleverly trademarked as Smuccies -- are packed in clamshells that are now available in eastern Canadian grocery stores as well as the U.S. Sales have gone well enough to warrant an acreage expansion from 24 to 36 acres in the fall of 2018.

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AT PRESS TIME...

AMCO Produce fined

Greenhouse vegetable grower AMCO Produce, Leamington, Ontario has been fined $210,000 by the Superior Court of Ontario. In a random check, the Canadian Food Inspection Agency (CFIA) discovered mislabeled peppers at the Ontario Food Terminal in February 2013. Peppers labelled as Canadian-grown were suspicious in February as it's too early for the local growing season. The country of origin was Mexico. After a lengthy investigation of company records, it was determined that the infractions occurred from 2012-2014 concerning produce worth $333,000.

The first-time offender has been put on probation and must provide annual reports to CFIA.

Learning lounges at CPMA

Get set to get the most from the Canadian Produce Marketing Association (CPMA) Convention and Trade Show in Vancouver, April 24-26. Don't miss the Learning Lounges on the trade show floor. Read what's in store.

Wednesday, April 25
2:00 p.m. – 2:30 p.m.
• Produce Disruptors: Trade, Transportation and Technology
NAFTA, ELDs, and other acronyms are having huge impacts on how businesses need to approach trade, transportation, and technology. So how do we mitigate these produce disruptors and ensure we're prepared for what's to come? A panel of senior industry executives debate what they see as the essential details to move forward.

Thursday, April 26
12:30 p.m. – 1:00 p.m.
• The Safe Food for Canadians Regulations and Trade: Where are we today?
Join the Fruit and Vegetable Dispute Resolution Corporation (DRC) as leaders discuss the upcoming Safe Food for Canadians Regulations trade and commerce aspects, Canadian grade standard revisions and where we are today as an industry. This session will detail how these issues may impact your operations and what you can do to prepare.
1:15 p.m. – 1:45 p.m.
• Growing Produce Skills
When matching career expectations, communication is key. Join us for an open conversation on current professional development expectations from young professionals in the industry and how those expectations align with the vision business leaders have for their employees.
2:00 p.m. – 2:30 p.m.
• My Produce Story
Two senior-ranking produce professionals will share their experiences working in the industry and discuss the factors that influenced their career progression and how the industry has evolved over the course of their respective careers.
2:45 p.m. – 3:15 p.m.
• Retail and the Industry Today
CPMA has queried industry leaders about the biggest issues and hot buttons for retail. CPMA's retail panel will share their expectations from suppliers as they navigate the ever-changing Canadian retail landscape.

BC Fresh to showcase Pacific Sunset, Pacific Sunrise and Pacific Pearl potatoes

NEWSMAKERS

Shawn Brenn

At its annual general meeting, the Ontario Fruit and Vegetable Growers' Association (OFVGA) re-elected greenhouse cucumber grower **Jan VanderHout** as chair for a second one-year term. Grape grower **Bill George** remains vice-chair. **Shawn Brenn** joins the board representing the potato sector. Members voted to disband the research committee and to split its property committee into two. **Brian Gilroy** will head the new energy, property and infrastructure committee. Asparagus grower **Mike Chromczak** will lead the new environment and climate change committee.

The 500-member BC Fruit Growers' Association has renewed its executive with recent elections for president and vice-president. The new president is **Pinder Dhaliwal**, Oliver, who grows apples and cherries. **Peter Simonsen**, Naramata, is an organic grower. They are joined by the following directors: **Ravinder Bains**, Keremeos; **Deep Brar**, Summerland; **Karm Gill**, Kelowna; **Sukhdev Goraya**, Kelowna; **David Machial**, Oliver; **David Dobernigg**, Vernon.

Berry Growers of Ontario, a new umbrella group comprising strawberry, raspberry and blueberry growers, has elected its first chair: **Tom Heeman**. He's from Heeman Berries, Thorndale, Ontario. He's joined by vice-chair **Brian Rijke**, Dentz Orchard and Berry Farm, Iroquois, Ontario. **Kevin Schooley** has been reappointed secretary/treasurer.

The nine-member board consists of growers representing each berry commodity. For blueberries, they are: **Steve Kustermans** (three years); **Dusty Zamecnik** (two years); **Kerry Copestake** (one year). For raspberries, they are: **Tom Heeman**, (three years); **Morris Gervais** (two years); **Brian Rijke** (one year). For strawberries, they are: **Kevin Howe** (three years); **Graham Shaw** (two years) and **Matt Tigchelaar** (one year).

CropLife Canada welcomes two new vice-presidents of chemistry and plant biotechnology. **Alan Schlachter** is the new vice-president of chemistry.

Ian Affleck has been promoted to vice-president of plant biotechnology following the retirement of **Dr. Stephen Yarrow**. In his new role, Ian will work on policies, regulations and science related to modern plant breeding.

Viliam Zvalo is joining Perennia Food and Agriculture Inc., Kentville, Nova Scotia as the new CEO effective April 4. Most recently, he was research scientist, Vineland Research and Innovation Centre, Vineland Station, Ontario responsible for world crops.

Albrecht Seeger

Congratulations to **Albrecht Seeger**, eighth-generation grape grower in Niagara-on-the-Lake and a sitting member on the Ontario Grape and Wine Research Technical Committee. He won the coveted BASF-sponsored Cuvée Vineyard of Excellence Award at the 30th anniversary of the Cuvée Grand Tasting on March 23. He and his wife **Anja Bertelmann** maintain a 150-acre vineyard of premium Vitis vinifera grape varieties.

Also recognized at the same event was **Sue-Ann Staff** with the Tony Aspler Award of Excellence, recognizing her pursuit of excellence in the wine industry. Her estate winery is located at Jordan, Ontario.

Jennifer Morris

The Grower is launching a new column this month called "Making Moves." Authored by **Jennifer Morris,** president of Toronto-based company Two Roads Logistics, the column will cover diverse topics in transportation such as blockchain technology. Go to page 15.

COVER STORY

Altered state: an old leaf disrupts the greenhouse industry

Continued from page 1

"We expect to double our 36 acres to meet consumer demand," says Mucci. "It might not be in 2019 or 2020, but we definitely see that coming. With lit culture – high-pressure-sodium lamps – we can produce year-round."

If there's any challenge, Mucci says that summer temperatures in southwestern Ontario are actually too hot. While diffused glass reduces stress on plants, further measures such as high-pressure fogging systems, are used to cool the greenhouses in summer.

Like greenhouse vegetables, intensive management of strawberries is required from genetics right through to harvesting and packaging. The infrastructure requires considerable investment of $1 million per acre. These costs are not unfamiliar to those turning to an alternative crop.

Pivot to pot

"The greenhouse industry is in a state of flux right now for a number of reasons, but cannabis is the big disruptor," says Joe Sbrocchi, general manager, Ontario Greenhouse Vegetable Growers, based in Leamington. "Our original expectation for traditional greenhouse vegetable acreage growth for 2018 was approximately 9.2 per cent. Now we have adjusted our forecast to a little more than 1.5 per cent. Most of that acreage bleed is to alternative crops, primarily cannabis."

That downgrade is an eyebrow-arching figure. Consider that the Ontario industry has witnessed an average of six per cent growth each year in the last decade, now totalling 2,941 acres under glass. That number comprises 852 acres cucumbers, 1007 of peppers and 1082 of tomatoes.

"On the rainbow side, new greenhouses will be built over the next four to five years, and every indication is that the acreage growth will be in the same range of 300 acres per year, but growers may go back and forth between different crops," says Sbrocchi. "There are two options in the cannabis market: recreational and medicinal. When cannabis is legalized, we really don't know how much volume will be needed because there are many ways that cannabis can be used besides smoking it. Other uses such as edible forms, gel capsules, lotions and salves are available or being developed. A lot of tonnage is required for medicinal pain relief."

As Sbrocchi recalls, "It used to be that you could predict the volumes of tobacco leaf needed for cigarette smokers. But the same calculus doesn't work for cannabis. That's because no one knows how big the pain-relief market for cannabis will be. Other new medicinal uses are being developed almost weekly it seems."

When Canada's largest bell pepper grower, Peter Quiring of NatureFresh Farms, announced in February 2018 that he's in a joint venture with Cannabis Wheaton Income, that's another sign that a major shift is underway. As recently as 2015, Quiring built a vegetable greenhouse in Delta, Ohio, but he's put the brakes on expansion there due to lack of labour and dug in at Leamington, Ontario. His South Essex Fabricating company will construct a state-of-the-art, purpose-built greenhouse for medical-grade cannabis.

A fresh start may be the least expensive route. Estimates for retrofitting a greenhouse – even a fairly new one as is the case with the recent 32-acre Double Diamond Farms-Aphria venture -- are $1 to $1.25 million per acre. This is on top of the original $1million/acre build.

British Columbia is feeling the same disruptive effects. Of the 800 acres in vegetable greenhouses, 100 acres are being converted to cannabis culture according to Marcus Janzen, a long-time pepper grower in Abbotsford. Canada's biggest licensed cannabis producer is in Langley, BC where Canopy Growth Corporation is developing up to three million square feet of capacity.

Unintended consequences may be in store, Janzen says, if too much production goes out of peppers and destabilizes the consistent vegetable supply that retailers have come to expect.

"There's too much money chasing cannabis," he says. "I predict that in seven years, many of these cannabis operations will go bust and the pharmaceutical companies will pick them up for cents on the dollar."

Questions about costs

While cannabis is giving a lift to investors, growers are still shouldering escalating costs. Whether the crop is cannabis or cucumbers, two major inputs remain constant: energy and labour.

"Carbon pricing is a big one and the minimum wage hikes are a killer," says Sbrocchi. "By the end of the 2018 calendar year, we are expecting a 32.5 per cent increase in costs from a little more than a year previous. Do you know many businesses that can withstand these types of cost increases?"

He's referring to Ontario's minimum wage which went to $14 per hour on January 1, 2018 and is forecast to go to $15 per hour in a year.

With about 70 per cent of Ontario's greenhouse vegetables exported to the U.S., the drums are beating for a positive outcome to the NAFTA renegotiations tentatively scheduled for April 8, 2018 in Washington.

"When it comes to NAFTA modernization, an unfavourable result would be a slowing of capital investment," Sbrocchi observes. "If the U.S. market is cut off or diminishes due to tariffs, then it could become much more expensive to enter that market. We could be in for a lot of pain."

If that's the case, medicinal marijuana will be close at hand.

Smuccies strawberries are packaged ready to ship to local consumers. Photo by Mucci Farms.

Mucci Farms is employing state-of-the-art technology in terms of automation and lighting to grow strawberries and lettuce, in addition to traditional crops of tomatoes and peppers.

Cannabis sativa was first classified as a species of the *Cannabaceae* family by Carl Linnaeus in 1753. One of Canada's largest cannabis greenhouses is in Langley, British Columbia. File photo.

For a "Behind the Scenes" podcast with Danny Mucci, go to thegrower.org/podcasts

CROSS COUNTRY DIGEST

BRITISH COLUMBIA

Learnings from BC cherry exports

The 130-member BC Cherry Association is working hard to grow the Chinese market and to open markets in Japan and Korea says president Sukhpaul Bal.

The association worked tirelessly to open the Chinese market in 2014, however as Bal explains, it's been a learning curve for growers ever since. The weather of the last two growing seasons has challenged farmers to produce the large size (8.5 to 9.5 row) required. The excessive rains of 2016, then the excessive heat of 2017 dented cherry volumes. Without an aggressive pruning regime to reduce crop load, the optimal sizing for cherries will not develop.

With these learnings, growers continue to expand their new plantings, some at higher elevations in the northern Okanagan Valley. One grower has a test block in Kamloops.

Plans to export cherries to Japan and South Korea are moving forward. The imminent signing of the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP) is helpful, but Bal explains that the phytosanitary requirements for fruit are negotiated outside the agreement. Japan, for example, is worried about coddling moth. The scientific trials have been completed in British Columbia showing no evidence of coddling moth damage on cherries.

The association re-elected Sukhpaul Bal, Valley Orchards, for another term as president at its mid-February annual general meeting. He is joined by the following board of directors:

- Vice President: David A. Geen, Jealous Fruits & Coral Beach Farms
- Secretary: Graem Nelson, Consolidated Fruit Packers
- Treasurer: Erin Carlson, Carcajou Fruit Company & Savanna Ridge Orchard
- Neal Van der Helm, Laughing Coyote Orchard
- Chris Danninger, Danninger Orchards & NATFOR
- Hank Markgraf, BC Tree Fruit Cooperative
- Ravi Dhaliwal, Gian Dhaliwal Farms
- Dr. David H. Geen, Bertram Creek Farm
- Andre Bailey, Global Fruit Ltd
- Dariel Trottier, Consolidated Fruit Packers

ALBERTA

Potato psyllid monitoring to continue

A new monitoring and surveillance program will be launched in the spring of 2018 for potato psyllids. Thomas McDade, agricultural director, Potato Growers of Alberta says this plan responds to the discovery of potato psyllids that tested positive for the Lso bacteria, in September of 2017.

Thet Potato Growers of Alberta -- in partnership with the potato processing industry and Alberta Agriculture and Forestry -- are planning to run this program for the next five years with the technical expertise of Promax Agronomy. Weekly reports will be circulated throughout the upcoming growing season. These reports will show not only potato psyllid numbers, but also the numbers of the overall insect population present in the fields. Many of these other insects are referred to as "beneficials" as they are natural predators to psyllid insects.

The monitoring and surveillance program will help Alberta potato growers manage this threat, by knowing when and where not to take action, such as spraying insecticides.

*Editor's note: **The Grower** published an extensive report on the Potato Psyllid Monitoring Network in the March issue on page B6.*

Potato psyllid. Photo by Dan Johnson.

BRITISH COLUMBIA

Labour issues prevail across Canada

Several resolutions at the March 14-15 Canadian Horticultural Council meetings stressed the urgency of resolving delays that have plagued the process for seasonal agricultural workers and work visas for the 2018 season. Growers from across Canada are frustrated with the slowness and confusion in the system this year. Sometimes named workers are not being issued visas and unnamed workers are being substituted.

"In order to avoid this problem, indicate on the Labour Market Impact Assessment (LMIA) application that you will not accept substitutes if your named worker is not available," advises Glen Lucas, executive director, of the BC Fruit Growers' Association (BCFGA).

A survey of British Columbia and Quebec growers is planned for April to be conducted by the Western Agriculture Labour Initiative (WALI), its equivalent in Quebec (FERMES) and the Canadian Agricultural Human Resource Council. The survey will record the financial and personal impact on growers. This work will complement recent information from Ontario and the Maritimes on the very negative impact that government inaction and mismanagement is causing.

