

BALANCING SUPPLY WITH DEMAND

Greenhouse cucumber expansion encouraged by firmer prices



Greenhouse cucumber grower Jan VanderHout, pictured above, along with his brother Dale, manage 20 acres of cucumbers near Dundas, Ontario. More recently, they added two acres of propagation facilities for cucumber seedlings to reduce diseases and encourage a faster start. This is just one of many risk management practices in a sector that has been battling roller coaster prices. Photos by Glenn Lowson.

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KAREN DAVIDSON

Talk to any greenhouse cucumber grower and prices, in 2012 and 2015, were in the gutter. Prices as low as \$5 for a case of a dozen medium-sized cucumbers at the Ontario Food Terminal don't cover costs. As the industry seeks to balance supply with demand, this winter's prices of 33 per cent higher than the six-year average are signaling modest recovery.

In Ontario alone, 754 acres of cucumbers are under hydroponic cultivation.

"I think this reflects growers making decisions based on macro factors such as interest rates, exchange rates and other options for investments as well as growing demand for Ontario greenhouse products," says Rick Seguin, general manager, Ontario Greenhouse Vegetable Growers (OGVG).

The U.S. market is still ripe for development. Food safety is a strong card for the Canadian industry to play, especially

because an outbreak of *Salmonella*-contaminated, field cucumbers from Mexico has made headlines for months stateside. Nancy Hewitt, foodservice market specialist, OGVG, observes that inconsistent supplies of field cucumbers have hampered the image of cucumbers for some U.S. retail chains. The issue also plagues foodservice companies which depend on consistency of experience as part of their brand.

"We have noticed considerable diversity at retail in how greenhouse product is merchandised or presented in the U.S.," says Seguin. "There is also a wide range in knowledge of the advantages of Ontario greenhouse vegetables by retailers, foodservice and consumers in general. This varies considerably within and by region, according to our research."

As the entire food chain buys into sustainability initiatives, preventing food waste will

“
We still need more from the marketplace. With labour and electricity costs increasing, we can have no significant gaps in efficiencies.
”

~ JAN VANDERHOUT

become part of that equation. Greenhouse cucumbers fit that new narrative because they result in zero waste.

Lakeside Produce is one Leamington, Ontario company which plans to keep greenhouse cucumbers in its mix. The Cervini family announced a 10-acre expansion last month that will include cucumbers along with tomatoes. Supported by a \$1 million grant from the Ontario government, these growers see opportunity beyond the U.S.

"Over the last two years, we have explored the opportunity to expand into the Asian

market," says Tariq Malik, marketing director. "I have personally visited Shanghai and Hong Kong to introduce our brand to this area. There is a huge demand for healthy, good-for-you products in this area due to the ongoing water concerns."

"We are continuously working on new and innovative packaging that will increase both shelf life of the product to account for long distance travel and, more importantly, allow product to remain fresher on our customers' tables," says Malik.

CONTINUED ON PAGE 3

AT PRESS TIME...

ChemChina offers \$43 billion in cash to acquire syngenta

In early February, Syngenta announced that Beijing-based ChemChina has offered to acquire the company for \$43 billion in cash.

Syngenta, headquartered in Switzerland, will continue to manage the company. The board of directors will be helmed by Ren Jianxin, chair of ChemChina. Four of the existing Syngenta board members will remain.

“The transaction minimizes operational disruption; it is focused on growth globally, specifically in China and other emerging markets, and enables long-term investment in innovation,” said Syngenta’s CEO John Ramsay. “Syngenta will remain headquartered in Switzerland, reflecting this country’s attractiveness as a corporate location.”

Ramsay said that the deal would significantly increase potential for the seeds business. The transaction will enable further expansion of Syngenta’s presence in emerging markets and notably in China. In addition to its array of modern chemistry, Syngenta will contribute its experience and know-how in promoting the highest environmental standards and in nurturing thriving rural communities.

Source: Syngenta news release

Ontario Retirement Pension Plan delayed until 2018

The Ontario government is delaying by a year its plans to roll out the Ontario Retirement Pension Plan (ORPP). It has won agreement from the federal government to collect premiums through the existing Canada Pension Plan (CPP) framework, saving costly duplication of services. The ORPP will be on top of employer contributions made to the Canada Pension Plan (CPP).

Commencement of contributions will depend on an employer’s number of employees. It’s expected that in 2018, employers with greater than 500 employees will be required to begin contributing at a rate of 0.8 per cent on an employee’s annual earnings up to \$90,000. By 2020, all employers, regardless of their number of employees, will be expected to contribute to the ORPP, at a full rate of 1.9 per cent.

Employees and employers will contribute an equal amount, capped at 1.9% each (3.8% combined), so long as employees are not enrolled in a comparable pension plan within their workplace. To be eligible to contribute, employees must be between the ages of 18-69, not retired or collecting CPP, and employed in Ontario.

Significantly, ORPP contributions will include non-resident employees. This is a serious concern to those who

employ offshore labour through the Seasonal Agricultural Worker Program. There were 19,628 employed in Ontario through this program in 2015. The province has not announced specific rules for non-resident employees, therefore employers have to assess if an employee’s foreign plan is comparable.

The ORPP expects to begin benefit payments of 15 per cent pre-retirement income by 2022. For more details, go to: <http://ow.ly/Yee7m>

Welcome new blogger



Bridget Visser, daughter of carrot and onion growers in Ontario’s Holland Marsh, has agreed to blog for **The Grower’s** new website. Her blog, “Muckin’ Around” will be posted frequently.

Currently working in communications for the Holland Marsh Growers’ Association, she will bring a unique perspective on a variety of issues.

Go to www.thegrower.org.

NEWSMAKERS

The World Potato Congress has announced new appointments to the board of directors, including **Peter VanderZaag**, president of SunRise Potato Ltd., Alliston, Ontario. He will track and report on potato-related issues throughout East Asia and China as well as offer advice to the congress regarding programs and initiatives.



Peter VanderZaag

The Ontario Farm Fresh Marketing Association (OFFMA) honours several in the industry with its annual awards held on the eve of the Ontario Fruit and Vegetable Convention. The Leadership Award was won by **Jesse Lauzon**, Springridge Farm, Milton, Ontario. He was the first president of the OFFMA board who was an employee and not the owner of a farm – a fact which speaks volumes to how owners **John and Laura Hughes** empower their employees. As a past president of OFFMA, he worked diligently to get the organization on a sustainable path.

OFFMA’s Food Innovation Award, sponsored by Foodland Ontario, was given to two outstanding winners. **Frootogo Orchards** won for their Farmstead Frozen Soups under the heading of Souptogo. Winning attributes were: outstanding flavour, using their own vegetables to make a signature product and starting with fresh soups and then freezing them to preserve seasonal flavours. **Steed & Company Lavender** also received the nod for the exceptional flavour of its lavender preserves. The labels and logo are eye-catching.

OFFMA’s Ambassador Award recognized **Jennifer MacKenzie**, the author of several cookbooks, a writer for LCBO’s Food & Drink magazine and one of the official Milk Calendar recipe developers for several years. She and her husband Chef Jay Nutt, opened Nuttshell Next Door Café, to showcase the vegetables and herbs from their garden and surrounding farmers.

OFFMA’s Outstanding Farm Market award goes for the first time to an on-farm market based on meat products. **Nick and Lynda Van Casteren** purchased the present day farm in 1982 and started with a farrow to finish pork farm. As business grew, they opened a small store in a room adjoining the house. They started with the three P’s; Pork, Pies, Preserves.

The Great Ontario-Hopped Craft Beer Competition celebrated winners at the recent Ontario Fruit and Vegetable Convention. First prize was taken by **The Exchange Brewery and Clear Valley Hops**. A first-ever tie for second place was shared by **Trafalgar Ales & Meads** and **Van De Slyke Farms** as well as **Abe Erb Brewing Company** and **Tavistock Hop Company**. Honourable mention was won by **Brock Street Brewing** and **Clear Valley Hops**. BASF Ag Solutions sponsored this fourth annual competition which brings together Ontario’s hop producers and the brewing industry.

Congratulations to the winners of the student poster competition at the recent Ontario Fruit and Vegetable Convention. First prize and \$500 went to **Zach Telfer**, University of Guelph, for: Carrot Weevil Lacking Effective Chemical Control Options in Ontario. Second prize and \$300 was awarded to **Jason Lemay**, University of Guelph for: Finding New Ways to Control Carrot Rust Fly in Ontario. Third prize and \$200 went to **Emine Kaplanoglu** from the University of Western Ontario for: Neonicotinoid Resistance in the Colorado Potato Beetle.

The British Columbia Wine Grape Council has a new executive director. **Kate Durisek** has more than 20 years of experience in food, beverage and event management.

Fred Steele remains president of the British Columbia Fruit Growers’ Association (BCFGA) after its January 30 annual general meeting. He’s optimistic about the industry with inroads in selling premium cherries and apples to South Asian markets. Joining him on the executive are: vice-president **Pinder Dhaliwal**, north district representatives **Sukhev Goraya**, **Surjit Nagra** and **Tony Nijjar**, and south district representatives **Ravinder Bains**, **Sukhdeep Brar** and **Peter Simonsen**.

The BCFGAs presented awards of merit to **Brian and Dorothy Witzke**. The couple are well known for their pioneering efforts in high-density plantings for apples, as well as farm business and accounting forums. Brian has been a member of the province’s Tree Fruit Production Insurance Advisory Committee while Dorothy participated in the B.C. Farm Women’s Network.

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COVER STORY

Greenhouse cucumber expansion encouraged by firmer prices

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“We’re taking a cautious approach to China. It’s not just about the distributors at the other end but about the packaging and transport to get our produce there.”

At present, only greenhouse cucumbers are allowed into the Middle Kingdom but as trade barriers are expected to fall in coming years, more lucrative trade beckons. However, some major questions remain.

“I would say the sheer size and complexity of China is the major hurdle for us,” explains Seguin. “We are investigating this market and will work closely with our marketers to share any information and insight that we garner. The logistics of getting fresh greenhouse vegetables to specific sub-markets within China and the distribution channels once there are other aspects we need to better understand.”

Jan VanderHout and brother

Dale, Beverly Greenhouses, near Dundas, Ontario are keeping their sights closer to home on the domestic market. With 20 acres solely devoted to cucumbers, they are putting 2016 expansion plans of seven acres on hold and keeping a laser focus on costs. For one thing, they use no supplemental lighting.

“In my opinion, it does not compute to pay \$1,000 per acre per day to light a cuke crop in the winter months,” says Jan VanderHout.

“We still need more from the marketplace,” says VanderHout. “With labour and electricity costs increasing, we can have no significant gaps in efficiencies.”

The VanderHouts have increased their efficiency with an automated packing line installed two years ago. However other costs gnaw away at the bottom line. While the Canadian dollar vis-à-vis American dollar appears favourable from a marketing standpoint, there is still an uptick in costs for materials

priced in U.S. dollars. VanderHout says corrugated cardboard costs are rising 8.5 per cent this month on top of a 6.0 per cent increase last fall. Costs of plastic wrapping are also increasing.

The agronomic challenge is to grow greenhouse cucumbers year-round so that there are no interruptions in supply. If yields can be boosted, then the opportunities are with multinational chains such as Subway. Clients such as those can handle consistent large supplies.