The BCFGA will also initiate a letter-writing campaign to highlight the problems to federal politicians and the federal Minister of Labour. BCFGA directors will be asked to communicate with growers to help write letters explaining the impact on their farm, their finances, and their health.

Source: BCFGA March 20, 2018 newsletter

CROSS COUNTRY DIGEST

QUEBEC

New varieties of lettuce developed by producers for producers

Since 2013, a large group of producers has invested in a vast research project to develop new varieties of lettuce resistant to diseases and pests, adapted to climate change and responding to different segments of the market.

Following the end of the federal government genetic improvement program, Quebec lettuce industry leaders continued this research program to remain competitive on both import substitution markets and export markets. Led by the Fondation Laitue (Lettuce Foundation), a non-profit organization created in 2006, this project is financially supported by Agriculture and Agri-Food Canada's AgriInnovation Program. The result? Three new varieties of head lettuce, -- AAC Canicula, AAC Richelieu and AAC Global -- address the problems related to quality defects caused by heat stress.

The development of varieties resistant to diseases and pests as an alternative to the use of pesticides is also a priority for the Foundation, responding to a strong societal demand. In collaboration with the Ontario Vineland Research and Innovation Centre (Vineland) and Holland's Rijk Zwaan, the Foundation is developing lettuce lines resistant to Nasonovia ribisnigri aphid by incorporating a marker-assisted selection resistance gene. Thanks to this method, new resistant varieties will be available by 2023. In addition, strategic partnerships in bacteriology with the Research and Development Centre of Saint-Jean-sur-Richelieu, on bacterial strains and their pathogenicity, and in genomics with Vineland, will identify markers and sources of resistance to bacterial spot.

In the past five years, the Lettuce Foundation has been involved in all stages of this ambitious project: with its breeder, in the development of new lines and the finishing of cultivars; with registration at the Plant Breeders' Rights Office (PBR); and finally, by maintaining the original seed varieties and marketing them in Canada and internationally (USA-Europe), through its distribution partners, Napierville's Coop Unifrontières and Pinnacle Seed in California. Note that royalties collected on seed sales are fully reinvested in research and development by the Foundation.

If the future belongs to the optimists and innovators, then Quebec lettuce growers have chosen the right business path. Revenues have risen sharply from $60 million in 2013 to $88 million in 2015. Exports also skyrocketed, for the same period, reaching a record level since 2003.

Source: Fondation Laitue (Quebec Lettuce Foundation)

CANADIAN HORTICULTURAL COUNCIL ANNUAL GENERAL MEETING

CHC charts a course for 2018

The Canadian Horticultural Council met March 13-15, 2018 in Ottawa. The 2018 CHC Board of Directors (L-R): Alvin Keenan, past-president, Atlantic; Marcus Janzen, director, BC; Bar Hayre, vice-president, BC; Beth Connery, director, Prairies; Bill George, director, ON; Brian Gilroy, president, ON; Keith Kuhl, director, Prairies; Peter Swetnam, director, Atlantic; Jan VanderHout, director, ON; Stephanie Levasseur, director, QC; Jocelyn St-Denis, director, QC; Absent: Boyd Rose, director, Atlantic. Photo courtesy Canadian Horticultural Council.

The committee chairs are: Crop, plant protection and environment committee – Jason Smith, BC; Labour committee – Beth Connery, MB; Industry standards and food safety committee – Jody Mott, ON; Trade and marketing committee – Ken Forth, ON; Business risk management committee – Mark Wales, ON

Labour crunch worsens

KAREN DAVIDSON

At present, the most vexing file in Canadian horticulture is labour, with Employment and Social Development Canada (ESDC) initiating integrity audits of growers who do not know why they are under review. Until the audit is complete – a process that can take months – the grower cannot access seasonal agricultural workers. Without workers, a farm could go bankrupt.

Murray Porteous, 2017 chair of the Canadian Horticultural Council's labour committee, was also under review from October 2017 to January 2018.

The integrity audit of Lingwood Farms was launched three months after ESDC officials toured fruit and vegetable operations in Ontario's Norfolk County that employ seasonal workers. Lingwood Farms comprises 750 acres of apples, sour cherries and pears as well as 100 acres of asparagus.

Murray Porteous, a grower of asparagus, apples and sour cherries, Simcoe, Ontario.

He employs 58 seasonal workers from spring through fall.

"This is a system where you are guilty until proven innocent," Porteous reported to the Canadian Horticultural Council annual general meeting on March 14. "This system stresses family relationships."

One Ontario farm had thousands in legal fees, fighting against the process. Two weeks before appearing in court, the integrity audit was finished. There are only two plausible reasons for an integrity audit: a worker complained or a complaint came from government officials.

"My opinion is that it's worth spending money for legal advice to know what happened," says Porteous. "I think in the next year, horticulture will need a legal challenge. It's not fair to put anyone in this position."

In total, about 20,000 seasonal agricultural workers come to Canada every year to work in horticulture. Portia MacDonald-Dewhirst, executive director, Canadian Agricultural Human Resource Council (CAHRC) reported that the agricultural sector will be short 114,000 workers by 2025. "And that's assuming a functioning Seasonal Agricultural Worker Program," she says.

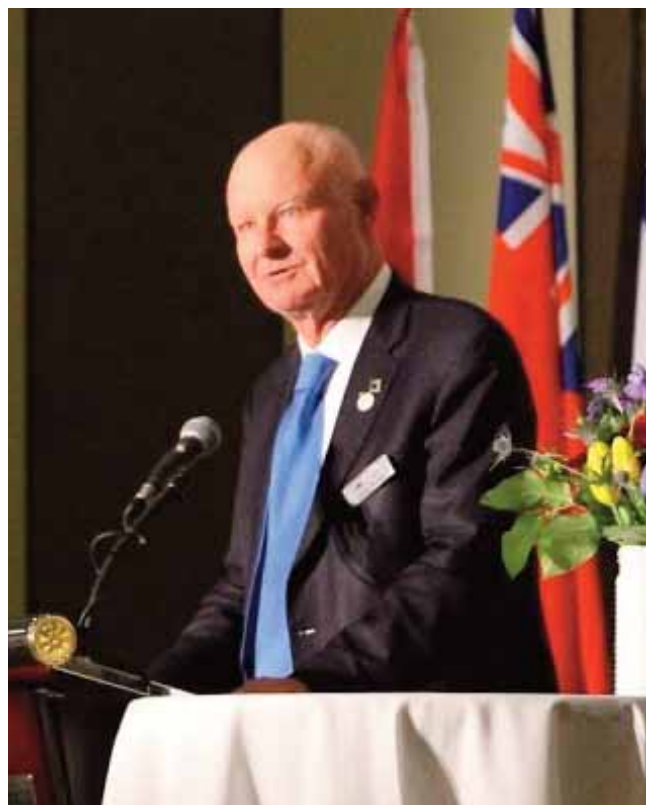
A CAHRC survey conducted in December 2017 of 548 producers who use the Seasonal Agricultural Worker Program found 29 per cent of respondents had been placed under audit, with some respondents reporting having suicidal thoughts because of the stress caused.

Murray Porteous, chair of the Canadian Horticultural Council's labour committee, has resigned the role for health reasons.

CANADIAN HORTICULTURAL COUNCIL ANNUAL GENERAL MEETING

Leaders recognized for decades of service to horticulture

Craig Hunter, winner of the Honourary Life Membership Award.



Charles Stevens, winner of the Outstanding Achievement Award.

Alvin Keenan (L), presents Doug Connery Award to John MacDonald.

A changing of the guard was a central theme at the recent Canadian Horticultural Council (CHC) annual general meeting. Held in Ottawa from March 13-15, the meeting attracted 150 delegates to review and debate policy – and to honour those for outstanding service to horticulture.

Rebecca Lee, CHC executive director, gave an Honourary Life Membership Award to Craig Hunter for his 40-plus years of service in the crop protection sector and his longstanding role as technical advisor to the CHC's Crop Protection Advisory Committee. Among his many accomplishments, in 2003, he was part of a small but important group at CHC that was instrumental in lobbying government to establish the Pest Management Centre. Since then, he has been a facilitator of the related Minor Use Priority Setting Workshop. He is a familiar face at international meetings such as the NAFTA Technical Working Group on Pesticides and at CODEX Alimentarius meetings of the World Health Organization and the United Nations. Craig will be retiring at the end of June 2018 from his current research and crop protection role at the Ontario Fruit and Vegetable Growers' Association.

The Outstanding Achievement Award recognized apple and blueberry grower Charles Stevens for his dedication and service as a CHC member. He has served for more than a decade on CHC's Crop Protection Advisory Committee and as chair for the last five years. Thanks to his efforts, the Pest Management Regulatory Agency (PMRA) has become much better at registering new active ingredients. His leadership has helped to secure the resources and guidance that PMRA needed to make this happen.

During his tenure as chair, the number of PMRA re-evaluations has escalated to more than 30. About 100 new re-evaluations are scheduled for the next five years. Stevens and his committee have become actively engaged in submitting feedback during this re-evaluation exercise. He was instrumental in the creation of a new full-time position at CHC and helped to hire a new crop protection manager to oversee the workload.

Outgoing CHC president Alvin Keenan presented the Doug Connery Award which was created in 2012 to honour a past president and driving force behind CHC. This award recognizes individuals who have demonstrated exceptional leadership, passion and dedication and who have made outstanding contributions to the industry at local, provincial and national levels. This year's recipient is John MacDonald who has spent more than 40 years in CHC activities, including 1983 as president. He has been a member of the Potato Producers Association, Potato Marketing Board, Blueberry Growers Association, the Farmers' Union and the PEI Federation of Agriculture. He and his wife Pam operate East Isle Farms in Souris, PEI. They grow blueberries, strawberries, raspberries, cranberries and blackberries as well as a small amount of potatoes and mushrooms. His rolodex of political connections continue to be put to work to the betterment of rural concerns and horticulture.

Jason Smith is the new chair of the CHC crop, plant protection and environment committee. To listen to 'The Grower Calling' podcast with Jason go to: www.thegrower.org/podcasts.

CANADIAN HORTICULTURAL COUNCIL ANNUAL GENERAL MEETING

Threat remains that key crop chemistries will be lost to horticulture

Active ingredient	Mancozeb Group M	Metiram Group M	Ferbam Group M	Ziram Group M	Thiram Group M	Chlorothalonil Group M	Iprodione Group 2	Captan Group M	Cypermethrin Group 3	Imidacloprid Group 4	Λ-cyhalothrin Group 3
Trade Name	Dithane	Polyram	Ferbam	Ziram	Thiram	Bravo	Rovral	Captan	Ripcord	Admire	Matador
Status	March 2018	March 2018	• June 2018	June 2018	June 2018	March 2018	March 2018	March 2018	Sept 2018	Dec 2018	March 2019
Proposed decision	Cancel all uses	Cancel all uses	Cancel all uses	Cancel all uses	Cancel all uses	Cancel certain uses; limit rest	Cancel all uses	Cancel certain uses; limit rest	Fewer applications	Cancel all ag uses	Cancel most uses

Source: CropLife Canada

Spraying fungicide in potatoes. Photo by Glenn Lowson.

KAREN DAVIDSON

The Pest Management Regulatory Agency (PMRA) is seven years behind in re-evaluations. "It's through no fault of their own," explained Charles Stevens, chair of CHC's Crop Protection Committee. "There is no additional funding to address the backlog. When chemistry is lost in another country, Canada is obliged to do a review as well. It's a review that takes twice as long as the regular one."

The current state of chemistry re-evaluations was outlined by Dr. Maria Trainer, managing director, science and regulatory affairs, chemistry for CropLife Canada. Her take-home message?

"Get engaged!" says Trainer. "Help us identify best mechanisms to collect and submit information to PMRA. That could be use patterns, use rates and personal protective equipment."

Changes in re-evaluation are impacting pesticide choices. Major products are being removed in Canada. No one can speaker to a grower's needs better than growers.

There are three primary work streams at PMRA: pre-1995 chemistries such as Bravo (chlorothalonil) and Lorsban (chlorpyrifos); cyclical re-evaluations for post-1995 chemistries such as Admire (imidacloprid) and Poncho (clothianidin); special reviews responding to OECD bans and/or new data such as 2,4-D.

The current status of reviews is as follows: 35 of the pre-1995 chemistries are still to be finished; 74 remain active files under the cyclical re-evaluations; 23 are under special review. Of concern is that in the cyclical category, there will be 369 reviews initiated between 2018 and 2028.

Trainer outlined that the grower community has issues with the re-evaluation process in that there is limited stakeholder engagement, no opportunity to refine assumptions and minimal alignment with global regulatory partners.

CropLife Canada is requesting that PMRA consider improving the scoping period, increasing consultation opportunities, publishing draft risk assessment before the proposed decision, pursuing opportunities to collaborate with the U.S. EPA, exploring the use of emerging tools and technologies, exploring ways to improve public consultations, exploring opportunities to improve regulatory efficiency.

These changes are needed because growers are losing critical active ingredients from the toolbox.

MINOR USE PRIORITY SETTING WORKSHOP

Quebec prioritizes bentazon, a post emergence herbicide that provides good control of lamb's quarters in potatoes

EUGENIA BANKS

The Minor Use Priority Setting meeting was held in Gatineau in late March. At this meeting, each province prioritizes the weed, disease and insect pests for which growers have no effective pesticides. Provinces also propose pesticides as potential solutions. Potatoes, the most valuable vegetable crop in Canada by farmgate dollars, are not an important player in the Minor Use Program.

Chemical companies prefer to get full registration of pesticides rather than to obtain government funding for registration through the Minor Use process. Registration through the Minor Use program can take several years depending on the priority assigned and how much data is available to support registration. The only product that I remember registered under this program for potatoes was 2,4-D to enhance the skin colour of red varieties. The registration occurred after being prioritized by Ontario and after several years of field trials.

During the meetings, Quebec prioritized bentazon (Broadloom), a post emergence herbicide that provides good control of lamb's quarters and other weeds but it is weak on pigweed.

Here is a bit of information on bentazon provided by Jonathan Sebok, president, AgroMart Group, Vienna, ON.

Bentazon has been registered in Canada for more than 30 years as Basagran. Now that bentazon is off patent, other products such as Broadloom have entered the market. It's mainly used in soybeans, beans and peas. It's a post-emergence, contact herbicide. Most of the Basagran sold in Ontario is co-formulated with a surfactant and thus sold as Basagran Forte.

I would be worried about the pre-determined dosage of surfactant in Basagran Forte when spraying on potatoes. Yet Basagran only works when some surfactant is added into the tank. During stress conditions, bentazon will burn the foliage of soybeans and possibly cause some crop damage as well in potatoes. But since it's a contact, the crop grows out of it.

Bentazon has no soil residual, so later flushes of weeds will not be controlled. Since it is post-emergent, weed timing is critical and for bentazon, the weeds have to be quite small. Coverage is also crucial to get good weed control. Bentazon is good on lamb's quarters, purslane, ragweed, velvetleaf, stinkweed, cocklebur, BUT it is weak on nightshade and pigweed.

So for potatoes, weeds will have to be controlled early and sprayed with lots of water volume. Figure out the correct/safe surfactant rate. Hope you don't have nightshade or pigweed and hope that the weather is not hot and dry to exacerbate leaf burn in the crop.

Quebec researchers did their homework, and it looks like bentazon would work well. If everything goes well, bentazon could be registered in Canada by 2021.

Eugenia Banks is a potato consultant to the Ontario Potato Board.

Lamb's quarters

INTERNATIONAL

Fruit Logistica is a mecca for European . . . and Middle Eastern business

KAREN DAVIDSON

Travellers are learners. The moment you step on a plane, you're open to change and opportunity.

Here are the stories of two Canadians who travelled to Fruit Logistica in Berlin, Germany this past February to challenge their assumptions and to grow business. While the trade show has always been a beacon for new equipment, there was a difference this year. That's because the Comprehensive and Economic Trade Agreement (CETA) with Europe came into force September 21, 2017. More opportunities are available for those who want to compete for them.

Andre Bailey, owner, Global Fruit, Creston, British Columbia

Andre Bailey has been travelling to Fruit Logistica for 10 years now, but 2018 was the first year to exhibit. "We should have done it earlier," he says.

"Berlin is a fantastic show. Everyone is in one place – importers, wholesalers, retailers. It's not just the Europeans but people from the Middle East."

As owner of Global Fruit, Bailey already ships cherries to 33 countries. Late-maturing BC varieties such as Staccato and Centennial can have the market to themselves when other global geographies have finished their harvest. With these new harvest windows, there are so many new opportunities in Scandinavia as well as eastern Europe, that he's dedicated a new employee to offer door-to-door solutions.

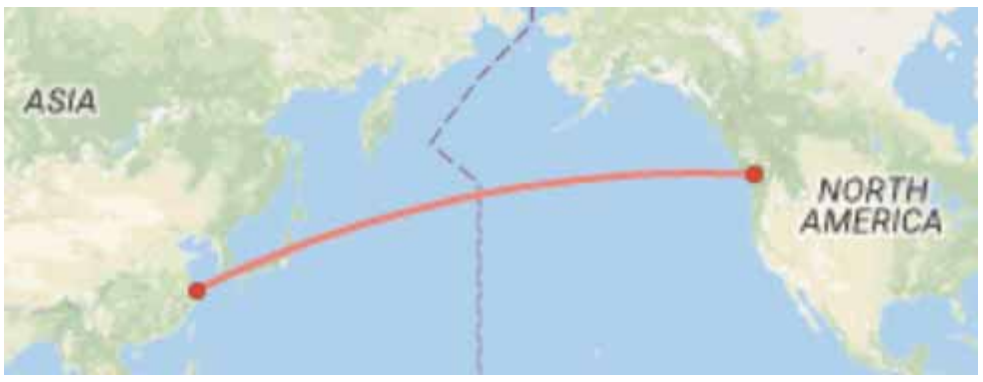
"With the CETA agreement, Canadian cherries can be much more competitive," he says. "There's a 12 per cent tariff reduction and with creative freight solutions, we have a two-week window of opportunity."

When BC cherries are cooled to minus 1°C and put into modified atmosphere packaging, they can hold their quality for a three-day truck ride to Montreal and an eight-day boat passage to Rotterdam. Business depends on the season. There was zero business in Europe in 2015 and 2016, but in 2017, a late spring in Europe changed local harvest dates and opened an opportunity for Canadian cherries.

"If we have an earlier spring in the Okanagan Valley, we could be shipping cherries by July 18th this year," says Bailey. Ten per cent of his business goes to Europe and the Middle East.

A lot of headlines have focused on trade to China and southeastern Asia. The allure should not outweigh the geographical facts. By air from Vancouver International Airport, Frankfurt is nearly one thousand kilometres closer than Shanghai.

Distance from Vancouver (YVR) to Frankfurt, Germany: 8054 km



Distance from Vancouver (YVR) to Shanghai, China: 9021 km

(L-R) Ellen Larsen-Kouwenberg, Greg Donald and PEI potato grower Boyd Rose.

Greg Donald, general manager for the PEI Potato Board, Charlottetown, Prince Edward Island

This is the third year that the PEI Potato Board has exhibited at Fruit Logistica within the framework of a Canada Pavilion. Prince Edward Island along with British Columbia and Quebec participated.

"We're motivated by the opportunities to see innovation," says Donald. "The equipment from Germany is advanced in terms of handling, washing, sorting, grading and packaging. It's not necessarily better for our operations, but gives us ideas for a different approach."

Donald describes a riveting exhibition where 85,000 like-minded people are focused on horticulture. Booths are set up to accommodate equipment in action. All the leading innovators are present.

From an educational standpoint, the seminars offer leading-edge speakers. Donald recalls a presentation from Israel whose inventors are using sensors to detect stress in plants. This is a different approach than soil sensors which detect when to irrigate.

While Fruit Logistica is based in Berlin, it's a mecca for companies from the Middle East, Africa and Asia. Donald says that more growth potential is seen for the Middle East, such as seed sales.

For the last two years, the trip to Europe has been an opportunity for side adventures. In advance of this year's show, a group of Prince Edward Island packers and growers travelled to Brussels to see different operations in Belgium.

INTERNATIONAL

CHINA

A changing palate for potatoes

China plans to grow more than 6.67 million hectares of potatoes by 2020, in efforts to feed its burgeoning population. Irregularly shaped potatoes are finding a market in the processing industry while potato-based foods are finding favour. Potato buns as well as fried dough twists and mooncakes are popular.

Since 2015, China has designated more than 10 potato varieties suitable for processing into foodstuffs, and developed more than 300 potato-based versions of such foods.

A researcher at the Chinese Academy of Agricultural Sciences, says: "Eating potatoes can help the Chinese form healthier dietary habits and ensure food security."

Source: FreshPlaza.com

FRANCE

Bonduelle leaning towards fresh produce

The annual financial results of the French-based Bonduelle Group are trending towards fresh produce in a move away from canned vegetables. In its most recent quarter of 2017-2018, revenue in euros was €1420,3 million -- €581,5 million was represented by fresh produce, followed by €522,4 for canned vegetables and €316,4 million for frozen food.

The fresh trend is due to the purchase of American-based company Ready Pack Foods, renamed Bonduelle Fresh Americas. Revenues from this acquisition and other global growth mean that Bonduelle, for the first time, is bigger outside Europe than within.

Source: FreshPlaza.com

GERMANY

Robot tested in field cucumbers

In Germany, the Fraunhofer Institute for Production Systems and Design Technology IPK is developing and testing a dual-arm robot for the automated harvesting of cucumbers. This lightweight solution has the potential to keep crop cultivation commercially viable in Germany.

The objective is to identify ripe cucumbers and use two gripper arms to gently pick and store them. Leading-edge control methods equip the robot with tactile perception and enable it to adapt to ambient conditions. Researchers want to make sure that the robot does not damage crops – or pull them and their roots out of the soil. The automated harvester must be at least as efficient as its experienced human counterpart, who can pick as many as 13 cucumbers per minute.

Source: Hortidaily.com

MEXICO

Exports to Canada grew by 11%

In 2017, Mexican agricultural exports to Canada surpassed $2 billion for the first time and were 11 per cent higher than in the previous year.

The figures were mentioned as part of the celebration of Canada's Agriculture Day. An agricultural advisor at Mexico's embassy in Ottawa, Reyes Godelman, said that agricultural exports to Canada had grown to $2.050 billion (US). In the same period, Canadian agricultural food imports increased by 14 per cent, from $1.3 billion to $1.5 billion.

The chief Mexican products exported were avocados, which had a 27 per cent increase; raspberries and blackberries, which increased by 23 per cent, and fresh strawberries, which increased by 42 per cent.

Source: FreshPlaza.com

IRELAND

Emerald Isle to host World Potato Congress

The Irish Potato Federation has won its bid to host the World Potato Congress in 2021 in Dublin. One thousand delegates -- growers, researchers, producers, traders, processors -- are expected from developing and developed countries across the globe.

"Ireland has a very important historical and cultural connection with the potato going back hundreds of years," says Romain Cools, president and CEO, World Potato Congress.

"I see the 2021 congress looking at the important role the potato will play in the future as a sustainable source for food security across the world."

This triennial congress follows the 2018 event in Cusco, Peru.

Source: FreshPlaza.com

CHAIR'S PERSPECTIVE

Keep the water running

JAN VANDERHOUT
CHAIR, OFVGA

Water is a key component of the crops we grow. Without water, whether rainfall or irrigation we would be out of business. For many producers who draw water from wells, streams or ponds, access to that water is something to consider.

Most growers have a great plan for maintaining water availability through the summer and some can continue to irrigate through even the driest summer. Often this has been accomplished by serious investment in water storage to ensure adequate supply through the summer. Another approach to water management is the use of drip irrigation to reduce water loss to evaporation and to improve water efficiency. Pumps, pipes and other water handling infrastructure can become a large and critical part of the farm's investment to maintain profitability.

In years when summer rains come at regular intervals the value of irrigation equipment may be questioned, but in years of serious drought irrigation can pay off quickly.

I have heard it said that the best things in life are free which often is true, however handling water on our farms it is far from free. There is naturally the cost of all the equipment required to water our crops but then there is also the labour cost of setting up pipes and pumps. The cost of fuel or electricity to run the pumps is also an expense that can be a heavy financial load. The immeasurable cost of the stress involved when water levels begin to wain or when crops are dryer than ideal is also significant.

This all seems like enough stress and cost and indeed it is but unfortunately it is not the end of the story.

Anyone using more than 50,000 liters per day is required to obtain a water taking permit from the Ontario Ministry of Environment and Climate Change (MOECC). The exceptions are if you are drawing that water from a water storage that is not connected to the water table such as a tank or a water silo. Water drawn from a municipal water source is also covered by the water company's permit to take water (PTTW). Water used to water livestock is also exempt.

There is no fee to apply for the PTTW so that part is free but unfortunately, the monitoring and reporting required to obtain and maintain a PTTW is at the expense of the applicant. Some growers reading this may be thinking that they have always taken water from their well or pond so it must be grandfathered in. This is not the case. They also may be thinking that they have gone this far so why should they start getting permits now. Some may even obstinately reject the need for a permit altogether and refuse to get one.

Those farms with a PTTW already in place know that it is a burden they would gladly do away with. Even though there is no charge for the permit itself on our farm we spend between $5,000 and $10,000 a year monitoring water levels in our wells and streams, recording daily water taking from each of our three wells and having the annual report drawn up by a qualified hydro geologist.

Maybe those farms without a PTTW are thinking they are in a much better place "flying under the radar." They certainly have saved a lot of money so why shouldn't they just continue?

In the last 10 years there have been several years of drought in many watersheds around the province. These low water conditions are declared in three levels.

Level 1 occurs when the local rainfall and stream flows fall below a certain standard. When this happens the watersheds' Low Water Response Team meets to declare the low water level.

1. When a low water level 1 is declared, it is announced publicly and ALL water users are asked to voluntarily reduce water use by 10 per cent. Similarly, when stream flows and rainfall fall below a second standard the Low Water Response Team meets, a level 2 low water is declared and everyone is asked to voluntarily reduce water use by 20 per cent.

The big problem comes when rainfall and flows decline to the third standard. At this point a level 3 low water condition may be declared calling for a mandatory reduction in water use. Although there have been instances of a technical level 3 in the province it has never been declared, possibly because no one wants to enforce a mandatory water reduction. Where would you even start? Thankfully it has always rained before a disaster was declared. At this point the MOECC could very likely go after and stop water taking by those consumers taking more than 50,000 litres a day without a permit favouring those who have been monitoring and measuring all along. It is also possible that the farm without a permit could run out of water and they could not even go to government for help when they were never registered in the first place. I am sure that if our water was running out it would be difficult not to point the finger at neighbours who think they can operate above the law. It would also be very difficult to advocate with government on water issues on behalf of anyone not following the PTTW rules.

If someone's water taking may have caused a water shortage for someone watering livestock it could get very messy.

If you are drawing more than 50,000 liters on any given day without a PTTW I would encourage you to consider getting your PTTW and secure your access to that water while doing your part to benefit the environment.

It would be my hope that one day the MOECC requires the livestock users to register for a PTTW as well to get that taking on the register to secure better access to water for livestock in times of extreme drought.

Water is a principal input for all horticultural producers so let's all do our part to conserve and preserve this valuable resource that keeps us growing.

WEATHER VANE

Tender fruit grower, George Lepp, adjusts his irrigation gun. Photo by Glenn Lowson.

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THE GROWER

URBAN COWBOY

Speaking beyond agriculture's inner circle

OWEN ROBERTS
U OF GUELPH

Consumer doubts about effective science-based approaches to agricultural challenges and policy development are being felt everywhere. Lately, even precision agriculture, which provides a number of environmental benefits to society, is being targeted in some circles for lacking transparency.

Facing yet another challenge to science is a tough spot for agriculture to be in, given how the sector relies on it for new products and for answers to emerging problems.

The Bayer CropScience AgVocacy Forum, now in its 13th year, is designed to stimulate discussion about such matters. For two days before the annual Commodity Classic in Anaheim, California, Bayer unites about 300 marketing, communication and industry officials to explore ideas that could bring consumers and farmers closer together.

Discussions are based on key topics in the industry, including the importance of collaboration, innovation and outreach to agriculture's future.

This year, growers, NGO representatives and the next generation of ag leaders, among others, discussed transformative innovation, the power of working together and the need to "agvocate" (advocate for agriculture).

"We need to do a better job at using our expertise to be part of the social conversation beyond our inner agriculture circle," says Lauren Davis, Calgary-based marketing communications manager for Bayer CropScience Canada. "Society puts a lot of trust in farmers, so let's use this opportunity to amplify our agriculture story. By doing so, we'll improve the connection between consumers and the farm."

Like other years, some of the discussion from the 26 panelists was about programs that either have succeeded or are off to a good start. Other talks centred on trends that modern farming advocates should consider.

For example, Joel Nelson, president of California Citrus Mutual, told of how his organization has spent $1 million on consumer education to try making homeowners partners in preventing the state's orange trees – many of which are in people's backyards -- from being infected with citrus greening disease which has devastated Florida's orange crop.

Connie Diekman, director of nutrition for Washington University in St. Louis and former chair of the America Heart Association's Missouri affiliate, told how plant-based proteins are in higher demand than ever by students at her institution, and they are showing preference for local food over organic food.

Other panelists noted how the trend towards "clean" food -- a wide-sweeping term for food grown with next to no inputs -- could work against farmers who rely on crop protection to help battle pests and disease.