The cucumber segment represents almost 30 per cent of Ontario greenhouse production with tomatoes and peppers each comprising 35 per cent share. Recently, profits in tomatoes and peppers have carried cucumbers. This spring, indicators from the U.S. and Mexico are more promising for the cucumber category.

Photo right: The VanderHout’s have automated their packing line for greenhouse cucumbers.



INTERNATIONAL

MEXICO

Garlic harvest is up

In north central Mexico – inland from popular resort Puerto Vallarta – lies the state of Zacatecas. It’s at the heart of garlic production in the country, with harvests up nine per cent according to statistics released in January 2016. For the record, it was 32,594.05 tons of garlic. Growers there are achieving higher tons per acre of yields.

Zacatecas state boasts 2,326 hectares devoted to garlic crops. Calera is the municipality with the largest garlic production at the state level with an average of 6,399 tons recorded in the last month. There are 23 garlic-producing municipalities in the state.

Source: *FreshPlaza.com*

NEW ZEALAND

Record apple exports predicted

New Zealand’s apple industry is forecasting a record \$700 million export apple crop for 2016, compared with last season’s bumper \$630 million. These numbers reflect an increase of 105 per cent in only four years when the industry tallied \$341 million.

That growth is supported by improvements in packhouses, cool storage, transport logistics and freight. The industry’s vertically integrated structure reflects advanced changes in orchard design, best management practices along with new club varieties with trademarked intellectual property.

Understanding the Asian market is key to export success. The industry expects to achieve \$1 billion in exports earlier than the 2022 target.

Source: *FreshPlaza.com*

UNITED STATES

Salmonella outbreak not contained

An outbreak of *Salmonella* continues in the U.S. according to the Center for Disease Control (CDC). The total number of confirmed illnesses is now 888 people in 39 states and four deaths. Health authorities traced the initial outbreak last summer to field cucumbers imported from Mexico.

Since the peak, the number of reported illnesses has declined however the number of ongoing illnesses is troubling. The organization would expect about one illness every month during this time of year. Health officials continue to investigate the source of the contamination.

Industry observers speculate that another food source is still infecting people.

Source: *Center for Disease Control*

PERU

Asparagus supplies tight

While Peru produces 14 per cent of the world’s asparagus, its imprint is large in many parts of Canada during the winter months. Asparagus is shipped by air and boat from Lima, Peru to Miami, Florida, where trucks then complete the route to the north. Peru is considered about five to seven years behind Chile in its agriculture and port infrastructure. The country’s aspirations are to increase agricultural exports by 2020. New upgrades to Callao, the port near Chile’s capital of Lima may boost business. However improvements are needed in the roads feeding container flow into and from the port. Read more on Peru’s four ports here: <http://ow.ly/XF1wS>

Source: *FreshPlaza.com*

UNITED STATES

Seed company flags eggplant as new trendsetter

Pennsylvania-based Burpee, a well-known seed company to home gardeners, is fielding hordes of questions about eggplant. It has introduced a new ‘Meatball’ variety that is overcoming three common gripes: seeds with a bitter aftertaste, surplus water and fast-oxidizing flesh that quickly turns brown.

Meatball’s meaty texture, overall mouthfeel and flavour are dispelling the usual complaints. “What makes ‘Meatball’ a game-changer,” notes George Ball, Burpee’s CEO, “is the sweet, succulent, buttery taste and dense, meaty consistency.”

Meatball eggplant matures in 60 days.

Source: *Burpee news release*

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CROSS COUNTRY DIGEST

BRITISH COLUMBIA

B.C. well represented at Fruit Logistica

Export-oriented British Columbia was in full force last month at Fruit Logistica, the world's largest fresh produce exposition in Berlin, Germany. More than 70,000 attendees visited from 130 countries.

There were 17 Canadian exhibitors of which eight were from British Columbia. They included: B.C. Blueberry Council, B.C. Cherry Association, B.C. Tree Fruits, Coastal Fruit Company, Government of B.C., The Oppenheimer Group, Summerland Varieties Corp., Sutherland S.A. Produce.

There's an advantage in having some critical mass at such a large event says Nick Ibuki, operations manager, Summerland Varieties Corporation. "The synergy of

being there with a number of other associated B.C. businesses was a definite asset. When a prospective client comes in, we are able to directly introduce them to other B.C. partners."

Summerland Varieties Corporation showcased Canadian Ambrosia apples, handing out hundreds of Ambrosia tote shopping bags. They are walking billboard banners seen throughout the event.

"When I was travelling home and saw them being used prominently at the Frankfurt airport by fellow passengers, I knew we had achieved success with them," says Ibuki.

The business mood in Europe is good, says Ibuki. "In terms of what Summerland does, we always have to be



Several British Columbia exhibitors came together for a group photo at Fruit Logistica, Berlin, Germany.

cautious of the impact on our Canadian growers. We work in partnership with groups in other countries around the world so that we have a network to help us protect the varieties globally."

For the B.C. Blueberry

Council, prospects were also good at Fruit Logistica.

"The blueberry market is growing globally and Canada has established expertise and infrastructure to meet the demands of the EU market," says Debbie Etsell, executive

director. "There is room for growth in the EU market. Demand is for frozen, juice and dried blueberries right now. When the CETA agreement is ratified, this might change as fresh product will become more economical to ship."

NOVA SCOTIA

Growers welcome financial aid after fire blight outbreak

The Canadian and Nova Scotia governments have announced up to \$2.69 million to fruit tree growers under the Agri-Recovery program. The initiative will help apple and pear growers recoup the costs from managing a severe outbreak of fire blight after tropical storm Arthur in 2014. The industry estimates about 100,000 trees were lost. The five-year plan covers 60 per cent of the cost with Nova Scotia's government partnering for the remainder.

All pome fruit growers fear fire blight. About 95 per cent of the Nova Scotia orchards were affected after the 2014 storm. The disease results in the loss of tree

branches and tree structure. If severe, the bacterial disease can move into the trunk, infect rootstock and kill entire trees.

The news was timely on the eve of the Nova Scotia Fruit Growers' Association (NSFGA) annual general meeting, January 27, where 200 attended. "We are very pleased with the announcement and look forward to seeing the details, said Andrew Parker, NSFGA president. "The industry is excited about where we are going, especially with the export market of Honeycrisp apples to the United States. Our December storage holdings show we have the highest volume of

Honeycrisp apples on record."

According to Agriculture Canada's Infohort website (infohort.agr.gc.ca), the Maritimes had storage of more than 10 million pounds of Honeycrisp as of December 2015. This is the first time that the Honeycrisp variety has tallied more holdings than McIntosh.

The Canada-Nova Scotia Fire Blight Initiative will help bring fire blight under control and minimize the potential for damage in the future. Farm cash receipts in Nova Scotia for the tree fruit industry are close to \$16 million annually.



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QUEBEC

Consumers turn to stored root vegetables



Carrot, cabbage, turnip and other root vegetable sales in Quebec are higher than at the same time in 2015 according to André Plante, general manager of the Association of Vegetable Producers in Quebec. "The winter vegetable inventory is diminishing much faster than last year," he says. The depreciation of the dollar, bad weather in California and Florida and an increase in prices of imported vegetables have convinced Quebecers to consume national root vegetables.

This is a pleasant turn of events for local producers. Vice-president of GNC farms, Guillaume Henri gives an example. "A crate of carrots today sells for five dollars more than its normal price. I would estimate the difference as a 20 per cent profit."

Source: FreshPlaza.com

ONTARIO CROP INSURANCE

Choosing the right coverage for your vegetables

Application and renewal time is the perfect time to look at your farm and make sure you have the right coverage for your current business. You may have the same coverage you've had for years, but if your farm changes from year to year, so might your coverage needs. Business Risk Management programs also change over time to meet the changing needs of industry.

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Source: Agricorp



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INNOVATION

Fruit Logistica lauded in Berlin, Germany



Coconut comes with a patented seal and straw, and is a simple, genuinely refreshing coconut water drink with minerals and a high nutritional value.

Kitchen Minis Tomato - Northern Greens, Denmark
www.northerngreens.dk

Visitors at Fruit Logistica chose the Northern Greens Kitchen Minis tomato from Denmark as the competition's runner-up. This is a small, compact and visually attractive cherry tomato plant that produces up to 150 fruits in all seasons and grows to only 11 centimetres wide and 35 centimetres high. The tomatoes weigh only eight to ten grams.

This cherry tomato is sweet tasting and aromatic and can encourage children and younger consumers to eat more vegetables.

Enjoya - Terra Natura International, Netherlands
www.tniholland.nl

Visitors chose Enjoya, a yellow/red striped pepper grown by the Dutch enterprise Terra Natura International as the third-best entry. Enjoya has an aromatic and tangy flavour and contains lots of vitamin C. It is available in various sizes, is a colourful addition to salads and with the right dip is also ideal as a snack.

Automato - Stoffels
Stoffels, Belgium
www.stoffels-tomaten.be

For the first time the jury also presented a special award, which went to Stoffels from Belgium for its Automato POS tomato vending machine. Each box has its own hopper and can be operated separately. Consumers can choose one or more varieties – in one colour or a mix of red, orange and yellow. The Automato is hygienic and interesting for the youngest shoppers – it also attracts their interest in new vegetable varieties. Each box measures 23.5 x 51 x 50 cm. The total size, including all three boxes and a holder for the paper bags, measures is 70 x 130 x 75 cm.

Parmentine's Cup - Parmentine, France
www.parmentine.fr

Parmentine's Cup is a plastic container with 250 grams of baby potatoes for cooking in the microwave. They are packed together with 25 grams of basil-tomato or chive-quark sauce. The potatoes are pre-washed and ready to eat. The containers are easy and safe to transport and can be prepared quickly and easily in the office or at home. Six minutes in the microwave and consumers have a healthy and tasty, low-fat meal. The yellow-

fleshed potatoes have less than 90 calories per 100 grams, the basil-tomato sauce only 20 calories, and the chive-quark sauce around 70 calories.

Pearl Herbs - 2BFresh, Israel
www.taprojects.com

Pearl Herbs are only about a centimetre long with very short stems. This makes them ideal for garnishing and serving with other dishes. Finely delicate in taste, these tiny fresh herbs are available in more than ten different varieties including basil, amaranth, sunflower, parsley and pak choi.

WOW! Colourful Perupas - HZPC Holland, Netherlands
www.hzpc.com

WOW! Colourful Perupas are potatoes based on original varieties from the Andes. They offer a new and interesting product range as well as a diversity of taste, colour and shape.

Four varieties are currently available:

- Violet Queen – with dark purple flesh and the flavour of sweet beetroot
- Double Fun – in two colours with violet and yellow flesh
- Magenta Love – in dark pink, a rare colour in potatoes
- Blue Star – with a striking marbled pattern, ideal for chips or mashed potatoes.

Kudos for clean warehouses

This year's Ontario Fruit and Vegetable Convention gave its Innovation Award to Flexo Products Ltd. for its compact and cordless floor scrubber. As Kim Macleod explained, this Tornado 17/6 is designed to clean and dry floors in warehouses and packing facilities in one pass. Battery-operated it cleans underneath packing lines and work benches and can get into tight corners. It offers a six-gallon recovery tank and an integrated parabolic squeegee mounted just one inch behind the pad to immediately capture and contain the cleaning solution. No slippery floors! This design saves the hassle of using a dry mop.