And still others talked about how precision agriculture tools such as drones, which are becoming popular for scouting and other on-farm applications, are seen as menacing and invasive by some consumers.

Bayer has taken measures to understand the public's psyche. Last year it conducted a huge insight study involving 10,000 people in 10 countries, including the U.S. and Canada. It was designed to help determine consumers' interest in food production and learn how to communicate the value of modern agriculture.

The results of that study were released in July 2017. Among its findings: almost 60 per cent of respondents said access to safe, affordable and nutritious food is the most urgent food issue.

Nearly half said they support developing new plants that produce higher yielding plants and more food than current varieties.

Ironically, just over 30 per cent said they believe science-based advancements are safe. And more than three-quarters think the long-term effects of genetically modified seeds are not yet known.

"Among survey respondents who believe agriculture innovations don't have a positive or negative impact or that they do more harm than good, nearly 60 per cent say they would be more likely to support technologies if they were to learn how these innovations could help address the world's most pressing food issues," says Rob Schrick, strategic business lead of broad-acre crops for Bayer.

"That's why the forum and other agvocacy efforts are critical to helping bridge the divide, and ensure growers have access to the tools required to grow a sustainable food supply."

Owen Roberts, a journalist at the University of Guelph, is the president of the 5,000-member International Federation of Agricultural Journalists. He was a guest of Bayer Crop Science Canada at the AgVocacy Forum.

Election considerations

JAN VANDERHOUT

As the June 7 Ontario election draws near we should all be keeping an eye on the platforms of the parties, leaders and candidates.

The Liberals are standing their ground for what they refer to as a fairer Ontario. This includes providing more tuition assistance for university students, ongoing infrastructure investment and increased minimum wage.

The Progressive Conservatives are taking a stand to reduce waste in public spending, scrap the carbon tax (Cap & Trade) and to improve efficiency of the healthcare system. They promise to run a balanced budget while not increasing taxes.

The New Democratic Party is offering free dental care for those who can't afford it along with converting student loans into grants.

No specific mention of agriculture from any of the parties which shows that we are not a sizable part of the electorate even though we contribute significantly to the GDP.

As Election Day approaches be sure to understand what you are voting for as I hope all Ontarians will.

Ontario hop growers

The Ontario Hop Growers Association has elected a 2018 board including: Albert Witteveen, president; Rob Rombouts, vice-president; Stephen Kitras, treasurer, Hugh Brown past-president; and directors Catherine and Edgar Rameriz, Dean Workman, Dean McConkey, Scott Hayhoe and Kyle Wynette.

Photo by Glenn Lowson

FARM & FOOD Care ONTARIO

Awareness • Appreciation • Information

Will this summer be too wet or too dry

Once again we roll into spring across Ontario's vegetable and tender fruit growing regions. It's a time for renewed optimism about the season ahead but also a chance to think through potential challenges. One of the questions on every grower's mind is what will the weather bring through the summer of 2018, and how will my farm cope. Will this year be too wet, too dry or just right and how does this translate into the labour, time and diesel fuel needed for irrigation? In the absence of any easy answers, growers must prepare for the best, the worst and everything in between.

About the time this article is published, Cape Town in South Africa will run out of water unless some very major wet weather comes to the region. On that day in April or early May, four million people will be standing in lines enforced by armed guards to receive water rations, something unheard of in modern times. How will they ever be able to make water accessible and prevent anarchy?

For years, a shutdown of this magnitude in such a cosmopolitan city had been almost inconceivable. But as over-development, population growth, and climate change upset the balance between water use and supply, urban centers from North America to South America and from Australia to Asia increasingly face threats of severe potable water shortages. Nowhere has that threat seemed to come on faster and catch more by surprise than it has in Cape Town. Two hundred emergency water stations have been set up outside grocery stores and other gathering spots, with each station serving almost 20,000 residents. Cape Town officials are making plans to store emergency water at military installations, and the use of taps to fill pools and water gardens or wash cars is now illegal. In early March, authorities stepped up water-theft patrols at natural springs where fights broke out. Imagine being shot or arrested over water.

What is happening in California is hard to keep track of, between fire storms and mud slides, but both are a reflection of drought conditions. In 2014, the six biggest dams were full. Then came three straight years of drought—the worst in more than a century. Now, according to NASA data, reservoirs stand at 26 per cent of capacity, with the single largest -- which provides half of Los Angeles's water -- in the worst shape. City officials plan to cut the taps when the reservoirs hit 13.5 per cent.

Already, many of the 21 million residents of Mexico City have running water for only part of the day, while one in five get just a few hours from their taps a week. Several major cities in India don't have enough. Water managers in Melbourne, Australia, reported last summer that they could run out of water in little more than a decade. Jakarta, Indonesia, is running so dry that the city is sinking faster than seas are rising, as residents suck up groundwater from below the surface.

Is any of this likely to happen here in Ontario? It's not likely, not with the Great Lakes surrounding us and the generous weather that routinely brings new water to the Great Lakes Basin from storms traveling north from the Gulf of Mexico. But weather plays an increasing wild card in delivering what we in Ontario call "timely" rain, and what we are seeing in these other jurisdictions is a stark warning to us about what can happen when resources are squandered. Mother Nature does not play fair, so we as farmers must develop capacity to adapt to the weather that comes our way. Thus far, Ontario has been insulated from the effects of climate change in regards to our summer conditions. Winters have been noticeably warmer and less stormy in the last few years. While we have not experienced successive years of drought, we cannot become complacent. The 2012 growing season – a summer with virtually no rain – taught us we must be prepared for dry years, while the summer of 2017 challenged many with too much rain.

If you need help developing water management strategies for your farm there are a number of resources, including OMAFRA information sheets on irrigation and permits to take water that can be great starting points.

Be prepared for the 2018 growing season. Don't leave water resiliency to chance.

Bruce Kelly is environmental program manager, Farm & Food Care, Guelph, Ontario.

Photo by Glenn Lowson

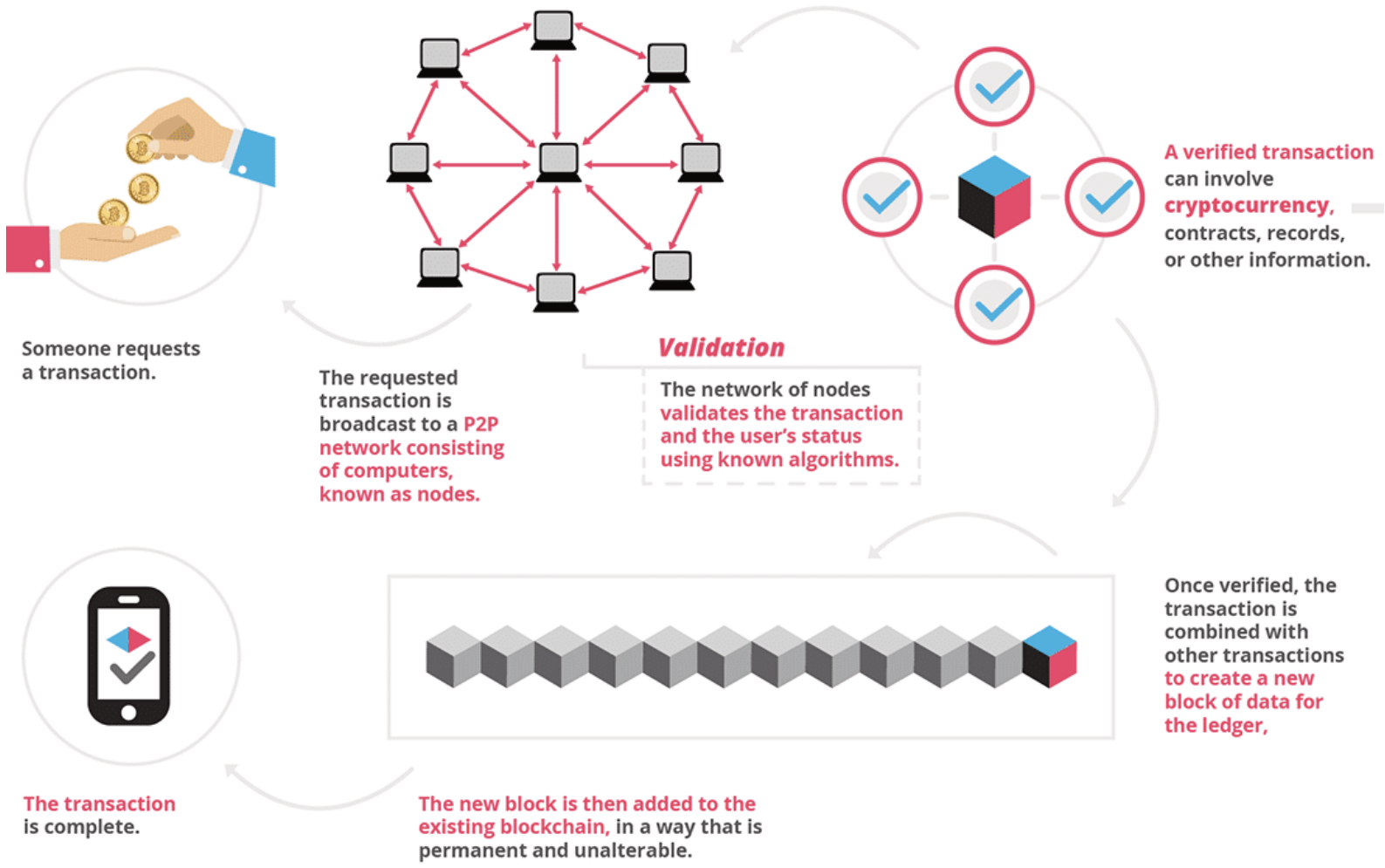
COMING EVENTS 2018

April 11	Farm & Food Care Annual Conference and Speakers' Program, Country Heritage Park, Gambrel Barn, Milton, ON
April 11	Paper and Paperboard Packaging Environmental Council, "The Future of Retail: what's happening in e-commerce" seminar, Islington Golf Club, Etobicoke, ON 8 am
April 24	Ontario Craft Wine Conference & Trade Show, Beanfield Centre, Toronto, ON
April 24-26	93rd Annual Canadian Produce Marketing Association Convention and Trade Show, Vancouver Convention Centre, Vancouver, BC
April 26	Ontario Agri-Food Technologies Semi-Annual Meeting, Cutten Fields, Guelph ON
May 3	AgScape Annual General Meeting, Gambrel Barn, Country Heritage Park, Milton, ON
May 27-31	10th World Potato Congress, Cusco, Peru
May 2	SIAL Canada, Palais des Congres, Montreal, QC
May 11	Garlic Production and Protection Workshop, OMAFRA headquarters, Guelph, ON
May 30	Food & Beverage Ontario Annual Conference, Steam Whistle Brewery, Toronto, ON
May 31	2018 Ontario Potato Scout School, Holiday Inn, Guelph, ON
June 16	Garlic Growers of Ontario Information and Field Day, Jeff Rundalls' farm, Durham, ON
June 7	Ontario election
June 25-27	United Fresh Convention, Chicago, IL
July 16-18	Federal-Provincial-Territorial Agricultural Meetings, Vancouver, BC
July 22-25	International Fruit Tree Association Summer Tour, Kelowna, BC
Aug 17	Carrotfest in Holland Marsh
Sept 5-7	Asia Fruit Logistica, Hong Kong

MAKING MOVES

Blockchain and how it can apply to transportation

JENNIFER MORRIS



Blockchain is 2018's big buzz word. But what does it mean and how can it apply to transportation?

Blockchain is a shared, decentralized ledger that helps with the process of recording transactions and tracking assets. It uses blocks (bundles of transactions) that are linked and secured by cryptography. Because the ledger is distributed, no single/central authority is in charge of certifying the information. At the same time, no one member can make a change to the blockchain without everyone knowing.

Since there are so many possible applications for blockchain there are three types.

Public blockchains – decentralized framework allows anyone to add themselves to the network, read transactions, transfer assets, and participate in the consensus process. Examples of this are Bitcoin and Etherem.

Private blockchains– centralized with strict permissions that typically only allow pre-approved groups of members to read, send transactions and participate in the consensus process. An example would be a company's internal network.

Federated or consortium blockchains- as opposed to public, do not allow anyone with access to the internet to participate in the process of verifying transactions. Mostly used in the banking sector, controlled by a pre-selected set of nodes (members). For example; 10 financial institutions, each operates a node, eight must sign every block for the block to be valid. The rights to read the blockchain may be public or restricted to participants.

With such a complex and yet flexible system, blockchain's applications are endless in all facets of the business world. Even the National Research Council of Canada is conducting a live trial to explore the use of public blockchains in the transparent administration of government grants and contributions. They are proactively publishing grants and contributions data in real-time, a measure that complements ongoing quarterly proactive disclosures available through the Open Government website.

Within transportation, blockchain could help solve a lot of challenges. The type of blockchain and exactly how it will be applied will take time to develop standards. Currently there is a group of American companies that have started the Blockchain in Transportation Alliance (BiTA). Their goal is to develop the standards and a framework that will help advance the industry. Their timeline is to develop the first standards for the transport industry and have them published in 2018. The BiTA Spring Symposium will discuss possible standards. So far hundreds of companies have joined BiTA, including large players such as BNSF Rail, Fedex, Penske and Daimler as well as newer tech based companies such as FourKites and UBERFreight.

In transportation the members of a blockchain could include the grower, the packer/shipper, customs agents, government regulators, brokers, carriers and the drivers. If all those groups had access to the same information at the same time, it could eliminate a lot of inefficiencies and errors. And in turn, save money and time.

Whatever the applications, this kind of database will inevitably change many industries. It is important that companies stay informed and continue to educate themselves of this advancement.

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.

RETAIL NAVIGATOR

Direct selling

PETER CHAPMAN

Opportunities to sell the products you produce are evolving all the time. We focus on selling to retail, however you can learn a lot from selling direct and applying what you learn to your retail customers. This is not a new idea but how you execute is changing. You can also learn more about what your retail customers are trying to accomplish with consumers.

What you learn can be as important as what you sell

There are a number of options for producers to sell direct to consumers. You can sell at the farm, set up in farm markets, make your products available through a consolidation point such as Penguin Fresh or even sell on-line.

Regardless of the option(s) you select, you want to put some money in the bank and learn from your interaction with consumers. The learning can be invaluable and consider it one of the most effective forms of consumer research. Consumer research in the food industry can be very expensive and time consuming. Direct selling, especially in primary agriculture where consumers want it, can be an opportunity to get paid to conduct research.

Direct selling allows you to sell segments of your crop that might not meet the specifications demanded by your retail customers or perhaps the product is great quality, but does not have the shelf life to travel through a warehouse and into a store. Regardless of the attributes, direct selling can increase your saleable yield, which should be beneficial.