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WATER MANAGEMENT

Permit To Take Water compliance

GEORGE SHEARER

Spring is almost here, which is the time when the reporting requirements of Permit To Take Water (PTTW) kick in. The Ontario Fruit and Vegetable Growers' Association (OFVGA) would like to remind farmers that under the PTTW program governed by the Ontario Ministry of the Environment and Climate Change (MOECC) you are required to report annual water takings to the Water Taking and Reporting Branch of the MOECC by no later than March 31st.

This can be accomplished in two ways: either through an electronic submission to the Water Taking and Reporting System (WTRS) whereby the MOECC issues an access code and password to go online and input your taking records or, alternatively, mail paper records to the MOECC Water Taking Reporting Branch. Most current permit holders would have received a reminder letter from the MOECC however, the reminder does not detail other requirements that may be in your permit.

For example if you take water from a well source, then in most cases, the MOECC requires the installation of a water level logger into the well to record water level fluctuations at a frequency defined in your permit. This requirement is usually found under "Section 4: Monitoring" along with other monitoring requirements. Level loggers are a great source of information when it comes to determining the potential impacts of the well use. There are numerous kinds of level loggers that will record water level readings that will satisfy the requirements of your PTTW. At the OFVGA Water Program, we have used both the Solinst loggers from Solinst Canada Ltd. and Diver loggers supplied through vanEssen Instruments with great success. The Diver loggers are great due to their compact size and the Solinst loggers, although larger have greater storage capacity. Great care has to be utilized when installing them and in most cases the installation requires a technician with a Class 5 Well Technicians Licence under Ontario Regulation 903. This is not stated in the permit; however, the OFVGA water specialist has this licence and can assist with this installation.

In many cases to obtain a permit from a well source, you will require the assistance of what the MOECC calls a Qualified Person (QP) and is

defined as a hydrogeologist, Professional Registered Geologist (P.Geo.), or Professional Registered Engineer (P.Eng.). The OFVGA Water Program has developed a number of partnerships with QPs and organizations such as GHD consulting services and Novaterra Environmental Ltd. to reduce the overall cost of the required assessments. If you have a valid permit, be sure to read the permit carefully as you may be required to utilize a QP for a renewal of the permit. Again, the OFVGA Water Program can assist with these requirements through our partnerships. If you are utilizing a surface water source (i.e. river, stream, or lake), there are many other potential monitoring requirements for these takings as well, and the OFVGA Water Specialist is considered a QP for these types of requirements. If you take water from any source; ground or surface water in excess of 50,000 liters per day -- then you will require a permit, and we can help.

The OFVGA strongly encourages you to become familiar with the regulations surrounding water use in the province and read through your PTTW carefully to ensure compliance. If you require any assistance or simply have questions related to your permit or the permit program, the OFVGA Water Program is here to help.

One other thing to consider is that the OFVGA Water Specialist is in the process of completing the certification under the Nutrient Management Act (NMA) to become a certified Nutrient Management Plan and Strategy developer and will be able to assist with all aspects of water for both water coming in and now going out. This is mostly intended for use under the NMA Greenhouse Nutrient Feed Water Regulation and will be able to assist greenhouse growers with their requirements to be in compliance with their discharge water. Most growers are currently operating under a Preventative Measures Order (PMO) however these will most likely be converted into other compliance tools such as Environmental Compliance Approval or a Nutrient Management Plan and we here at the OFVGA can help. Contact George Shearer at 519-222-3272 or water@ofvga.org.

George Shearer is a water specialist with the Ontario Fruit and Vegetable Growers' Association.



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ONTARIO FRUIT AND VEGETABLE GROWERS' ASSOCIATION

Board briefs

The OFVGA Board of Directors meeting took place on Thursday, February 11, 2016. The following items, organized by section, are reflective of the board's work on safety nets, research, crop protection, and property as well as an update from the Canadian Horticultural Council (CHC). The board briefs from February include: pollinator health consultations, Waste Free Ontario consultations, Great Lakes Protection Act information, and the current status of financial programs.

Canadian Horticultural Council (CHC) – Adrian Huisman

The CHC annual general meeting (AGM) will take place in Ottawa on March 8-10, 2016.

OFVGA's CHC membership fees have increased 3 per cent for fiscal year 2016. It is expected that the CHC board will propose a 2 per cent increase for fiscal year 2017. This will be presented and dealt with at the AGM.

CHC has agreed to hire a staff person dedicated to national greenhouse issues. This would be on a half-time basis fully funded

by the greenhouse vegetable industry.

Chairs of the standing committees (other than the commodity committees) will meet with the CHC Board of Directors during the AGM to ensure that the roles and responsibilities of each chair are clear.

Property Section – Brian Gilroy

A draft of the Waste Free Ontario response has been developed and the working group is planning a final submission for February 29, 2016 which will be made available online at the OFVGA website.

The Bird Deterrent Project is in need of further funding. Additionally, if there are any crops that could stand to benefit from the Bird Deterrent Project through Brock University, growers are encouraged to submit their ideas.

Farm and Food Care has welcomed Tracy Hussey for the Ontario branch of the organization. That organization recently hit the milestone of one million copies in circulation of *The Real Dirt On Farming*, in print for a

total of one year.

Work on sustainability continues. The Provision Coalition has a first working draft for sustainability for food processors. A non-competitive angle is still the approach being taken.

Mark Wales has attended the Great Lakes Protection meetings. The reduction targets are set for phosphorus at 20 per cent by 2020, with 40 per cent by 2025. The 40 per cent reduction was originally set to 2040, so it is unclear what year this target is set for. It is recognized that there is difficulty in determining the actual amount of phosphorus entering the lakes; the scientific community is unsure if these targets, which are not based on phosphorus loading levels, are going to be a strong enough reduction. The Canadian side of the border represents six per cent of the loading problem, while the majority comes from the United States. The Thames River, Leamington, and Grand rivers which are significant contributors will be looked at carefully. At another meeting run by the Ministry of the Environment and Climate Change (MOECC) and



Photo by Glenn Lowson

OMAFRA, the Act was reviewed again with special interest to who will make up the Great Lakes Guardian's Council.

Research Section – Harold Schooley

The Producer Stress and Resiliency Survey has wrapped up and organizers achieved their goal of 1,000 participants. The results are pending. Horticultural producers were thanked for their participation in the survey.

The OFVGA is working with the Vineland Research and Innovation Centre to institute some changes to the priority setting process to provide more equity regarding field vegetable crop groupings in Ontario. The priority setting process for OMAFRA-funded research at the University of Guelph through ORAN has been evolving since its inception a few years ago. At an upcoming meeting with stakeholders, proposed crop groupings will be discussed for their possible adoption.

Safety Nets Section – Mark Wales

The rate of producers in Ontario who are leaving the Agri-Stability program year over year is now similar to the national rate of 12.5 per cent. If this continues, there may soon not be enough producers left for this to be a truly national program.

26,014 producers participated in Agri-Invest in 2014.

The 2015 crop insurance year is close to wrapping up claims. As of January 27, 2016, \$86 million had been paid out and this was expected to finish at about \$92 million for the 2015 year. This is below the average. Both grape and apple claims were up due to abnormally difficult winters in 2014 and surprise frosts in spring 2015.

A growing balance of around \$4 million is being left in SDRM accounts, which makes little sense since it bears no interest and the grower has to declare it as income when they send in their deposit not when they ask for a

withdrawal. Growers should be taking these funds and at the very least, investing them until growers are ready to use the funds.

Crop Protection Section – Charles Stevens

The Pest Management Regulatory Agency (PMRA) has developed an app where pesticide labels can be looked up. The app is called Pesticide Labels and is available through the iTunes App Store and Google Play.

The Minor Use Meeting will take place March 21-24, 2016 in Gatineau, QC. The topic of the Monday meeting will be Nematodes.

The newest Pollinator Health Action Plan Consultation is being looked at by an OFVGA working group and our response is expected to be released by the March 7, 2016 deadline, available on the OFVGA website. Growers are encouraged to respond to the questionnaire attached to the document and submit this for consultation in addition. This can be found at <http://ow.ly/YxcWs>.

DuPont and Dow have announced a merger. The new name is expected to be DuPont-Dow. New registrations for chemicals that are in competition may be dropped.

Syngenta has been sold to ChemChina for 43 billion dollars.

Labour Section – Ken Forth

Growers submitting their Labour Market Impact Assessment (LMIA) for the Seasonal Agricultural Workers Program (SAWP) should be mindful that their application/VISA fees have to be paid within five days, or Service Canada will send the LMIA back to the grower. You will then be required to start the process over again.

Growers should also begin planning their advertising; completing this component in a timely manner is increasingly important.

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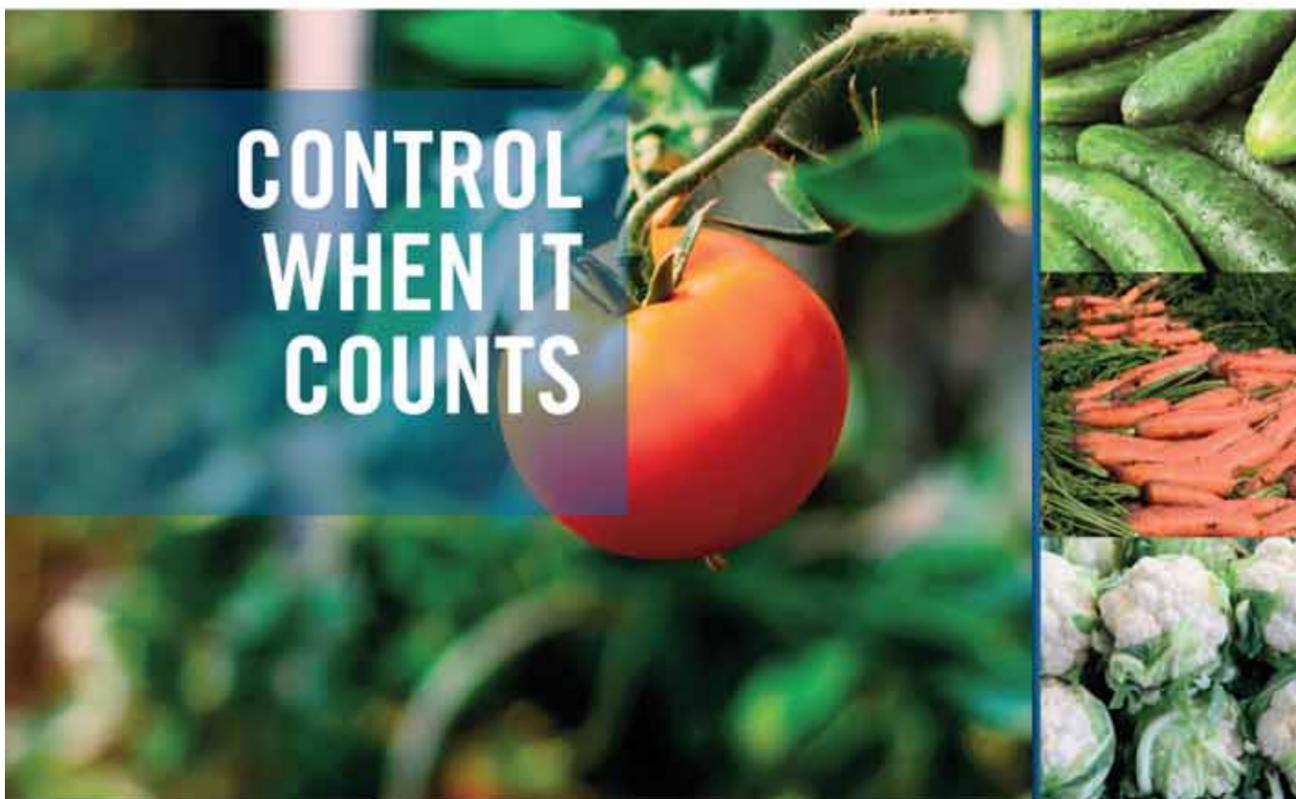
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Making use of the tools of the trade



JOHN KELLY
EXECUTIVE VP, OFVGA

The tools of horticultural business are necessary for the ongoing profitability of the sector. They are changing, and their use is not taken lightly. Growers have to pay for these tools and their use or non-use can be very costly. Whether the battle is to fight an onslaught of insects preying on the proverbial fruits of your labours, or to tackle disease before it destroys a crop, or to deal with invading weeds as they compete for nutrients, or to manage climate and nutrient factors, farmers need to be able to use the most effective and efficient methods for crop protection and production.