You have the opportunity to trial smaller amounts for direct selling before you have to commit to bigger numbers for your retail customers. This is the opportunity to watch how your products perform and which new varieties will resonate with consumers. You will learn more when you can get dependable input from consumers. Perhaps make them a special offer if they take your one-page form that is designed to give you product feedback and return it the following week. They will receive the special offer when they bring your research form back.

Direct selling can be a great learning experience for different people in your business. When you see an employee who has the passion for selling direct to consumers they might be ready for the next step of working with some of your larger customers.

Listen to consumers. The real win for you is to interpret their opinions and use them to predict the future. Steve Jobs from Apple used to include anticipating consumer needs as an integral part of his definition for marketing. In your business, it can take years to develop new products so insights you get from consumers about how varieties perform and taste can save you a lot of time and resources.

How you apply what you learn to your retail customers

One of the biggest benefits of direct selling is that there is some validation to your ideas and opportunities. You can share your experience and the results. It is important to remember that a farm market is not a grocery store. There are a number of differences so you need to consider the following before you run to your retail customers with opportunities to change the world:

1. Consumers who patronize farm markets or other direct selling options are not always exactly the same as consumers who do their shopping in grocery stores. Definitely there is cross over. However the dedicated farm market consumer will not be as concerned about imperfections, size and packaging. Right or wrong we have trained retail consumers to expect certain things.

2. The shopping environment is very different. Assortment in direct selling is much less. Your products 'compete' against many other produce items from around the world in a bigger retail environment.

3. Consumers trust farmers and they don't have nearly the same level of trust for big retailers. You can sell things they just can't. A farm market consumer might see a small container of locally grown sweet cherries as a real find whereas the same offering in a big retail store is perceived as over priced and does not support the positioning of the retail format.

4. Don't underestimate the power of selling that happens in farm markets. Your product in a large retail store gets very little attention. They will display it and put a sign with a description and a price. It needs to sell itself whereas direct selling is a different experience.

Different markets can deliver different results

Direct selling and selling to retail offer different benefits to you. Keep the priorities and the expectations in line with the channel where you are selling. Learn in both and do not try to apply what you learn directly from one to another.

If you have any questions about selling your products direct to consumers please give me a call at (902) 489-2900 or send me an email at peter@skufood.com. Next month we will explore on-line selling of food.

RETAIL NEWS

Keep looking for opportunities to differentiate

Recently I was walking through Costco and this package caught my attention. Costco members get two cartons of molasses and a cookbook. There are a few reasons this is a good idea.

1. The cookbook removes the direct comparison to the same carton in any retail store.
2. Cookbooks drive consumption
3. The value totally changes with the addition of the cookbook. Consumers would attach a different value to the cookbook and it will vary by consumer.
4. It is different. Standing out in a sea of products is always a challenge.

A cookbook with your product might or might not be realistic. The challenge for you is what can you do to achieve the wins we listed with your products and packaging?

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

INNOVATION

New sweet potato variety close to release in Canada

vineland

At the recent Ontario Fruit and Vegetable Convention, Vineland's communications coordinator, Shelby VanderEnde, offered samples of sweet potato crisps. Photo by Glenn Lowson

If Canadians continue to consume, on average, 1.5 kilograms of sweet potatoes every year, about 4,000 acres are needed to meet this demand. Currently, just a handful of farmers grow sweet potatoes due to a limited window to seed and harvest.

That's about to change as Vineland Research and Innovation Centre (Vineland) has worked on a new variety in partnership with Louisiana State University. Officially named Radiance and more suited to Canada's climate, this variety thrives better than standard varieties and is set for growers' fields in 2019.

"Canadian growers have been typically cultivating Covington, a sweet potato variety commonly grown in the U.S.," said Valerio Primomo, PhD, Vineland's research scientist, vegetable breeding. "But it requires a long growing season - elusive in Canada - to develop its deep orange colour and to avoid chilling injury." Vineland's new high-yielding Radiance variety is adapted to thrive in Canada's climate, maturing well in a short growing season of 118 to 122 days.

The sweet potato is also preferred by consumers in taste tests over leading varieties. It exhibits a red skin with vibrant orange colour flesh, a trait consumers look for according to researchers at Vineland.

"Colour is the most important attribute in sweet potatoes," said Amy Bowen, PhD, Vineland's research director, consumer insights. "The majority of consumers are expecting that bright orange, uniform colour."

Looking to license, propagate, grow or sell Radiance sweet potato variety? Please contact: Amanda Moen, Advisor, Business Development 905-562-0320 x668 amanda.moen@vinelandresearch.com

FURTHER EDUCATION

Applications for 2019 Canadian Nuffield Farming Scholarships

Nuffield Farming Scholarships are awarded to Canadians from any aspect of agriculture and agribusiness, with a desire to expand their knowledge, pursue new ideas and share their findings with others for the betterment of Canadian agriculture.

Applicants should be in mid-career, between the ages of 25 and 45 (guideline only) with a minimum of five years of agricultural business or farming experience and the management ability to travel for a minimum of 10 weeks, with a minimum of six consecutive weeks in one leg of their travel.

"Nuffield Canada Agricultural Scholarships provide innovative Canadians with the opportunity to travel internationally to expand their personal horizons while exploring agricultural issues and opportunities in a global context," said Ian McPhadden, Nuffield Canada Scholar and Chair Scholar. "Our focus is on the development of leadership capacity for Canadian agriculture through scholars who have access to the best production, management and marketing systems in the world."

Scholars must complete their project within two years of being awarded, producing a written report and presenting their findings to the Nuffield Canada AGM.

Nuffield Canada investors will provide several named scholarships for 2019:

- Glacier Farm Media is supporting a general interest scholarship
- The Grain Farmers of Ontario (GFO) scholarship will be awarded to an outstanding individual involved in the Ontario grain industry whose study shows direct benefit to the Ontario grain sector.

One additional scholarship will be funded by Nuffield alumni for a maximum five scholarships, each valued at $15,000.

Canadian Nuffield Scholars are required to participate in the annual Contemporary Scholars Conference (CSC), with scholars from around the globe, held in March.

Information about Nuffield Canada and the application process is available at www.nuffield.ca.

Disease forecasting: stay one step ahead

DENNIS VAN DYK AND MICHAEL CELETTI

Nearly every vegetable or fruit crop has a pathogen that can spread like wildfire once it gets established. Think for example of the oomycetes like late blight and downy mildews or bacterial diseases. There is a limited amount of products that have effective, curative activity and eradication becomes almost impossible. Because of this, most devastating diseases require a proactive and preventative management approach. Generally for growers this means maintaining a regular spray program initiated before the disease appears. The risk is too great to leave your crop unprotected.

Disease forecasting is not a new technology but still has the potential to be valuable tool for growers. This applies to not only predictive models based on weather parameters but can include newer technologies such as spore trapping. Historically, forecasting models have been far from user friendly, often not adapted for specific regions and this has generally led to a lack of grower adoption. In order to be effective, these tools must be easy to use and understand. Growers have enough things to worry about without having to become an expert on the sporulation and infection parameters of a pathogen or learn what DSVs and SIPs are.

Historically, disease forecasting has consisted of prediction models based on collected weather data. These models generally suggested when to spray based on whether specific parameters were met for the potential presence of the pathogen, risk of sporulation or risk of infection. Some models focused on when to initiate the first fungicide spray and then a calendar spray program followed. Newer models are more focused on a risk-based approach which would influence a grower's spray interval and what products are in the tank. Current and future work is being done to incorporate things such as wind direction and spore dispersal. The idea is that if disease has been found in another region or state nearby, the likelihood of spores spreading to your farm can be calculated. There is also a huge opportunity to incorporate machine-learning to update and improve the models.

This area has evolved as technology improves and now encompasses more than just predictive models. Spore trapping has been around since the 1950s but has evolved simultaneously. Spore trapping, has been and still is done in some areas by trapping airborne spores on rods or tape, and using a microscope for visual identification of spores. The drawbacks of this method are that it can be time-intensive and requires an expert eye. There is also a risk of misidentification which is not good either way. The advances of molecular tools have allowed us to use quick lab tests to determine presence of spores with greater accuracy and often in a shorter turnaround time. As this technology improves and systems are developed, it provides us the opportunity to sharpen the effectiveness of our management tools.

If you think about the classic disease triangle, forecasting models would tell you whether the environment parameters are conducive, while spore trapping would tell you whether or not the pathogen is actually present. These technologies are quite complementary as both these factors are important in overall disease development. One thing to keep in mind is that these technologies do not replace diligent, old-fashioned, feet-on-the-ground field scouting. Nothing can replace the information that a trained scout provides after walking a field. Not only that but these technologies always need to be ground-truthed to ensure their accuracy.

There are a number of successful examples of disease forecasting that are being used across Canada including but not limited to: disease forecasting and spore trapping for muck vegetables in Ontario and Quebec, spore trapping for late blight on potatoes in Ontario, fire blight risk forecasting models for pears and apples used in Ontario and other apple growing regions, disease forecasting and spore trapping for grape diseases in Quebec and BC, or NEWA out of New York State run by Cornell.

The general shift in fungicide use has been from multi-site broad spectrum products to more site-specific selective fungicides. This is due to a number of reasons, many of which are out of a grower's control, but the reality is that this shift is not going away. The new single-site fungicides are at a higher risk for pathogens to develop resistance. The more frequently they are used, the higher the risk of selecting for a resistant pathogen. As a result, these products are only allowed to be used a few times per season to reduce selecting for resistance. Following a disease forecasting model allows growers to target and reduce the number of applications of these fungicides which will result in delaying resistance from developing and should be part of an integrated fungicide resistance management strategy. Another factor is that these specific fungicides and newer chemistries can be significantly more expensive. These factors alone are going to require growers to be more strategic in their choice of fungicides or combinations thereof.

Furthermore, the proposed new restrictions on the number of applications of the older multi-site, broad-spectrum fungicides under re-evaluation will require growers to strategically target and time applications of these products as well.

There will be those that will argue that these tools are not needed because they know what disease weather is. Vegetable and fruit growers that deal with these devastating diseases year after year seem to develop a sixth sense so to speak and if that works for them, that's valid. On the other hand, we have arrived at a point where growers require support tools that can help them decide what disease they should be targeting when they hop in their sprayer the next morning. Those decisions can be costly ones, both in terms of crop loss and fungicide cost so nuanced decisions like that should be based on good data.

Going forward, the hope is that these technologies continue to be funded, developed and adopted by growers. New disease forecasting models developed in other climatic regions must be verified under our conditions. It is up to us in research and extension to evaluate these models to ensure these tools work and are practical so that growers can adopt and utilize them. As agriculture moves to increasing precision in areas such as nutrient use, the same principles of correct rate, right place, right timing and right product apply to fungicide use as well. Utilizing disease forecasting technology is just one way to increase efficiency on-farm, reduce the risk of resistance developing and get the most bang for your buck without compromising quality or yield.


Fire blight


Late blight


Downy mildew on onions

Dennis Van Dyk is a vegetable crop specialist, OMAFRA.
Michael Celetti is plant pathologist, horticulture crops, OMAFRA.

ONTARIO VEGETABLE NEWS

New Allium pest of concern

TRAVIS CRANMER, CORA LOUCKS & HANNAH FRASER

Allium leaf miner (*Phytomyza gymnostoma*), an invasive pest of European origin, has recently been identified in several U.S. states including Pennsylvania (2015), New Jersey (2016), New York (2017), and Maryland (2017), representing the first records in the Western Hemisphere. The allium leaf miner (ALM) was first described in Poland in 1858, with subsequent finds in other European countries, but it has only emerged as a significant pest since the late 20th century. The reasons for the change in pest status are unknown. The U.S. has apparently de-regulated allium leaf miner.

Allium leaf miner is an insect pest similar to leek moth (discussed in December's issue of **The Grower**), as it causes a substantial amount of damage to *Allium* crops at the larval stage. Larvae mine into the leaves, stalks, and / or bulbs of leeks, onions (dry bulb, green), garlic, shallots and chives. As they grow, larvae move towards the bulb and sheath leaves, where they often pupate. The galleries in the tissue leave the plant susceptible to infection by fungi and bacteria. Symptoms of feeding injury vary depending on the host plant and its stage of development. Very high rates of injury, including up to 100 per cent crop loss, have been reported.

Larvae are cream to yellowish in colour, up to eight mm in length, legless, and lack a distinct head capsule. They have two elongated lobes or projections at one end, which can help to distinguish them from onion maggot larvae. ALM larvae are easily distinguished from leek moth larvae which have legs, a defined head, and are yellow to greenish in colour, with small spots on each abdominal section.

The adult is a very small, three mm-long, grey to black fly with a yellow head (Figure 1). They are smaller than similar flies that infest onion, such as the onion maggot. Females create punctures during egg laying, and both males and females can be observed feeding on the plant exudates seeping from these wounds. Spots look superficially like thrips injury, but are larger and follow a distinct line. (Figure 2). Larvae and pupae can be found by pulling apart leaves as seen in Figure 3. The pest has been found to have two generations per year, with activity in the spring and again in the fall (summer aestivation or inactivity). The ALM overwinters as a pupa attached to plant tissue or in the adjacent soil.

In Europe, ALM is managed conventionally with insecticides that are labelled for leafminers or dipteran leafminers. Chemical treatment is difficult as the larval stage of ALM can be deep inside the plant. Yellow sticky traps used for onion maggot flies can be used to monitor adults. Floating row covers used for leek moth exclusion will also be effective if the plants are covered before spring emergence. Delayed planting may help to reduce injury to spring crops.

Ontario *Allium* growers should be vigilant for any insect damage that looks unfamiliar. Look for distorted, stunted plants with lines of discoloured light spots or mines on leaves. Pull apart leaves of suspect plants and look for larvae or 3.5 mm oval pupae, as seen in Figure 3 & 4.

The ALM has been placed on the list of regulated pests by the Canadian Food Inspection Agency, which has implications to the movement of affected plant material from infested areas. To date, this pest has not been identified in any Canadian province, although its presence in neighboring American states and the potential for entry through imports are of concern. For more information, contact Travis Cranmer at travis.cranmer@ontario.ca or (519) 826-4963. Follow ONvegetables.com for up to date information about *Allium* leaf miner and other vegetable news.

Travis Cranmer is a vegetable crops specialist, OMAFRA.
Cora Loucks, plant health and surveillance, OMAFRA.
Hannah Fraser is an entomologist for horticulture, OMAFRA.

Figure 1. Allium leaf miner adult – L. Barringer, Pennsylvania Department of Agriculture

Figure 2. Allium leaf miner feeding damage – L. Barringer, Pennsylvania Department of Agriculture

Figure 3. Allium leaf miner pupa – L. Donovall, USDA APHI

Figure 4. Allium leaf miner larvae – D. Roberts, Pennsylvania Department of Agriculture

For garlic growers

There will be a Garlic Production and Protection Workshop for those who are growing and scouting garlic this year. To register, please contact OMAFRA's Agricultural Information Contact Centre at 1-877-424-1300. The workshop is free, handouts will be provided and pay parking is $12/day. Bring your own lunch. Presentations by Michael Celetti and Travis Cranmer. Any questions about topics that will be covered can be sent to travis.cranmer@ontario.ca.