For growers, there is no shortage of challenges to production and it is very important that the most effective tools are used to address these challenges. This edition of **The Grower** is partly focused on crop protection and growers are certainly familiar with dealing with crop pests which impact production. Advances in diagnoses of plant diseases (whether new or not) or in new applications for crop protection products certainly give the grower more information and ammunition to manage challenges. For examples, see Sercadis fungicide by BASF, Exirel insecticide by DuPont, or Titan Emesto seed-piece treatment by Bayer.

Use of innovation is a must for fruit and vegetable farmers to remain competitive. Growers must be diligent on identifying pests and in insisting on new technologies or methods to stay ahead of the game. As an example, because of the global nature of the business, Canadian fruit and vegetable farmers are being impacted by an incredible number of diverse pests which just a few years ago were not on the radar. Spotted Wing Drosophila (SWD), the

Japanese beetle, and the Brown Marmorated Stink Bug are examples of profit-munching insects that are relatively new to the scene. A warming climate may make our crops more susceptible to diseases thought only to be found in more southerly jurisdictions. And moving production of some crops further north will bring its own challenges.

Growers also need to be made more aware of how to identify and how to battle various challenges. With the withdrawal of the registration of some active ingredients by the Pest Management Regulatory Agency, growers will continuously need to be looking for ways to protect their crop. Whether a strawberry or potato or greenhouse producer, the knowledge of the tools specific to their crop and geography can have bearing on technology selection. The industry has been moving towards geographically specific production as well. This is notable for example with the rapid expansion of blueberries in British Columbia, the rapid rise of greenhouse production in southwestern Ontario, and the development of “world

vegetables” close to their markets.

For those providing products to those growers, being nimble and having the ability to reach the desired clientele can also be important. **The Grower** newspaper, for example, has a large reach right across the country and to growers in the United States and provides information on many industry-related issues. But there is more! A unique characteristic of **The Grower** is its ability to reach sector-specific growers (in this issue, there is a focus on potatoes for example) or to provide information right to a specific geography. For example, as part of **The Grower's** offering, information inserts can be provided to specific fruit and vegetable growers, or to specific geographies. Growers in southern Ontario may have different needs than those in the Fraser Valley of British Columbia. So purveyors of tools must be nimble too!

New and interesting selections and varieties are opening up opportunities for growers. The selection of traits and crop is also a tool that can enhance the profitability of the sector.

Uniquely coloured carrots, the “pink spud” and other characteristics may not be seen as the conventional tool but nevertheless impact farm competitiveness. Finding that market where competitive advantage is held, through marketing, production, messaging or location is also a great asset. The tool box does include those items directly associated with the production of the crop.

But there are other tools that growers and the horticultural sector must take advantage of and must be supported by the government. Weather models, predictions of calamity, tools to handle climate events, environmental and water mitigation strategies, global positioning systems (GPS), innovative planting and harvest technologies, computer systems, precision horticultural technologies – these are all examples of the new tools of the trade. These are essential for future competitiveness with other global producers. How these tools get implemented -- and paid for -- in the face of the huge competitive pressures Canadian growers are under will no doubt be a challenge.

WEATHER VANE



As the spring equinox falls on March 20, the greenhouse industry is already in full swing for the growing season. These red peppers are a bright spot in the cavernous packing facility at Nature Fresh Farms, Leamington, Ontario. Photo by Glenn Lowson.

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PERSPECTIVE



Keeping their eyes open for the next Yukon Gold



**OWEN ROBERTS
U OF GUELPH**

In searching for the Holy Grail of potatoes – that is, the next Yukon Gold – researchers could very well dig up something red. University of Guelph professor Alan Sullivan says some of the most promising lines they’ve tested have red skin and red flesh. It’s too early to name them – they’re still just experimental lines. But with their higher levels of antioxidants and their unique red flesh, there’s reason to hope that in the hearts and

homes of consumers, red varieties will pick up where Yukon Golds – which are fading from the scene -- left off. “Coloured varieties have gone from a novelty to a staple,” says Sullivan. “Now, we have to support growers by developing lines with desirable traits and higher yields.” Sullivan, research technician Vanessa Currie and the handful of other potato breeders and specialists in the country are keeping their eyes peeled in fields and labs for new potato lines with features that put spuds in the spotlights. For Yukon Golds, the combination of their buttery colour and nutty taste captured consumers’ attention for ages. In fact, so regaled are Yukon Golds that they finished in the top five in last fall’s popularity poll of all-time game-changing inventions from Ontario universities, called Research Matters. Unfortunately, despite their popularity with consumers, Yukon Golds were not a hit

with growers, owing to disease susceptibility problems, particularly PVY-NTN virus and hollow heart. Today, they only comprise about five per cent of the 36,000 potato acres in Ontario. They also have high hopes for purple varieties too, which have caught consumers’ imaginations. Breeding efforts are underway to improve their texture, which Sullivan describes as too “mushy and pasty” for most consumers. So the search continues for experimental lines that can be developed into varieties that combine desirable consumer traits and superb production values, including disease resistance. These days, breeders still pay special attention to bacterial disease resistance, especially late blight. Even more than a century-and-a-half after the Irish potato famine, which was caused by late blight, researchers continue their quest to figure out ways to master this stubborn disease.

“If it’s bad, late blight can devastate a potato crop in a matter of days,” says Sullivan. “If it’s less severe, the potatoes don’t store well, which is what happened in Ireland. The potatoes went rotten in storage and people starved. With late blight, there is simply no room for error . . . if it looks like there’s any sign of it in the field, a producer has to spray immediately.” Production problems aside, a good story can be told about potato production in Canada – it rose more than 4.5 per cent in 2015 over the previous year. Potatoes are still a staple food in our culture, and after being unfairly beaten down by anti-carb advocates, potatoes are again being recognized for their health benefits. All this is inspiring researchers such as Sullivan and Currie to maintain or intensify their drive for new lines that work for both growers and consumers. At the University of Guelph, the potato breeding program is

supported by the Ontario Ministry of Agriculture, Food and Rural Affairs, and the federal Growing Forward 2 program. About 120 new lines are being tested at any one time, including 10 lines dedicated to potatoes that store a little longer and mature a little sooner. Sullivan and Currie keep several hundred pounds of them in a commercial storage facility near Shelburne, removing a selected lot very month and assessing their performance. Storage is not as simple as it seems. Potatoes are living organisms, and finding the sweet spot for storage is challenging. One goal is to develop a variety that capitalizes on the five-six week gap between the old crop that’s in storage, and the new crop coming off the field. It’s a lucrative period for growers, one that breeders like Sullivan and Currie want to support en route to finding the new gold standard of potatoes – whatever colour it is.

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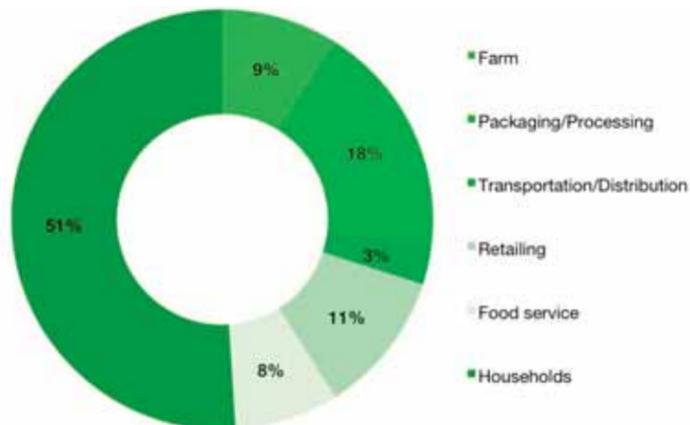
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Taking a bite out of food waste



Source: Gooch et al., 2010

Distribution of Food Waste throughout the Food Value Chain (Canada)

MELISA LUYMES

At a time when many worry that farmers won't be able to feed the world's population comes a staggering statistic: one third of food produced globally is wasted (FAO 2011). In developed countries such as Canada, studies show that upwards of 40 per cent of food is never even eaten.

Martin Gooch at Value Chain Management International, determined that Canada's food waste was equivalent to \$31 billion in 2015. That is up from \$27 billion in 2009, which was then two per cent of Canada's GDP, surpassing Canada's agri-food imports.

Another recent study by Gooch shows that food waste in Canada has increased by 77 per cent since 1961 to a current average of 0.75 kilograms per person per day. The highest share of the waste is fruits and vegetables, followed by meat and seafood.

In 2014, Provision Coalition commissioned a study to map the food waste challenge in Canada and chart a path towards solutions to the issue. They determined that waste is created across the whole value chain with nine per cent of the waste created at the farm level. On the farm, waste occurs due to weather extremes, management

mistakes, spoilage in storage, market conditions and market access. Consequences of regulations, such as grading standards, are another factor.

The study found that the main barrier to addressing the growing food waste issue is consumer attitudes and behaviour, and that there must be a shift in understanding to the reality that food waste is also a waste of energy, resources, labour and money. But the study found that larger businesses with more sophisticated management are pioneering food waste reduction.

Doug Alexander is one of those pioneers. Director of engineering at Ippolito Fruit & Produce Ltd. in Burlington, Alexander is working with Provision Coalition on an innovative pilot project.

"Nobody wants to waste food," he says, but he sees that most people have nonetheless become numb to it. "People are not alarmed enough when a whole truckload of greens is dumped because part of it failed to meet expected standards," he continues. But to Alexander it has become both a monetary and a moral tragedy. And it is one that can be avoided.

In his plant, Alexander will be using hyperspectral imaging to understand the chemical process that contributes to spoilage. "Using a thermal

camera or optical sorting isn't solving the problem, because at that point it is too late," he says. "From the moment that fruits and vegetables are harvested, they undergo chemical and microbiological changes, and we need to better understand those triggers."