Friday, May 11th, 9:30-2:00
Conference Rooms 2&3
1 Stone Road West, 1st Floor, Guelph, Ontario

NURSERY NEWS

New propagation system prevents root girdling

RootSmart is a propagation system that promotes an ideal root structure by preventing root girdling at the propagation stage. Research has shown that root girdling starts during propagation and can't be reversed as a tree matures. Over time, roots circle each other and the trunk, choking and killing the tree.

Developed in partnership between Vineland Research and Innovation Centre and A.M.A., RootSmart improves propagation practices.

"Root girdling is a real problem, and growers are starting to see an increased focus on examining root structures in the buying process. We were determined to find a solution that would help growers become better stewards of their products," said Rick Bradt, co-owner and managing director of A.M.A.

The uniquely designed wall-less, bottomless tray encourages lateral root growth without obstruction from growing media. As the roots come into contact with the air outside of the tray, they naturally prune themselves, allowing continued growth in a healthy, lateral direction.

One of the A.M.A. representatives in California, Jim Snyder, describes increased plantings in the tree nut and fruit sector there, in spite of water and environmental issues. Significantly, there's replacement planting of orchards and groves that are reaching the end of their useful life. In turn, this has put a strain on root stock and young plant producers to meet this increasing demand. They are moving from traditional outside field production of young plants to *in vitro* (tissue culture) propagation and indoor, greenhouse production.

Even with the resulting increase in the number of plants produced and the decrease in crop time to a salable/shippable young plant, the demand exceeds supply with most producers sold out two to three years in advance.

"RootSmart probably will not play a significant role in decreasing shrink/grade out/culls at the young plant producer level," says Snyder. "Root girdling does not impact the number of useable plants for the propagator. The plants leave their facilities before the effects of root girdling are evident or they ship anyways to meet demand. Where RootSmart can have a significant impact is for the grower who plants young plants in larger containers or in the field to be grafted and for the end producer who plants in field to produce fruit and nuts.

RootSmart has a benefit for both the young plant producer and fruit and nut growers. In Snyder's observations, RootSmart creates the desired root architecture that produces healthier, more vigorous trees that result in maximized yield potentials, maximum orchard longevity and trees that are better prepared to resist attack from disease and pests. The result is decreased tree mortality and reduced costs. He also says that the young plant product easily adapts to mechanical transplanting.

Back in Canada, Plantigro Nursery, a division of E & B Medel Orchards Ltd., Ruthven, Ontario, has experimented with the trays.

"In our experiment with different types of soil mixes and trays, we found that the root structure of cherry in the Rootsmart plugs was excellent," says Markus Weber, head grower. "The root distribution was even all around the plug and the root pruning worked great. This means there will be no curled roots!"

Weber says that the trays were put into a cooler over the winter of 2017/2018 to test survival rates. As of March 1, the roots looked very good and the buds on the trees are healthy.

At the Vineland Research and Innovation Centre, research scientist Dr. Darby McGrath says that five years of consulting with industry leaders and studying the effects of existing propagation trays has led to this breakthrough propagation tray.

A.M.A. holds the exclusive production and marketing licence to RootSmart which is now available to growers across North America. Learn more at www.rootsmart.com.

The wall-less, bottomless RootSmart tray encourages lateral root growth without obstruction from growing media.

Cherry trees, as of November 17, 2017

NURSERY NEWS

Canadian Fruit Tree, the newest nursery in Ontario

KAREN DAVIDSON

Gene Penner, nursery manager, Canadian Fruit Trees Nursery Cooperative. Photo by Glenn Lowson.

A group of 21 tender fruit growers has banded together to form the Canadian Fruit Tree Nursery Cooperative in Jordan Station, Ontario. Representing more than half of Ontario's tender fruit production, the cooperative effort is led by chair George Lepp and nursery manager Gene Penner.

"The impetus for the project is the ongoing challenge for tender fruit growers to source consistent, good-quality trees," says Penner.

Each of the growers has taken an equity stake in the company which was incorporated in 2016. While the Vineland Growers' Cooperative spearheaded the initiative, the nursery venture is a separate business renting office and cold storage space from the Jordan Station, Ontario entity. A small crop of peaches, nectarines, plums and pears was planted in 2016 with the first harvest in fall 2017 at a farm near Otterville, Ontario.

"The sandy soil there is fantastic," says Penner, adding that water supplies are plentiful in the southwestern region moderated by Lake Erie. Another 70,000 seedlings were planted in the fall of 2017.

"We feel strongly that we're not going to produce on a speculative basis," says Penner. "We are going to serve our members' needs first, make sure we have a viable company and then expand production when needed."

Rootstock has been sourced from the U.S., Europe and western Canada. Sweet and sour cherries, as well as apricots and apples will be added this year.

The cooperative is now accepting deposits for 2020 from members and non-members. There's no website and no catalogue so the point of contact is Gene Penner: epenner@canadianfruittrees.com or 905-329-9410.

"I'm optimistic as this project develops," says Penner. "The key to success is growing a quality product that is well feathered, disease-free and the right size for the grower's needs."

MINOR USE

CRAIG'S COMMENTS

Minor Use circa 2018

CRAIG HUNTER
OFVGA

Once upon a time, (it seems a long time ago) and fairly far away, a boy was bugging his mother about needing a job. Knowing her life that summer would be 'difficult' unless she got him out of the house, she made a blind call to a business with 'Farm' in its name. A brief interview was arranged for the next day, and low and behold, he was hired for a job that was to lead him on his life's journey. (I pause here to let readers know that [most] of the names herein are changed for reasons that become self-evident).

The first day on the job was an eye-opener for that young man. (Getting and holding that job had already changed his status from boy to man.) While not lying, he had told them that indeed he had achieved his 'chauffeurs' license that in those days meant he could drive a vehicle 'for hire.' What he had NOT told them was he had had it for just two weeks, and had only ever driven three different vehicles -- all cars! Nonetheless, he was put into the cab of a 10-ton truck that had a dead engine, so it could be towed across a busy four-lane highway. If you have ever looked at death in the eye, it would equal the panic he felt that day as a carefree son of the owner pulled that truck across the highway with lots of on-coming traffic. That was the beginning of a perilous but exciting four years.

On another day, while on a trip into 'The Junction' area of Toronto, he had to first find a warehouse (Remember, no GPS and no maps provided) and then load (overload) that truck with feed and grain. It was only when he got there that he found there were no locks or closure devices on the back doors -- just four-inch spikes to nail it shut! After the struggle to get the doors open, it was even tougher to nail them shut on an (over) full load. It was on the trip home when cars began honking that he pulled over to find the back door had swung open, and part of the load was 'missing.' He never got it all back as enterprising folks had 'helped themselves.' The next lesson came when the boss counted the bags and deducted the missing ones from that week's pay! Lesson learned. One of a great many over those years.

Number two son of that business had a government job of some sort -- we never knew exactly what because he always seemed to be around the farm. One day an urgent order came in, and every vehicle was out on delivery. He couldn't leave the shop, so the young man was dispatched with about a ton of fertilizer- in the trunk and back seat of (you guessed it) his government car. While the young man still didn't know exactly what the son's job was, he knew instinctively that he shouldn't be driving that car! Another lesson learned. When faced with adversity, use the tools available and then explain later if you need to.

There were some 'fun' jobs there along the way. Learning to calibrate a weed sprayer was one of those. It was interesting because the staff never needed to calibrate an orchard sprayer. You knew almost to the tree where it should run dry. If it went shorter or longer, it was time to check/clean the nozzles and screens! The herbicide sprayer was different because there was no obvious marker available for distance run. (No GPS-remember?) Choice of products to use was often left up to the staff, and they had the Ontario Department of Agriculture and Food (ODAF) Guides to tell them what to use, how much per acre, and away they went. It also became a requirement to check the pesticide storage (they had dealerships with several companies) so the staff could use up broken bags, leaky pails and 'old stock.' Not the best way to control pests, but the very best way to 'dispose' of that product by using it up according to the label. The staff was never allowed to throw away anything in those days.

HMS Enterprise- 1918-1946- She served N+S Atlantic and Indian Oceans and Mediterranean Sea, and achieved honours in many roles.

Another 'fun' chore was in the spring when a boxcar load of peat moss arrived on the local railway spur siding. You had just 24 hours to clear out the load or pay demurrage charges. In those days the boxcars were loaded in New Brunswick, and they were packed tight as volume and not weight was the limiting factor. The top layers went right to the roof, and were the smaller two- and four-cubic foot bales for the retail trade. The staff could 'hand-bomb' those into the fleet of farm trucks, haul them to a storage building (and usually on an upper storey) hand-bomb them off the trucks for a quick turn-around. The middle layers were six-cubic footers, and feats of strength were called upon to handle those. "Bill', 'Morgan', 'Rick' and others could pick those up and carry them into the trucks. Others needed two per bale just to carry them to the truck. Of course, you have to realize these bales were frozen solid, having sat out all winter. They were …heavy!

Then came the 71/2 cubic foot 'bales.' These were not simply in a plastic cover, but were surrounded by burlap, with wooden slats and wire (like snow fence) holding all together. Only 'Bill' could handle these alone. When the last load was done the staff was completely done in, but ready the next day for whatever came their way. It was a job after all, and every chore was fair game.

Another task that came our way was haying time in the summer. The eldest son ran farms up near Lake Simcoe, and the staff were the 'mechanical' devices to take hay bales from the fields, and then load them into various barns. Loading up the barns was often done in the mornings when it was 'a bit' cooler. Once again, a lot of 'Armstrong' talent was needed, and breathing in that dust would last a life-time with asthma. Some other poor guys got to unload those packed bales down to hungry feeder cattle all winter! The hay loading in the field would take place until nightfall or later. One night (pitch dark) they took a convoy of vehicles back to the home farm from a distant property. The truck in the lead had headlights. The one at the back had at least one functioning taillight! In between were five trucks and tractor-pulled wagons with no lights whatsoever. On the gravel roads, that was considered normal. It was once again when crossing a busy highway that hearts were in mouths! As they say, when nothing happens, nothing happened. The store of 'knowledge' about twisting and bending the rules while not technically breaking them remained with that young man for use in latter exploits.

After only a short two-year (year-round with week-ends and holidays too) job experience, that young man needed to amass enough cash to pay for a university education, and the farm just couldn't pay that much: (No different than today where farm work just cannot be afforded high wages by the growers). He secured another better paying job that had a lot of off-time due to scheduling. The 'Boss' immediately offered a job for those off-days to keep that student 'busy.' Between the two jobs, his education was paid for, at least year one. The same formula was carried on for a second year: well-liked by both sides. Like all good things, it could not last forever. The student needed better/different job experience that could lead to a full-time job after graduation. Sadly, the farm job came to an end -- sort of. That experience was all parlayed into his first full-time job, a subject for next month's column!

CROP PROTECTION

Prowl H2O herbicide label expanded

JIM CHAPUT

Crop(s)	Target	Rate (L/ha)	Application Information	PHI (days)
Direct seeded or transplanted cabbage, cauliflower and broccoli	Labeled weeds	2.46	Apply once as a directed spray to soil surface between rows of cabbage, cauliflower or broccoli when crop is at the 2-4 leaf stage for both direct seeded and transplanted crops.	60 (broccoli) 70 (cabbage, cauliflower)

The Pest Management Regulatory Agency (PMRA) recently announced the approval of a minor use label expansion registration for Prowl H2O herbicide for control of labeled weeds on direct seeded or transplanted cabbage, cauliflower and broccoli grown on mineral soil in Canada. Prowl H2O herbicide was already labeled for use on a number of rops in Canada for control of several weeds.

These minor use projects were submitted by Ontario as a result of minor use priorities established by growers and extension personnel.

The following is provided as an abbreviated, general outline only. Users should be making weed management decisions within a robust integrated weed management program and should consult the complete label before using Prowl H2O Herbicide.

Prowl H2O herbicide is toxic to aquatic organisms and non-target terrestrial plants. Do not apply this product or allow drift to other crops or non-target areas. Do not contaminate off-target areas or aquatic habitats when spraying or when cleaning and rinsing spray equipment or containers. Do not apply Prowl H2O herbicide more than once in two consecutive years.

Follow all other precautions, restrictions and directions for use on the Prowl H2O herbicide label carefully.

For a copy of the new minor use label contact your local crop specialist, regional supply outlet or visit the PMRA label site https://www.canada.ca/en/health-canada/services/consumer-product- safety/pesticides-pest-management/registrants-applicants/tools/pesticide-label-search.html

Jim Chaput is minor use coordinator, OMAFRA, Guelph, Ontario.

IN farming, there seems to be an endless list of PPE and equipment that specifically protect us from hazards. That said, there are hazards that rely on the kind of protective measures that don't necessarily have a CSA logo emblazoned on a tag or package. Heat stress is one such hazard.

Like so many other aspects of agriculture that differentiates it from other sectors, freshly picked vegetables can't sit on a shelf indefinitely. When that vegetable needs to be picked, it needs to be picked regardless of how hot the weather may be. Nonetheless, there are measures that can be taken to limit risk and maintain a healthy, motivated team.

Keep your team hydrated. And monitor it.

While it seems common sense to maintain hydration and drink plenty of water when working in extreme heat, workers can lose track of the last time they've had something to drink or don't want to make the trek to the cooler. Make a mental note to check your water supply. If it's bottled water, see if your supply is being used. Have supervisors ask workers if they've been hydrating regularly over the course of each shift.

Modify hours.

Where possible, get the team to come in at 6am rather than 7am, as an example. Have them work until 11 and come back later on when the sun is lower in the sky.

Know where your staff is.

In many growing situations crops can reach up above 2 meters, limiting visibility. If a worker faints, it's important that they get care as soon as possible. Being aware of their location and checking up on them can make all the difference.

Be aware of old habits.

This is a factor that can relate to foreign workers more so than local. Many of them come from places where extreme temperatures are a part of everyday life and they may not realize that taking breaks to rest and rehydrate are encouraged. Make sure they understand this.

Look out for each other.

Those hot days are an opportunity for the internal responsibility system to shine. Encourage teams to look in on each other and to recognize the signs that a co-worker may be in distress. If someone down the row appears to be wobbly or groggy that could mean they are experiencing heat stroke. Take the time to check in with them just as you'd hope they'd check in on you.

Here's something else to keep in mind. While someone fainting might seem relatively minor compared to more catastrophic incidents, the law does not take this kind of occurrence lightly. Any time a worker in Ontario loses consciousness for any reason, it requires notification of the MOL and will result in an MOL visit.

Know when to sit down on the job. And have a cold drink. The rewards will be great.

For more information on heat stress, visit the WSPS website www.wsps.ca/farmsafetyTG and view the Agricultural Safety Topics Heat Stress document in the "Fact Sheets" section.

THE GROWER

APRIL 2018 @GROWERNEWS SECTION B

WATER MANAGEMENT & IRRIGATION

A primer on washwater management

The Vegetable and Fruit Washwater Treatment Manual is a wealth of practical information. Thanks to a long list of experts, Publication 854 is now available through the Ontario Ministry of Agriculture, Food and Rural Affairs. The co-authors are: Bridget Visser, Holland Marsh Growers' Association Water Project; Charlie Lalonde, Holland Marsh Growers' Association Water Project; Timothy Brook, P. Eng., OMAFRA; Vicki Hilborn, P. Eng., OMAFRA; Deanna Nemeth, OMAFRA; Rebecca Shortt, P. Eng., OMAFRA; John Van de Vegte, P. Eng., OMAFRA.

Developing a washwater management strategy can be complex. The following are excerpts which offer an overview of the design process. To order this publication, go to: www.ontario.ca/publication

Step 1: Create a project team

Create a project team that will plan, assess and implement the washwater management plan. Select a central person or leader who is involved in each step. The daunting task of collecting information and making decisions gets manageable with a consistent team in place. Key members of this team could include:

- a project lead
- financial controller
- the system operator
- the person operating the wash lines
- a consultant (if applicable)

Step 2: Characterize the washwater

It is necessary to fully understand the characteristics of the washwater to be treated. The collection of water volume data should include:

- flow rates
- total daily volume
- maximum and minimum flow rates
- number of hours/day, days/week and weeks/year of the washing season

There are some water characteristics that need to be measured. These measurements should be conducted on the input and output water:

- water clarity
  - total suspended solids (TSS)
  - total dissolved solids (TDS)
  - turbidity
- nutrient concentration
- organic matter concentration
- dissolved oxygen content
- pH
- microbiological levels (e.g., *E. coli*)
- other parameters as required

Knowing these characteristics will help the project team select the right equipment.

Take an inventory of the treatment system components already in place (e.g., settling tanks). Evaluate the performance of the existing equipment before and after the treatment process. Knowing how well the existing process works helps the project team decide what can stay in place and possibly save money.

Step 3: Evaluate the washing process

There may be places within the washing process where water use or loadings can be reduced. Examples include:

- removing more soil using dry methods before washing (e.g., finger tables)
- reusing washwater from the final rinse to an earlier washing step

Continued on page B3

FOCUS: WATER MANAGEMENT & IRRIGATION

Sub-surface irrigation directs water to the root zone

Main supply lines wait to be installed underground at the Wiens vineyard, Niagara-on-the-Lake, Ontario.

Connecting dripper lines to supply main supply lines in March 2017.

Air vent and zone selection valves

> **At present, the system is not wireless. We're staying basic for the start but the system can be automated in the future.**
>
> ~ ERNIE WIENS

KAREN DAVIDSON

After 42 years of growing grapes, Ernie Wiens is trying to prepare for whatever drought comes his way. After spending $100,000 for diesel fuel to operate irrigation equipment in the parched summer of 2016, he decided there was a more cost-effective way to look after his vineyards.

"We spent a ridiculous amount of money on diesel and water," recalls Wiens. "It was a very intense season."

Situated near Niagara-on-the-Lake, Ontario, he and his nephew Gary were prompted to invest in a sub-surface irrigation, heavy-wall dripper line – the first of its kind in the Niagara grape-growing region. Designed by Vanden Bussche Irrigation and installed by the Wiens' in March 2017, the system has yet to deliver a single drop. Ironically, summer 2017 was a wet season.

"I think that when we do put the system to work, we will be very pleased with it." says Wiens.

The objective is to get water closer to the root zone of the grapevines as well as to avoid damage caused by mice or coyotes chewing dripper lines. By burying the line, there is no loss of water to evaporation as happens with overhead irrigation.

"There is an emitter every 24 inches with a pressure-compensated dripper that provides water at a rate of 0.42 gallons per hour," explains Mike Sowden, design and sales for VandenBussche Irrigation. "The system is relatively easy to install with shank tubing in the ground."

With a permanent system like this, Wiens anticipates that timing for watering and subsequent fungicide spraying will be easier to manage. As such, he expects a saving in crop protection products.

The volume of water used to irrigate may not change. The expectation is to use water more efficiently at the right place and right time. The irrigation system is set up to cover 25 acres within six to eight hours.

At present, the system is not wireless. "We're staying basic for the start," says Wiens. "But the system can be automated in the future."

FOCUS: WATER MANAGEMENT & IRRIGATION

A primer on washwater management

Figure 2.1. The design process for developing a washwater management strategy.

Washing carrots with a spray bar. Photo courtesy of OMAFRA.

Continued from page B1

Optimize the washing process by measuring the flow of washwater using in-line meters. Measuring the flow can help to identify:

- the cost of water and rate of use
- the need for standard operating procedures
- the size of treatment technologies needed

The volume of water used may in influence the size of treatment equipment needed. Reducing the amount of water used or reducing the loading will potentially simplify the treatment equipment needed and lower equipment costs.

Step 4: Determine treatment objectives and requirements

Decide on the end point of the washwater (e.g., reuse, irrigation or disposal). This decision will help the project team determine the final water quality requirements, the regulations to be met and the treatment system options. The main options include:

- land application (irrigation or spreading on crop land)
- treatment and reuse within the facility
- treatment and discharge
- hauling to a nearby municipal wastewater treatment facility where applicable

Step 5: Design the washwater treatment system

After the information has been collected, treatment objectives determined, washwater characterized and the washing process optimized, the treatment system can be designed. The final design of the system should consider the life cycle of the system (from commissioning to decommissioning) and include budget items such as capital investments, ongoing operational costs, maintenance costs, and new infrastructure and labour requirements. All treatment systems will have expenses in these categories but costs will vary based on the size and complexity of the system.

Consider the availability of labour to operate the system. All systems require some oversight and maintenance, but this will vary. A system that needs minimal oversight may cost more upfront. A person(s) will need to be assigned to complete operating and maintenance tasks.

FOCUS: WATER MANAGEMENT & IRRIGATION

OFVGA's Environment and Climate Change Section tackles top issues

> **In the last decade of farming, I've never seen a normal year. Wet is wet and dry is dry.**
>
> ~ MIKE CHROMCZAK

Asparagus grower Mike Chromczak is the chair of the newly formed Environment and Climate Change Section at the Ontario Fruit and Vegetable Growers' Association. He farms at Brownsville, Ontario. Photos by Glenn Lowson.

KAREN DAVIDSON

Warmer, wetter and wilder. That's the prediction of Environment Canada's senior climatologist, David Phillips, who spoke recently at the Ontario Potato Conference about what to expect in future weather patterns.

With these trends in mind, the Ontario Fruit and Vegetable Growers' Association (OFVGA) has formed a new Environment and Climate Change Section to respond to a host of issues. Mike Chromczak has agreed to be chair, entering new territory for both himself and the association.

The asparagus grower from Brownsville, Ontario returned to the farm several years ago, establishing stands in 2011 on what was formerly tobacco ground. He's now expanded to 55 acres focusing on quality and efficiency with a new packing barn.

"In the last decade of farming, I've never seen a normal year," says Chromczak. "Wet is wet and dry is dry."

The objective of the new committee is to ensure government environmental programs and policies are realistic, practical, fact-based and balanced. Key projects will be to advocate proactively on issues related to water, nutrients and resource management. As needed, information and data will be provided to key policy makers on the effects of carbon pricing methodology and competitiveness while promoting the beneficial environmental practices of growers to help reduce carbon emissions. Chromczak expects to provide input to environmental and nutrient management programs and policies.

"It's important that horticulture has a voice at the table," says Chromczak. "Otherwise we're collateral damage when decisions are made in Toronto or Ottawa. Growers have always been innovative and efficient in being good stewards of the land. We're not fighting change, but driving change when it comes to precision agriculture."

Chromczak will be supported by OFVGA's senior policy analyst Gordon Stock. To get up to speed, Stock has supplied updates on current Ontario policies.

• Ontario's Climate Change Action Plan and carbon market form the backbone of Ontario's strategy to cut greenhouse gas pollution to 15 per cent below 1990 levels by 2020, 37 per cent by 2030 and 80 per cent by 2050. As of January 1, 2018, Ontario became part of the largest carbon market in North America — a linked marketplace with Québec and California.

OFVGA is continuing to monitor and evaluate the impact this policy has on the fruit and vegetable sector.

• GreenON Agriculture is a new program from the Green Ontario Fund, a non-profit provincial agency mandated to help reduce greenhouse gas emissions (GHGs) from buildings and the production of goods. GreenON Agriculture is a merit-based cost-share program that encourages adoption of cleaner technologies and reducing carbon footprint. Farmers with permanent, climate-controlled buildings such as greenhouses are eligible. For more information, go to the program delivery agency, Ontario Soil and Crop Improvement Association at https://www.ontariosoilcrop.org/oscia-programs/

Duffy Kniaziew, Orangeline Farms, Leamington, Ontario surveys the water collected from the greenhouse roof during a thunderstorm.

• The Great Lakes Agricultural Stewardship Initiative (GLASI) continues its work in four specific watersheds: Ausable Bayfield Conservation Authority, Essex Region Conservation Authority, Upper Thames Conservation Authority, Lower Thames Valley Conservation Authority.

• Grow Ontario Together (GOT) welcomed the February 2018 release of the Canada-Ontario Action Plan for Lake Erie. The objective is to reduce excess phosphorus loading in Lake Erie to prevent unwanted algal blooms. With spring planting around the corner, farmers can help reduce phosphorus loading by ensuring that nutrients are properly added to soils at the right time from the right source, in the right place and in the right amount.

Some of the 2018 projects include restoring wetlands, planting trees in riparian zones and controlling invasive plant species. For a detailed list, go here: https://news.ontario.ca/ene/en/2018/02/local-actions-to-protect-lake-erie.html

The Ontario Fruit and Vegetable Growers' Association, Ontario Greenhouse Vegetable Growers and Ontario Processing Vegetable Growers are members of Grow Ontario Together along with other commodity groups. For details: www.growontariotogether.ca

FOCUS: WATER MANAGEMENT & IRRIGATION

Hydrogen peroxide valued in greenhouse irrigation water

KAREN DAVIDSON

Oxygen concentration in irrigation water is an underestimated factor in plant growth. The oxygen is taken up in dissolved form in water through the roots.

Dr. Marco de Leonardis observed this reality when he joined Freeman Herbs, Beamsville, Ontario several years ago. Now the research and development operations manager, de Leonardis solved a bacterial blight outbreak in basil by paying more attention to water quality. It's not enough to depend on municipal-grade water when so much is at stake in greenhouses. Specifically, he conducted experiments by spraying hydrogen peroxide at 8 ppm on both diseased and healthy basil plants. Not only did the infection stop in the diseased plants, but he observed a more robust basil plant on the disease-free bench.

"This was a valuable lesson because Freeman Herbs also has an organic section," says de Leonardis.

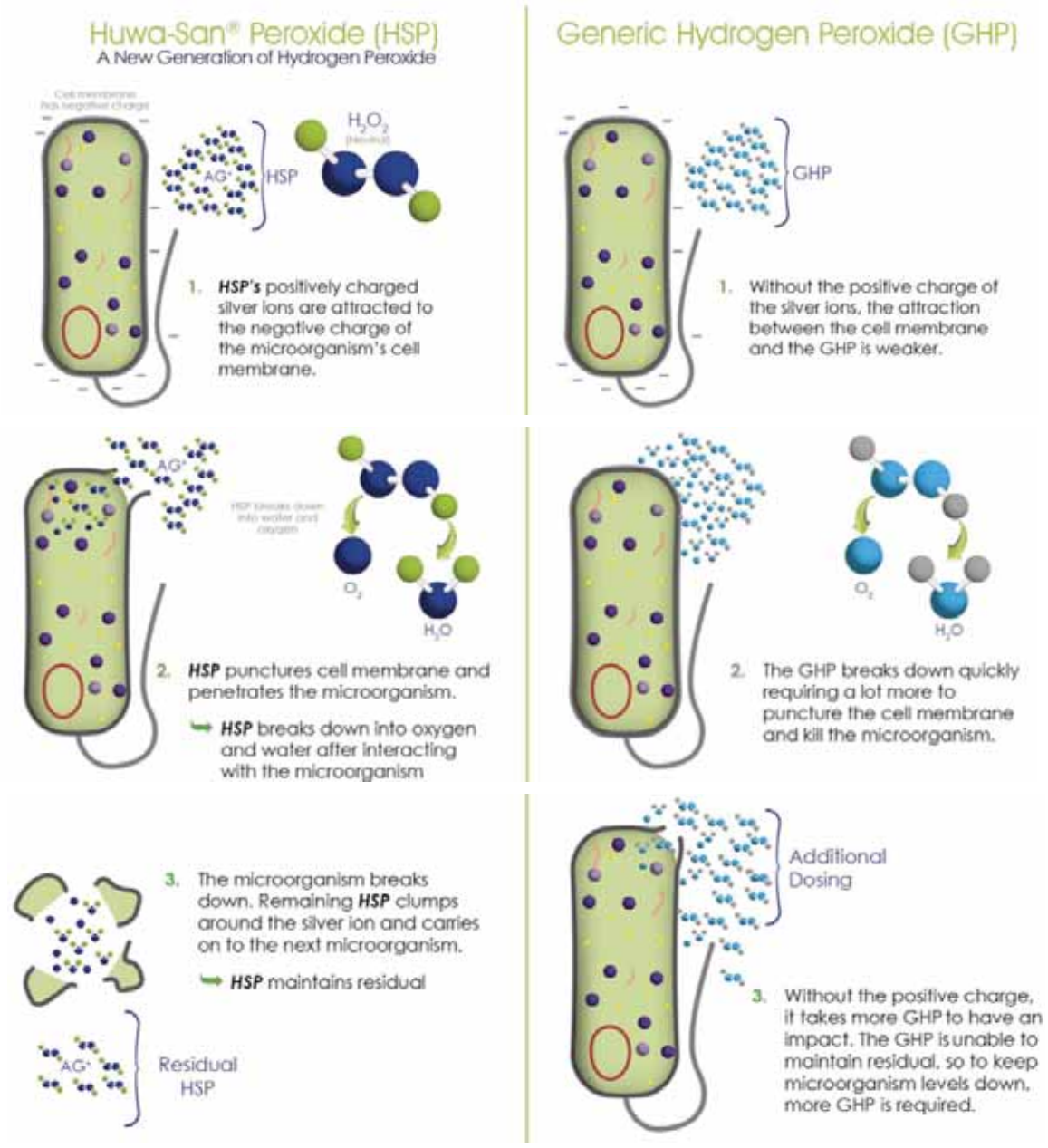
These results were duplicated when a SanEcoTec water system was installed. The owners observed dry weight increases of an average 25 per cent. Shelf life of basil was tripled. Disease pressures were reduced significantly.