Hyperspectral imaging reveals the underlying chemical conditions in three dimensions. "The chemistry in food holds information on taste, safety, nutrition, quality and shelf life," he explains. "And hyperspectral imaging is a more rapid and precise method to test for specific chemistry."

Prevention is the first part of solving the food waste problem and Alexander says that the solutions start in the field. They also plan to apply the hyperspectral technology on drones over their crops before harvest to research opportunities to minimize waste at the production level.

After harvest, they work to reduce the negative impacts of transportation, storage and processing by assessing optimal levels of temperature, moisture and light.

From the perspective of producers and processors, Alexander argues there is need for more collaborative and applied research. Research should focus on understanding why food goes bad and how we can make it last longer to reduce waste. "We need to shift the research culture from competition towards cooperation," he continues.

"Sustainability, of which food waste is a critical social and environmental issue, needs to be addressed like food safety, as a pre-competitive issue," echoes Cher Mereweather, executive director of Provision Coalition. This is the national sustainability organization which represents 12 member associations across the food and beverage manufacturing sector.

Perhaps it is no surprise that Provision Coalition's study found that culture and attitudes were the first barrier to addressing the food waste problem. Because the problem is this big, Alexander explains, we feel more comfortable ignoring it. But he continues, "There are millions of reasons for food waste and we need to address them one by one, deliberately and collaboratively." As the saying goes, the only way to eat an elephant is one bite at a time.

Alexander encourages Ontario growers and processors to investigate their own operations. "Understand your numbers," he says. "Track your failures and then find the patterns and correlations." And he encourages growers to reach out to researchers, or to other industry partners such as Ontario Agri-Food Technologies. "It is about expanding your network so that we can all learn together," he says.

Farm & Food Care Ontario is a member of Provision Coalition's Food Waste Stakeholders Collaborative, committed to tackling this problem across the value chain. Its 2014 study (with links to the statistics and sources above) is available at www.provisioncoalition.com/Resources/FoodWaste

Melisa Luymes is environmental coordinator, Farm & Food Care Ontario.

COMING EVENTS 2016

- | | |
|-------------|--|
| March 1 | Asparagus Farmers of Ontario Grower Information Day, German Hall, Delhi |
| March 1 | Ontario Potato Conference and Trade Show, Delta Hotel and Conference Centre, Guelph, ON |
| March 2-4 | Western Fair Farm Show, Entertainment Centre, London, ON |
| March 2-4 | North American Raspberry and Blackberry Conference, Williamsburg, VA |
| March 3 | Ontario Fresh Grape Growers' Marketing Board Annual General Meeting, Grape and Tender Fruit Board Office, St. Catharines, ON |
| March 3 | Ontario Agri-Food Technologies Annual Meeting, Cutten Club, Guelph, ON |
| March 3-4 | AMI presents Food Entrepreneurs: Building Ontario Innovation One Product at a Time, Georgian College Barrie Campus, Barrie, ON |
| March 4 | Ontario Processing Vegetable Growers' District 1 Tomato Day, Roma Club, Leamington, ON |
| March 4-6 | B.C. Association of Farmers' Markets Annual Meeting, Delta Grand Okanagan Resort and Conference Centre, Kelowna, BC |
| March 4-6 | Cuvee, Scotiabank Convention Centre, Niagara Falls, ON |
| March 8-10 | 94th Canadian Horticultural Council Annual General Meeting, Westin Hotel, Ottawa, ON |
| Mar 13-19 | Canadian Ag Safety Week |
| Mar 14-16 | Growing the AgriWorkforce (CAHRC), Winnipeg, MB |
| Mar 21-24 | 14th Annual National Minor Use Priority-Setting Workshop, Hilton Lac-Leamy, Gatineau, QC |
| March 22 | Ontario Hazelnut Association 7th Annual Symposium, London, ON |
| March 29 | Ontario Tender Fruit Growers' Annual General Meeting, Districts 3 and 4, Cosanti's Tropical Gardens, Kingsville, ON |
| March 30 | Ontario Tender Fruit Growers' Annual General Meeting, The Blue Elephant, Simcoe, ON |
| March 31 | Ontario Tender Fruit Growers' Annual General Meeting, Hernder Estate Winery, St. Catharines, ON |
| April 2 | Garlic Growers of Ontario Annual General Meeting, OMAFRA office, Woodstock, ON |
| April 12-13 | 65th Annual Muck Vegetable Growers' Conference and Trade Show, Bradford Community Centre, Bradford, ON |
| April 12-14 | Canadian Produce Marketing Association 91st Annual Convention and Trade Show, Calgary, AB |
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RETAIL NAVIGATOR

Interrupting the shop to get your items in the shopping cart



PETER CHAPMAN

Sales are the number one priority for retailers. They have to keep people shopping in their stores or the economics just don't work. Sales need to be a top priority in your business as well. We will focus on driving sales and how this can become integral in the culture of your business in our next series of issues. This month we will start with opportunities to interrupt the shop and get your products into the shopping cart.

Consumers are bombarded in the store

We all know consumers are bombarded with thousands of messages every time they visit a store. If the products could talk it would be like a shouting match down every aisle. You need to think about where your products would be in this unruly mess.

A second challenge you face is that consumers are creatures of habit. Perhaps they don't want to acknowledge the shouting or perhaps they just like the items they are comfortable with. Catalina Marketing experts from Florida work in the food industry where they implement programs connected to the cash registers in grocery stores. They also analyze a lot of grocery store transactions. In 2014 they released a study where they analyzed the transactions from 32 million consumers across 9,968 U.S. grocery stores. Their findings reveal that the average consumer only purchases .7% of items in the store during the entire year. Consumer baskets are all unique and they only buy a fraction of the SKUs available.

With the huge amount of messages and the entrenched buying habits you really do need to interrupt the shop to get your items in the shopping cart.

Deliver a message

Consumers today are in a hurry but they are also interested in where their food comes from. It is also true people are attracted to stories. What is your product story and are you telling it? You need to get them engaged and then tell your

story. Here are two examples of this. The first photo is from a store in Seoul, Korea. They were very proud of a new program implemented from farm to store to improve the handling and quality of bananas. Consumers had told them they needed to improve so they did and they used the TV to tell the story. It was interesting to see people stand to watch the brief video, then buy the bananas. An off-shelf display is an effective (and expensive) way to tell your story. This photo shows a salad dressing produced by youth from Halifax's inner city. They grow the herbs for the dressings and the proceeds go to scholarship funds for young gardeners and entrepreneurs. Tough to buy national brands when you could support this initiative!

Speak to the consumer

Are you sharing your products' attributes with the consumer? It is tough to get the message out but if it resonates with your target market you have a much better chance.

In today's world where consumers are very interested in where their food comes from I found this milk from B.C. very innovative. They tell you right in the name that it is traceable to the farm where it was produced. If you are concerned about where your food comes from this gets your attention.

Don't always assume consumers understand your item. You do but they probably don't. It was interesting to see the message on this mango label. It says never stringy. For consumers who might have had an experience where the mango wasn't to their liking this one might get in their shopping cart.

Complementary items have a better chance to get in the cart

There are some items that naturally go together but grocery stores do not merchandise them together. They put nacho chips in the chip aisle and salsa in the Mexican food section. Consumers are busy and they don't always remember. Hostess has this figured out with small racks in front of the nacho chips. I have to believe they sell more salsa here than they do in the Mexican section.

If you plan to implement a complementary item program, remember a few things. You have to make it easy for the store to merchandise it together. If they are in different categories they are probably set up in the warehouse to ship to different aisles. How can you overcome this so that it gets executed? You also have to make sure

the item gets priced properly. If it has no price it will not sell!

Off shelf that gets my attention



Off-shelf displays work but they are expensive. If you are making the investment, make it worthwhile! You really need to make the consumer stop their shopping and take notice. Here are a few examples of displays that have caught my attention. It can be the look for the display, humour or just the item itself but something has to force them to stop.

Remember the staff that has to execute it. Make it easy and fool proof.

The floral display is a bucket of water with flowers that ships in the box. They take the lid

off, punch out the hole for the bucket and they have an instant floor display.

Tie into current events

Consumers' minds are cluttered but if you have something on your package or product that is on their mind they will stop. Here are two examples where Kraft and Coca Cola were using the Olympics to do this.

I appreciate the Olympics are out of reach for most but within reach are local events. There is a lot of talk about consumers being interested in local food so why not tie in local events? This is something smaller regional producers can do that the big national brands can't. Take advantage of a local event on your packaging.

Go to the store and really challenge yourself to see if your items interrupt the shop. When they do you will have a much better chance to get into the shopping cart. If you have had success with interrupting the shop or if you have any questions please give me a call at (902) 489-2900 or send me an email at pchapman@gpsbusiness.ca.

THE OTHER SIDE OF THE DESK

Visit a store before meetings

Your time with a category manager is very valuable. You should always know what is

happening in their stores before you meet with them. I find it a great habit to get into one or two stores before visiting a retailer's office. You never know when you might see something new or an example of good execution.

You can mention this during the meeting. Retailers should find it encouraging that you are in the stores.

WHAT'S IN STORE?

How valuable is your time?

I noticed this package of cut vegetables in a Sobeys store recently. Many people consider time a valuable commodity and Sobeys is doing a good job of explaining how this product will save you time. No doubt a premium but for some they are willing to pay to save the 8-12 minutes.

Peter Chapman is a retail consultant, professional speaker and the author of A la cart-A suppliers' guide to retailers' priorities. Peter is based in Halifax NS, where he is the principal at GPS Business Solutions. 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. pchapman@gpsbusiness.ca.



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Ontario Berry Grower

Ministry of Agriculture,
Food and Rural Affairs



Growing raspberries in tunnels and greenhouses: maximizing yield

ADAM DALE

To understand how to grow raspberries under tunnels or in greenhouses successfully, the grower needs to understand the biology of the plant, and know something about the systems used in field production of raspberries. In part one of this series, I explained the structure of a raspberry plant and discussed various aspects of flower initiation and dormancy as they relate to protected cultivation. Here, in the second part, I will discuss such concepts as cane quality, cane density, within-plant competition, and trellising as they relate to 'long cane' production.

Cane Density

When the effect of cane number on yield is considered, the general trend is that yield per length of row increases until there are about 12-17 fruiting canes per metre. It then plateaus, and as the cane number increases starts to decrease. The optimum cane number of 12-17 per metre is for rows 2.4-2.7 m. apart. This translates into about 5-6 canes per m² of land area. Since most canes are fruited at about 1.5 m. tall, this would give a fruiting cane length of 7.5-9 m per m² of land area. This gives the grower a target cane length around which to design his system.

Berry size tends to become smaller, the larger the number of fruiting canes in the row. Young first-year canes also affect yield through their competitive effect. The general trend is that the larger the numbers of young canes, the lower the yield will be.

To optimize the cane density in a fruiting plantation, two aspects need to be considered: row spacing and cane density within the row. Research has

shown that if the rows are planted closer together the yield will be higher on an area basis. In Ontario, depending on the type of trellising and the farm machinery used, raspberries can be planted as close as 1.8 m., although 2.4-2.7 m is usual. Inside tunnels and greenhouses, closer spacing between the rows can be used.

Within-plant Competition

Within-plant competition can be altered by controlling the number of young canes that grow. There are three ways to control young cane growth and influence yields: an annual system, annual with cane vigour control, and biennial. In the annual system the young canes grow each year to fruit the following year. In the annual system with cane vigour control, the first flush of young canes is removed each year and a second flush is allowed to grow. In the biennial system, the fruiting phase is separated from cane growth. In the first year of the two year cycle only new canes are allowed to grow, in the second only fruiting canes are allowed to grow.

When the three systems are compared, there is a relationship between the vigour of the young canes and the yield of the fruiting canes; the more vigorous the first year cane, the lower the yield of the fruiting cane. The annual system gives rise to tall first year canes and the fruiting canes only give moderate yield. In the annual system with cane vigour control, first year canes are moderately tall and the fruiting canes can give between 120-150 per cent of the yields of the annual system. The biennial system has no first year canes in the fruiting year and the fruiting canes can give between 150-250 per cent of the yields of the annual system.

In the annual system with

cane vigour control and the biennial system, first year canes are removed when they are between 10-20 cm high. For cane vigour control only the first flush of cane is killed, while in the biennial system the canes may have to be removed three or four times until the harvest season.

Trellising

With the raspberries in narrow rows and the new cane growth carefully controlled, the canes will need to be trellised to support the heavy crop. Trellising also increases picker satisfaction and efficiency, increases yields as more of the berries will be picked, and allows a lower disease pressure as the canopy will be more open. However, effort is needed to build the system which gives the grower a larger up-front cost. There are three ways to trellis raspberries; the conventional upright system, a "V" or "T-Bar" system, where the fruiting canes are supported at an angle, and the new Stiles system, which bends the cane into the row and moves them into the correct position at flowering.

The conventional system holds the raspberry canes in a single upright row and makes picking considerably easier than if nothing is done. It allows narrow row spacing to be used but the young cane grows outside the fruiting canes. This type of system is the only one that can be used for machine harvesting of the crop at the moment. One possible method is to place 1.5m high posts, about 10m apart and hold the fruiting canes in a single line with two wires held together at about 50 cm from the ground. The fruiting canes are then tied singly or in bundles of two or three to a single wire about 1.3m from the ground. In the "V" system, the canes are separated to form two rows which are between 0.6-0.9m apart at their tips. This allows pickers to reach the fruit very easily, particularly as the young cane grows up between the fruiting canes. The yields from this system are higher per row than the conventional system, but the rows need to be spaced further apart. One possible method is to place posts at the same distance apart as in the conventional method and a horizontal bar 0.6-0.9m long is attached to the post to make a "T" bar configuration. Single wires are then placed on the end of each arm and the canes tied to these wires.

In the Stiles system, designed by Dr. Herb Stiles, VPI & SU, Virginia, the fruiting canes are supported on a swing trellis. This trellis is placed so that initially the fruiting cane is bent at about 45 cm by an off-set wire on one side of the row with the tip of the cane held equally off-set on the other side of the row. The fruiting laterals



Photo courtesy of OMAFRA

then grow towards the light onto one side of the cane. At flowering, when the lateral position has been set, the trellis is moved so that the fruiting cane becomes upright. This then presents all the fruit to one side of the row. In this system, the young cane will grow away from the fruiting canes towards the light. This system has many advantages as all the fruit is presented on one side unobstructed by the new canes.

Conclusions

We can learn how best to maximise yield in tunnels and greenhouses from research and growers' experiences with field production of raspberries. So in tunnels and greenhouses, I have the following recommendations: keep the canes in the rows in a band no wider than 30cm, with at the most 1.8m between the rows; leave 7.5-9m of fruiting cane per m² of land area; control the vigour of the primo-canes by removing the first flush when they are 10cm tall; trellis the canes and consider the Stiles trellis.

However, to grow a good crop of raspberries, understand the basic biology of the raspberry plant as this enables good decisions regarding the plant husbandry. Also, careful attention to management factors such as trellising is required so that the plantings in tunnels and greenhouses are easily accessible for pickers to harvest the crop. In this and the first article, I have explained some of the basic biology of the raspberry and some of the standard cane management procedures. These, together with good plant and harvest management can make the raspberry a highly profitable crop in tunnels and greenhouses.

Part 1 and part 2 of Dr. Dale's information on raspberries for greenhouse and tunnel production can be found at www.onfruit.wordpress.com, under raspberries and at ontario.ca/crops, under berries.

Adam Dale is a retired professor from the Department of Plant Agriculture, University of Guelph, Simcoe.

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BERRY FOCUS

Highlights from the North American Strawberry Growers' 2016 conference

PAM FISHER

This was a great North American Strawberry Growers' Association (NASGA) conference in Savannah, Georgia, Jan 7-9, 2016. It was part of the Southeastern Fruit and Vegetable Growers Conference, which attracted more than 3400 growers from the region, and featured a large trade show.

There were 20 presentations in the two-day strawberry program, of which three are summarized below. The rest will be featured in future newsletters.

Varieties: Dr. Kim Lewers USDA, Beltsville, Maryland, gave an excellent overview of the process for developing a new variety from making crosses, evaluating selections, to propagation and distribution. Dr. Lewers' most recently named variety is Flavorfest, a June-bearing variety with resistance to anthracnose and good shelf life. She is planning to release a new variety with an even better shelf-life (up to two weeks) but with lower yields than Flavorfest.

Marketing: Ellen Polishuk, from Potomac Vegetable farms, made some very interesting points on selling local foods to

her suburban market. She talked about the importance of a value statement, and a list of values that reflect what you stand for. For example, "local, fun, ecoganic, fresh, (very, very, fresh), tasty, nutritious, happy, good neighbours" are words that describe her farm business. A value statement needs to match both the times and consumers, and is often updated. Ellen reported a recent 20 per cent increase in Community-Supported Agriculture sales while sales at farmers' markets may have reached their peak. In a second presentation Ellen spoke about labour management. At their farm, the labour profile has shifted from high school students to college graduates who are looking for a career in agriculture. www.Ellenpolishuk.com

Spotted wing drosophila: Dr. Hannah Burrack, North Carolina State University reported that in a no-choice lab experiment SWD laid more eggs per gram of fruit in raspberries (3 eggs per gram of fruit) compared to strawberries (2.1), but more eggs in strawberries compared to blackberries (1.6) and blueberries (1.2).

She also talked about the importance of immediate postharvest cooling and maintaining the cold chain as

Effect of temperature on SWD in blueberries after harvest

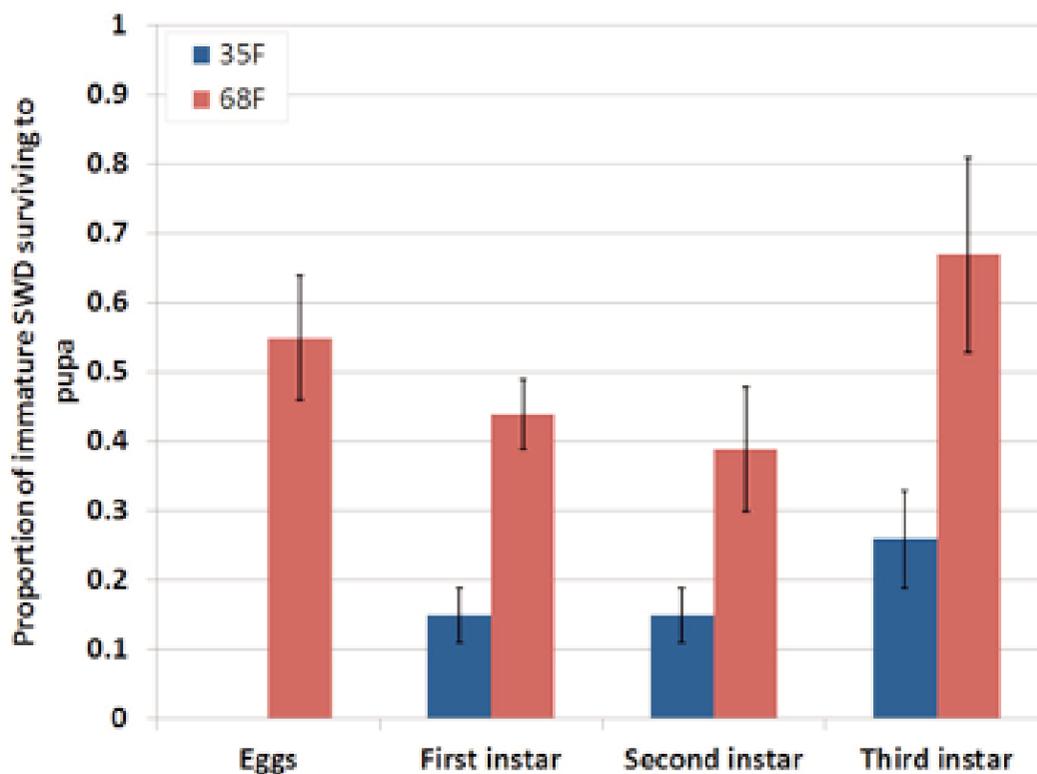


Figure 1: Effect of temperature on SWD in blueberries held at 35 F (1.7 C) and 68 F (20 C) after harvest. Data from Dr. Hannah Burrack, NC State University, USA

strawberries and other berry crops move from the farm to the consumer. When produce is held below 35 F (1.7 C), larval development practically stops. Most eggs and some larvae are killed after three days at this temperature (Figure 1. Effect of temperature on SWD in

blueberries after harvest).

Dr. Burrack also presented data to show that bifenthrin, a pyrethroid insecticide used for SWD, can cause spider mite outbreaks. Growers should be ready to apply extra miticides where this product is used. Malathion is not the best prod-

uct for SWD in rainy weather because it is so susceptible to wash off.

Pam Fisher is berry crop specialist for OMAFRA, Simcoe, Ontario.

Working with the Ontario Berry Growers' Association

PAM FISHER

As berry crop specialist for OMAFRA I get many opportunities. One opportunity I appreciate the most is the chance to work closely with the Ontario Berry Growers' Association and its board of directors.

The Ontario Berry Growers' Association represents strawberry, raspberry, blueberry, cranberry and other berry growers by funding promotion and research activities. All facets of the berry industry (wholesale, retail, pick-your-own, and roadside market) are represented.

I depend on the Ontario Berry Growers' Association and their members to keep me informed of current issues, and to ensure that the information developed by the OMAFRA berry team is available to berry growers across the province.

The OBGA takes on many tasks on behalf of not only its members, but all Ontario growers. For example, the OBGA administers the Ontario Berry Plant Propagation Program, which provides clean-virus tested raspberry and strawberry plants to plant propagators.

The Ontario Berry Growers' Association supports research and demonstration, providing administrative and financial support to several research and demonstration projects each year. Recent projects on day-neutral strawberry production and spotted wing drosophila monitoring have had an immediate positive impact for Ontario berry growers.

When pest management tools are lacking for important pests, the Ontario Berry Growers'

Association works with OMAFRA to set priorities for minor use registration and address pest management emergencies. Educational opportunities for both new and seasoned growers are provided several times a year by the OBGA. Growers get together twice a year for an annual farm tour, and an annual winter meeting. The OBGA provides Publication #360, the Berry Bulletin and other OMAFRA resources to their members free of charge.