Chemically speaking, hydrogen peroxide is a compound containing two oxygen atoms bonded together in its molecule. However, one oxygen atom is not attached strongly. The Huwa-San (HSP) peroxide comes from Belgium whereby it is silver stabilized. The silver ion has a positive charge, which helps in breaking the bacteria cell which has a negative charge.

In water systems, bacteria can proliferate on the biofilm that accumulates in piping over time. The addition of hydrogen peroxide to water at 20 ppm (0.002%) keeps water quality high.

De Leonardis has observed that losses due to rhizoctonia in the propagation house can be reduced from 25 per cent to one per cent with a water regime including hydrogen peroxide (H202).

While hydrogen peroxide is easily obtained at little cost, the water delivery system must be analyzed and calibrated.



SanEcoTec installed its solution at Freeman Herbs to supply water to 3.5 acres of herbs which are grown year-round. The system is now considered essential to the health of 12 herb varieties.

FOCUS: WATER MANAGEMENT & IRRIGATION

The 3Rs of water management: right rate, right time, right place

> **The greenhouse industry has paved the way in demonstrating how to drive yield and to pay attention to detail.**
>
> ~ JEFF TIGCHELAAR

KAREN DAVIDSON

Sticking a finger into the soil isn't enough anymore. Instincts are good, but information is better.

Jeff Tigchelaar, co-owner of Tigchelaar Berry Farms, Vineland Station, Ontario and his brother Dan are looking to improve their water management for 50 acres of day-neutral strawberries. Last year, they experimented with a Connected Crops unit from Esprida Corporation, which measures soil moisture and canopy temperatures.

What's novel is that site-specific data is relayed to Tigchelaar's cell phone every 15 minutes. This is Internet of Things (IoT) technology applied to agriculture in a way that allows managers to make decisions on scientific data in real-time.

"We're excited to be getting real-time soil moisture and temperatures from within the berry canopy," explains Tigchelaar. "It's unlikely we will be able to cool our canopy anytime soon via misting, but gathering the data to make informed decisions is crucial."

Growers are increasingly micro-managing their farms to get the most out of inputs. Tigchelaar points out that every soil type is different. What may be optimum moisture for one field is not the same for another field with different soils. Last year's experiment is turning up more questions. What's the best depth to monitor soil moisture?

In terms of water management, his new attitude is not so much about volume of water but applying it at the right times and frequency. In the past, watering twice a week may have sufficed, but with today's information, it may pay to water multiple times a day in different amounts according to plant development.

"The greenhouse industry has paved the way in demonstrating how to drive yield and to pay attention to detail," says Tigchelaar.

For the coming season, he expects to have two units in the field. The soil probes are portable, relaying data that's accurate for 20 acres.

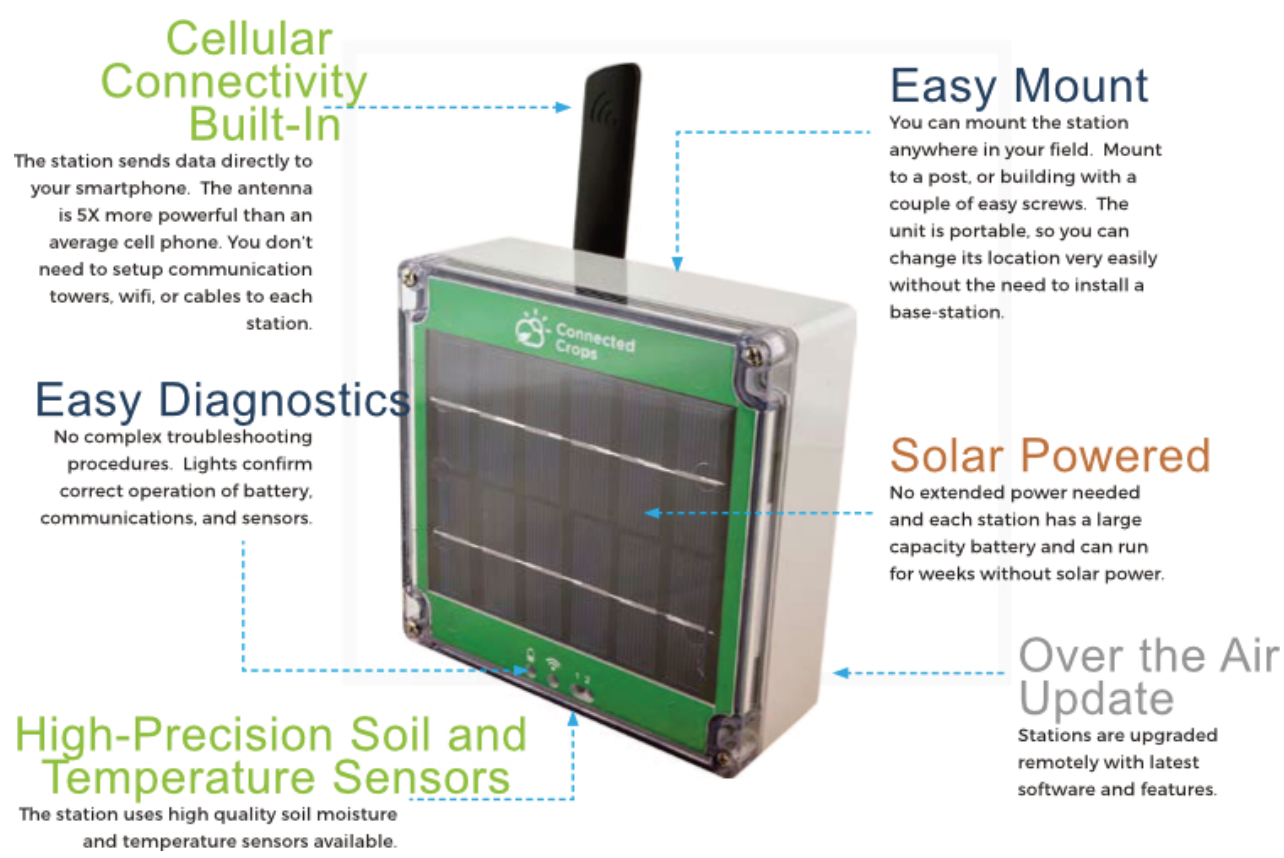
Growers may have data loggers on their farm, but the benefit of this new Connected Crops system is that the data appears in real-time on a cell phone.

"Technology is changing so quickly," says Tigchelaar. "The difference between super success and failure will be how to apply technology to your commodity."

How does ConnectedCrops work?

The name of Esprida's product is called ConnectedCrops and there are three bundles: one for temperature inversion, one for irrigation management, and one general purpose version.

"A grower like Jeff Tigchelaar generally wants to be more precise about his irrigation schedule and manage his team better," says Asad Jobanputra, Director of IoT solutions at Esprida. "For grape growers, they want to set alerts to wake them up when there's a temperature inversion at night in a particular field. Vegetable growers may want to measure soil temperature to see how frost affects soil microbiology, and measure how long rain water stays in the soil."



In one 2017 case study, Esprida discovered that the grower was both overwatering and underwatering, but he never knew when, even though he was working with soil experts and advisors. The ConnectedCrops app pinpointed when these events were happening.

For the irrigation version, the grower picks a spot to measure the soil. Two soil moisture probes are required to measure how much water is present at the top and bottom of the root structure.

The actual installation is very simple:

1. Dig a hole where you want to measure and insert the soil sensors at the appropriate depth.
2. Connect the sensors to the back of the station
3.Mount the station to a post or wall etc.
4. Install the mobile app on your phone and set up alerts

"Growers tell us that easy-to-use features and installation are very important," says Jobanputra. "Our focus has been to design a product that a grower can install and use by themselves in about 15 minutes. With pre-configured values, the app provides valuable real-time crop data in a simple, intuitive, user interface."

For more information, go to: http://connectedcrops.ca/solutions/ and http://connectedcrops.ca/whats-happening-soil/

As of spring 2018, Vanden Bussche Irrigation is a distributor of ConnectedCrops units.

FOCUS: WATER MANAGEMENT & IRRIGATION

Conserving water to grow more spuds

Canada's most recent census, conducted in 2016, has a modest vein of data on irrigation. Would it surprise you to know that approximately 70 per cent of the total irrigated land in Canada is in Alberta? And the province's expanding potato industry is part of the draw on water from the Rocky Mountains. Alberta's irrigation water volume – 1.4 billion cubic metres – was up by 13 per cent from 2014 to 2016. One cubic metre is equal to a thousand litres of water.

"In this country, it's all about the water," says Mike Wind, a potato grower and vice-chair of the Taber Irrigation District. He's in the heart of potato country, growing 850 acres of processing potatoes himself. In southern Alberta, growers expect about 11 inches of rainfall per year, but 18 inches are required to successfully grow spuds.

Alberta Agriculture and Foresty, in partnership with the Alberta Irrigation Projects Association, conducts an annual study to assess the quality of irrigation water. Since 2006, the study has encompassed Alberta's irrigation districts, including three that grow the most potatoes: St. Mary's River, Bow River and Taber. The parameters of the study cover physical, biological (*E. coli)* and chemical characteristics. The tests include 150 pesticides such as dicamba and MCPA. The results show water quality is consistently good to excellent and that any detected pesticide residues typically fall below guidelines.

"This is a highly managed irrigation system with 8,000 kilometres of infrastructure," says Shaun Cook, acting director, Water Quality Section, Alberta Agriculture and Forestry. He is referring to the entire irrigation system which ranges from the Rocky Mountains to the eastern border. "While water appears plentiful, efficiencies have increased over the years due to variable rate irrigation, soil moisture monitoring and management efficiencies."

Wind agrees that is the case for his own Taber Irrigation District which has converted ditches to pipelines in recent years to prevent evaporation. In fact, the rental rates were increased from $16 per acre to $18 per acre on January 1, 2018 to reflect investments and to keep the irrigation system sustainable.

"There are no water rights available in the Taber Irrigation District or the St. Mary's Irrigation District," says Wind. Even if land was available, potatoes can't be grown without water.

So farmers looking to expand potato acres to supply the demand from processing plants in southern Alberta – Cavendish, Lamb-Weston and McCains – must find other farmers willing to rent irrigated land. As a result, rental rates are ranging from $400 to $500 per acre.

"It doesn't matter where the land is," says Wind. "We'll just hire more semi-trailers to move the product."

At his home acreage, Wind is investing heavily in variable rate irrigation to conserve water use. Of 24 pivots which can irrigate 150 acres each, he has four pivots with low-pressure systems and variable speed pumping. Each pivot system costs $42,000 US and another $12,000 US for the pump.

"The first benefit is that I don't drown out my crop," says Wind. "We're applying water at the right time and the right place."

Soil moisture monitoring, together with GPS-constructed field maps, give the assurance that the right amount of water is applied.

Precise watering means that the soil is not saturated and that fertilizer is not washed away. These best management practices prevent alkalinity.

With these conservation practices, more acres can be added to potato production with the knowledge that enough water is available throughout the growing season.

> "In this country, it's all about the water."
>
> ~ MIKE WIND

BITS AND BITES

Top three reasons parties fail to prevail in arbitration

Most disputes between members are solved with the help of Dispute Resolution Corporation (DRC) staff during the informal consultation process. Some disputes however end up in the formal process where an arbitrator is appointed with the cooperation of the claimant and the respondent. That arbitrator must make a decision based on what is presented by the parties. We have seen some arbitration cases where if the claimant or the respondent had made a better presentation to the arbitrator, the arbitrator might have reconsidered their decision.

1. The informal file handled by DRC staff is closed and the arbitrator does not see it.

During the informal process many documents and issues are exchanged and explored. The informality of this process allows the parties to go back and forth several times, review information, and make offers or counter offers. Firms may also discover an error or a new issue during this exchange. For the above reasons the informal file is sealed to avoid misleading the arbitrator. Do not assume that the arbitrator will have access to the information submitted during the informal consultation process. You have to make sure you resubmit all the information favouring your claim or defence.

2. A party refers to a contract or other document but fails to provide it.

Parties often reference agreements, contracts, emails, market reports, etc. in presenting their case. A statement without supporting documentation is of limited evidentiary value, especially when the other party has presented documentation in support of their position. If you are referencing a document, ensure it makes it to your exhibits when presenting your case.

3. A party assumes the arbitrator has specific knowledge of a particular issue.

The arbitrators that are selected for DRC cases are familiar with the industry and DRC rules. They cannot however be expected to know everything about every commodity or unique steps in the supply chain. An arbitrator is no different than a judge in court; they are not going to investigate or make your case for you. You are responsible to make and defend your own case.

Obviously, no one likes to lose a case. Unfortunately, we do see cases where a party fails to prevail in their case not because of what they presented, but because of what they failed to present. It is unfortunate when a case is lost not on its merits, but rather because essential material was not provided to the arbitrator. Be prepared and avoid these top three pitfalls.

Source: Dispute Resolution Corporation March 5, 2018 newsletter

Government support for trade

The Government of Canada is supporting a more stable and secure trading environment for agricultural exporters through a $1-million investment in the world's three standard-setting bodies for agriculture and food products.

The $1-million investment will support scientific and technical work of the Codex Alimentarius and the International Plant Protection Convention (IPPC), of the Food and Agriculture Organization (FAO) of the United Nations, and the World Organization for Animal Health (OIE) in their efforts to ensure that technical regulations and standards do not unduly restrict global trade while at the same time protecting food safety, animal and plant health.

Ensuring a predictable science-based trade environment is key for Canada's agricultural exporters to help them remain well-positioned to reach the ambitious goal set in Budget 2017 to increase Canada's agri-food exports to $75 billion by 2025.

This investment builds on the Government of Canada's $1-million contribution in 2016-2017 to the International Standard-Setting Bodies (ISSBs).

Last year, Canada's funding to ISSBs was used to support the first Joint FAO/WHO Expert Meeting on Nutrition; prepare a manual for Pest Free Areas; hold an expert meeting on Microbiological Risk Assessment for *E. coli* and food, and organize workshops to support enhanced Veterinary Services capacity.

Source: Agriculture and Agri-Food Canada news release

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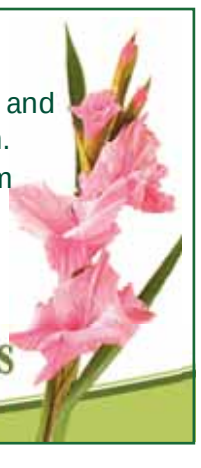

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