A major focus of the Ontario Berry Growers' Association is promotion of berries to Ontario consumers. They provide resources to growers, information to berry lovers, and maintain a website with up-to-date information on when berries are in season and how to find pick-your-own farms and farm markets in your area.

Although membership in the Ontario Berry Growers' Association is voluntary, there are approximately 200 grower members representing 80 per cent of the berry crops produced in Ontario. The association is managed by a board of director volunteers and an executive secretary who work very hard on behalf of OBGA members.

If you are a member of the OBGA, you can be proud of your association. If you are not a member, consider joining this active, professional association. For more information on the Ontario Berry Growers Association, visit the website at Ontarioberries.com.

Pam Fisher is berry crop specialist for the Ontario Ministry of Agriculture Food and Rural Affairs, Simcoe.

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RESEARCH REPORT 2015

Research priority setting

The latest OMAFRA Research Priorities report came out in August 2015. Industry had expressed some concerns about the process. These were heard and have been addressed.

1. Pest management issues are now a given for every commodity and they are not prioritized against each other. This was a contentious issue prior to this round when pest management research for all fruit crops was excluded. All individual needs will now be captured by one over-arching pest management priority.

2. Each commodity will now select its own top priority. Previously, an 'expert panel' was engaged to condense several dozen industry needs into a manageable priority list. This was highly contentious. When OMAFRA agreed to alter the practice all groups involved in the issue-gathering process were subsequently invited to submit their own top choice.

These are big improvements. It does not mean all pest issues will now be addressed. You still need to work with a researcher to develop a project and make the case to a funding agency.

More changes are needed in the priority setting process. There are some glaring inequities in crop grouping e.g. defining "Field Vegetables" as a single category. Many crops are lumped together here and given just five priorities. Change is obviously needed. There are ideas to make it more equitable. Commodity groups will be asked for their input in coming months.

Food for Health

As an industry we tend to focus on our production, marketing and regulatory issues. The 2015 Food for Health Research Forum focused on a different aspect of food: Food for Health.

1. Health Promotion in Ontario

An Assistant Deputy Minister (ADM) with the Health Promotion Division of the Ministry of Health discussed the link between food and chronic disease. Chronic disease is now the leading cause (80%) of death in Ontario -- obesity at all ages, heart disease, diabetes etc. Lifestyle diseases we call them, due to over-consumption

mostly. What we don't hear much about is the incidence of malnutrition due to poor food intake or low food intake. Poor nutrition is common in seniors, in isolated communities, native communities and in low-income inner city, or rural, communities.

The ADM talked very highly about the ministry's connection with OFVGA and the Northern School Fruit and Vegetable Program. It begs the question: Why is this, after several years, still a Northern School Program. If it delivers all the benefits people talk about in spite of the challenges of implementation in isolated northern communities, why is it not being implemented in the Greater Toronto Area, or across southern Ontario for that matter?

2. Industry and Consumer

Perspectives on Food for Health Fresh-cut fruits and vegetables are rapidly expanding skews in supermarkets. Ontario's demographic mix these days presents challenges to providing local, healthy food. Every month Ontario imports in excess of \$60 M worth of ethnic foods.

3. Academic Research

Scientists from University of Guelph's Department of Molecular and Cellular Biology report there are 500 different species of beneficial microbes in the gut of a healthy person and the best way to keep these bugs healthy is to feed them fruit and vegetable fibre. Antibiotic usage doesn't help this by the way, because we disrupt this balance of beneficial microflora.

4. Healthy Eating for Healthy Aging

Malnutrition in seniors is a common thing. It's not a case of providing more food. Sixty-five per cent of Canadian seniors do not consume five fruits and vegetables daily. Thirty-four per cent are at nutrition risk due to factors such as poor mobility, low income, food apathy from medications intake, depression, poor teeth etc. Marketing schemes can prey on these seniors with their magical vitamin mixtures. The best approach is to Eat Better and Move More. Food is the best medicine.

5. Food Literacy and Healthy Eating

FoodShare is just one of the

fresh produce programs operating in the Greater Toronto Area. It's a non-profit organization working with communities and schools delivering healthy food and food education. More than 30 Ontario farms supply them with produce for their programs.

Food literacy is about people being intelligently informed of what they are eating -- where it's from, what is good nutrition, what foods are nutritional, how they are prepared, what good nutrition means to society, how and why we waste food. Food smarts I guess you would call it. And there are a lot of folks with their finger in this pie. Some pretty smart, some not so much. A Professor at the University of Guelph studies food wastage. Society wastes half of the food produced -- nine per cent before it leaves the farm. The rest is lost across the food chain. Fruits and vegetables account for most of it. Fifty-three per cent of wastage is avoidable. Eleven per cent is possibly avoidable. Thirty-six per cent is unavoidable.

People complain about the cost of food. Ten per cent of income is used to buy food for the average consumer. Fifteen per cent of that 10 per cent goes to farmers. That is 1.5% of the food dollar.

6. Building Local Food Capacity

A number of food distribution networks are in place for the disadvantaged (food banks and other programs). If you are poor, live in a low-income neighbourhood, don't own or have easy access to transportation, or if you shop at convenience stores, you have less opportunity to eat well. Corner stores don't tend to have well-stocked produce sections. Our present system of big box distribution networks servicing the suburbs leave many of these citizens out of the picture.

The Bottom Line

Food and nutrition literacy begins at a young age. Having the right choices readily and affordably available makes that more likely to happen. The bottom line is Good Food = Good Health. Fruits and Vegetables provide this.

Precision Agri-Food Technologies



Ontario Agri-Food Technologies is leading a Precision Agri-Food Technology Development project. You might think precision agriculture is not new. For a while now, fertilizer and lime trucks have been spreading things over our fields using the same GPS guidance systems as those who did the soil sampling. And we can feel comfortable about our 85-year-old father out cultivating the broccoli because he has GPS steering. But precision agricultural technologies are in their infancy and new purposes will balloon exponentially as we progress.

Visualize all the areas that can or will change with the advent of monitoring and delivery systems for data. These may include systems for monitoring and spraying pests, for fine tuning nutrient usage and application, monitoring water requirements and irrigation scheduling, for weather monitoring, for mechanization wherever it can be applied, storage atmosphere monitoring, electronic grading, data storage and reporting for audits, for traceability, cost analysis, benchmarking, crop insurance. The list will be endless. We have only just begun.

Now, tie all this data-gather-

ing ability to the genetic code of crops and you have the challenge of managing big data. Plant breeding will now have the ability to determine which gene lines are best suited for different growing and environmental factors. All these data need to be reliable and secure yet able to be accessed and analyzed and readily put back to use in decision-making operations. These are decisions to manage production inputs, and, for example, decisions the automatic grapevine pruning machine makes as it travels up the row or the drone aircraft flying over your vegetable field monitoring crop disease.

Sounds expensive doesn't it? But you already carry much of the technology for this in your pocket. In your telephone! The micro electronic mechanical sensors (MEMS) in your telephone include gyroscopes, accelerometers, and magnetometers, (all those things that keep your screen upright and tell you how fast you are going in what direction), GPS (telling you how to get to your destination), cameras, wireless hook-ups, incredible memory and processing power, rechargeable batteries, and phone, email and texting capabilities.

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RESEARCH REPORT 2015

Research priority setting

CONTINUED ON PAGE 17

CONTINUED FROM
LAST PAGE

And these miniaturized components have been made by the billions by Apple and other Androids! A decade ago much of this technology was an incredibly expensive military secret. Now we have access to military-grade technology for toy prices - open source, for free. And it is going into the GPS apps, the irrigation monitoring sensors, the cameras the drone carries over the vegetable field, a myriad of environmental sensors and all those things that precision ag will use. Stay tuned.

Producer Stress and Resilience

The annual Emergency Management Research Expo was held recently. I always attend to see what plant projects made it into the Emergency Management Theme to be researched. Plant issues are not prevalent here. Swine and poultry disease epidemics are, understandably, very much in the foreground of late. These disease outbreaks have had a side effect of creating some very high stress levels for producers who have had to destroy afflicted herds and flocks.

There were speakers on the agenda discussing producer stress and resiliency and mental health. In our sector we are fortunate we do not have to deal with traumatic experiences like those of these animal caregivers. We do, however, have a whole set of stresses of our own--from crop losses, poor markets, high input costs and all that resulting financial stress.

Dr. Andria Jones-Bitton, an epidemiologist with the Department of Population Medicine, University of Guelph, is doing a baseline study of the mental health of agriculture producers. I encouraged her to include hort producers in her study and she sent a link to her online survey. The answers you supply to the survey are completely anonymous. It takes 15-20 minutes to complete. I have done the survey and the only data you have to dig out for this is in your head. You can even sign up separately to win one of three \$200 prizes for your trouble. We probably all know of someone who has suffered, or is presently suffering from depression and other stress-induced disorders. Programs can be developed to deal with producer stress once this problem is understood. It would be helpful if the baseline study included producers from all sectors. I would encourage

you to participate.
Science or Not?

The ag sector is being challenged these days by uninformed people chatting on a daily basis through social media and food television about the safety and quality of their food - about agricultural practices, GMOs, the environment and most any other negative aspect of the food system they care to worry about.

Anti-science thinking is cancerous in nature and more pervasive than most realize. It is

not something you can confront with factual arguments. You are simply banned from their social media account if you disagree. The anti-science people will make life difficult for us if not countered with the truth, though.

Seeing little need for science-based decisions becomes very problematic when other government ministries enact regulations that negatively impact agricultural producers. They get little flak from the general public for doing this. They may have little knowl-

edge of the consequences of their directions. They have little respect for industry feedback that may counter their thinking.

The industry needs to quietly and firmly show agriculture in a truthful and factual way. When facts are well presented, most folks are fascinated to see what is going on 'down on the farm.' Farmers have an 85 per cent trust rating. Agriculture itself, however, hovers at around 50 per cent trust.

In spite of food babes, blogger moms and other scaremon-

gers, we have access to an abundant supply of the freshest, safest and most inexpensively produced food in the world. And we are constantly improving on all of these aspects. Advances in science and technology help us to do that. And as for countering the anti-science faction, we don't need science-based evidence element--back us up OMAFRA.

Harold Schooley is OFVGA section chair for research.



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BITS AND BITES

2016 Census of Agriculture is on the horizon

At the beginning of May 2016, Canadian farm operators will have the chance to take part in a national dialogue by completing the Census of Agriculture questionnaire.

The Census of Agriculture is the definitive source of community-level data. By drawing on these data, decision makers will know that they are acting in the interests of farmers, farm communities and agricultural operations across Canada.

Farm organizations are heavy users of census data and draw on this information when formulating policy requests, producing communication and outreach work, and conducting market research.

What's new for the 2016 Census of Agriculture?

Census by Internet: fast and easy

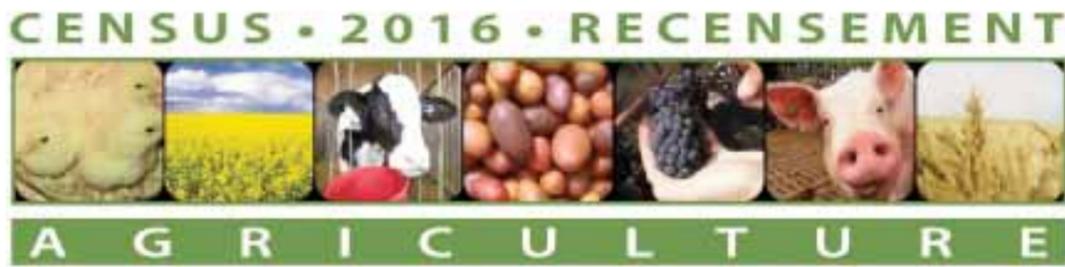
All Canadian farm operators

will receive a letter at the beginning of May 2016 with instructions on how to quickly and easily complete the questionnaire online.

The online questionnaire will automatically add totals. As a result, completing the questionnaire online will limit the questions to the ones that apply specifically to an operator's farm and will reduce the need to call back farm operators in order to clarify answers. On average, farmers should spend 30% less time responding to the 2016 Census of Agriculture than they did responding to the previous census (2011).

Shorter—but still comprehensive—questionnaire

The Census of Agriculture staff consults after every census with farmers, agricultural industry members, and data users for the purpose of assessing data needs.



Statistics Canada has received more than 200 submissions from diverse groups, including federal government departments and agencies, provincial ministries, farming organizations, academics, farm service companies, and consulting firms further to the 2011 Census of Agriculture. Statistics Canada is grateful to the agriculture industry for its ongoing feedback and support. As a result of these consultations, most of the questions for 2016 are identical to those used in 2011. This continuity is important when it comes to tracking long-term trends in the industry and meeting the ongoing needs of users and stakeholders.

In the 2016 Census, operators are no longer required to provide detailed farm

expenses and other information such as place of residence, details on irrigated land, and the source and use of manure.

The questionnaire also includes new questions on the adoption of technologies, direct marketing, succession planning and renewable energy production.

Overall, the 2016 questionnaire has 18 fewer questions than did the 2011 questionnaire. The content of the 2016 Census of Agriculture was published in the Canada Gazette on June 20, 2015.

Getting ready

In the coming months, the Census of Agriculture Program will begin its communication and outreach work with the farming community. This work

includes farm show exhibitions, as well as a media campaign that explains what's new in the upcoming census and why the census is important.

By law, farmers are required to participate in the Census of Agriculture. By the same law, Statistics Canada is required to protect the information provided in Census of Agriculture questionnaires. Privacy is a fundamental component of the census.

At the beginning of May, complete your questionnaire and tell your story as part of Canada's farming community! For more information, please visit the Statistics Canada website.

Loblaw awards Ontario grower of the year

Enviro Mushroom was awarded the 2015 Ontario Grower of the Year. This annual award recognizes a local grower partner who has demonstrated leadership within the produce industry in food safety, quality, corporate social responsibility and more.

Left to right: Michelle Loucks, senior category manager Loblaw Companies, Anna Sung, Enviro Mushroom, Pat Gilbert, vendor development manager Loblaw Companies, Fiona Yang, Enviro Mushroom, Frank Pagliaro, vice president produce procurement Loblaw Companies.



Wine, cider and fruit wines coming to grocery stores and farmers markets across Ontario

Ontario is increasing choice and convenience for consumers and supporting fruit wine and cider producers by making fruit wine and cider, along with wine, available on the shelves of up to 300 independent and large grocery stores. Following the historic introduction of beer in grocery stores last December, 70 grocery stores across Ontario will be able to start selling wine, beer and cider this fall.

Premier Kathleen Wynne made the announcement that the government has accepted the final recommendations from the Premier's Advisory Council on Government Assets, chaired by Ed Clark. These recommendations conclude the

council's review of the beverage alcohol sector.

Other key aspects of the recommendations include:

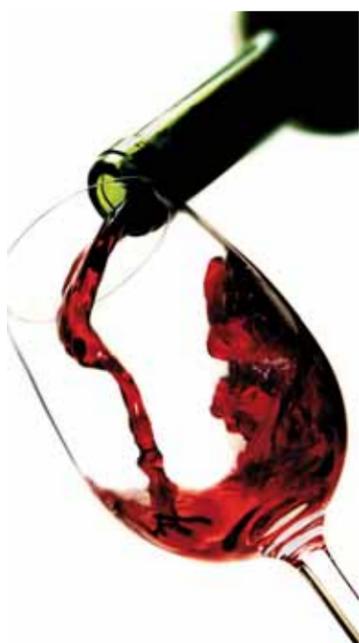
- Allowing cider to be sold wherever beer is sold in grocery stores
- Including fruit wines and craft cider in a program that allows Vintners Quality Alliance (VQA) Ontario wines to be sold at farmers' markets
- Reducing red tape and eliminating unnecessary regulations to increase opportunities and deliver cost savings for producers and their customers, including new opportunities for craft distillers.

Cider is one of the fastest growing sales

categories in the LCBO. Ontario craft cider sales rose by 89 per cent per year from 2011 to 2015.

Ontario is expanding access responsibly. As with beer, restrictions will apply to ensure safe and responsible retailing in grocery stores, including restricted hours of sale and rigorous training for staff. Ontario is also developing a comprehensive, province-wide alcohol policy to support the safe and responsible consumption of alcohol.

Source: OMAFRA press release



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MINOR USE

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Syngenta Canada Inc. is launching Orondis Ultra, a new fungicide for the control of oomycete diseases caused by

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Applied preventatively in potatoes, Orondis Ultra delivers an unprecedented 21 days of residual late blight control. Late blight, caused by the oomycete *Phytophthora infestans*, is the single most damaging potato disease. The strong late blight control provided by Orondis Ultra allows growers to increase fungicide spray intervals and potentially reduce the overall number of fungicide applications targeting late blight.

"Throughout the growing season, weather conditions can bring about high levels of moisture and temperatures that allow late blight to thrive and develop," says Eric Phillips, product lead, fungicides and

insecticides, with Syngenta Canada. "The residual control that Orondis Ultra provides allows growers to proactively manage late blight."

In addition to potatoes, Orondis Ultra can be used on head and stem brassica vegetables including broccoli and cabbage, bulb vegetables, such as onion and garlic, leafy vegetables, such as arugula and celery, and cucurbit vegetables, including cucumber and squash. See the Orondis Ultra label for a complete list of crops and diseases.

Orondis Ultra will be available for sale in spring 2016.

For more information visit Syngenta.ca, contact your local Syngenta representative at 1-877-SYNGENTA
Source: *Syngenta Canada news release*

Luna Tranquility fungicide now registered for bulb vegetables, small berries and tomatoes

Bayer announces the registration of Luna Tranquility as a foliar fungicide for bulb vegetables, small berries and tomatoes in Canada. The systemic fungicide is an all-in-one formulation that includes two Groups: a unique Group 7 (fluopyram) and proven Group 9 (pyrimethanil).

"Luna Tranquility is already a valuable fungicide for apple, grape and potato growers and now protects against some of the most concerning diseases for bulb vegetables, small berries and tomatoes," said Jon Weinmaster, portfolio manager, horticulture, Bayer CropScience Inc. "With both Group 7 and 9 modes of action, this broad spectrum fungicide offers growers

excellent disease control resulting in improved yield, quality and post-harvest benefits."

Luna Tranquility is unlike any current Group 7 fungicide, being highly plant mobile and showing minimal cross-resistance to other Group 7 fungicides. It also provides post-harvest latent disease protection for soft fruit, with research indicating reduced shrink and decreased fruit deterioration.

The new expansion of the Luna Tranquility label means Canadian growers can now apply this trusted product on:

- Bulb vegetables for protection against botrytis leaf blight, purple blotch and stemphylium leaf blight.

- Small berries (including caneberries, bushberries, and low growing berries) for protection against powdery mildew and botrytis gray mould
- Tomatoes for control of early blight and septoria leaf spot

In addition, the Luna Tranquility label is now expanded to include all crops within the pome fruit Crop Group.

For more information regarding Luna Tranquility visit: CropScience.Bayer.ca/LunaTranquility

Source: *Bayer CropScience Inc news release*

Prioritizing minor use needs for 2017

JIM CHAPUT

Held in Gatineau, Quebec, the 14th Annual National Minor Use Priority-Setting Workshop will be modeled after previous Canadian workshops. Tuesday March 22nd will be set aside for plant pathology priorities, Wednesday March 23rd will be set aside for

entomology priorities and Thursday March 24th will be set aside for weed science and growth regulator priorities. On Monday, March 21st, ahead of the main minor use meetings, there will be a nematode workshop held during the afternoon for those who have interest.

All of the provinces will have submitted minor use needs with key pests prioritized for each crop. The

national priority-setting meeting brings together all national commodity organizations, registrants, AAFC, PMRA, IR-4 and other stakeholders to establish key projects for the 2017 growing season. The top-ranked projects will be completed by the AAFC Pest Management Centre.

Jim Chaput is OMAFRA's minor use coordinator.

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POTATO PRODUCTION

Fingerlings fetch high prices in niche market



Last August, Paula Fett showed off freshly dug fingerling potatoes while workers hand pick the gems from the furrow. Photos by Glenn Lowson.

KAREN DAVIDSON

La Salette, ON -- Give a hand to fingerling potatoes. Currently retailing at \$1.00 per pound, these knobby gems bring a smile to potato growers Steve and Paula Fett. Although fingerlings require specialized planting and harvesting equipment at their LaSalette, Ontario farm, they can make more profit with fewer acres.

During the last few years, the Fetts have been gradually transitioning from conventional potatoes – almost 600 acres of them – to several varieties of fingerlings. They now plant 250 acres to fingerlings and 100 acres to table potatoes.

The change has been cued by their observations at the Ontario Food Terminal where they have a stall at the farmers' market from June through December. Their clientele – niche supermarkets, upscale restaurants and foodservice suppliers – are looking for

“
The 10-pound bag of potatoes is almost obsolete. If a couple puts that bag underneath the kitchen sink, half of it will go bad before it's eaten.

~ STEVE FETT

specialty potatoes.

“The 10-pound bag of potatoes is almost obsolete,” says Steve Fett. “If a couple puts that bag underneath the kitchen sink, half of it will go bad before it's eaten. The trend is towards smaller packages.”

So with a little research, the Fetts are growing Russian fingerlings, French fingerlings, pink fingerlings and blue potatoes. The Russian fingerlings, for example, are best paired with steaks or pork chops. On the other hand,

French fingerlings have a creamy texture and are just as buttery as a croissant. Pink fingerlings are a favourite with restaurateurs who serve them with fish. Blue varieties are an eye-appealing sensation in potato salads.

Fingerlings are not to be confused with new potatoes. All potatoes, including fingerlings, are derived from primitive South American cultivars, says Vanessa Currie, University of Guelph potato researcher. They were brought to Europe



Russian fingerlings are not to be confused with new potatoes.

by explorers and then Europeans brought them to North America. Most fingerling varieties have large vigorous vines and produce a large number of tubers.

Few farmers are growing fingerlings because they require different handling from seed to harvest. This spring's seed was ordered a year ago from Garden Isle Farms in Prince Edward

Island where the seed is developed from tissue culture. Right now, the seed is in green sprouting trays at La Salette, waiting to be transferred to the greenhouse in March.

“Fingerlings stay in dormancy three times as long as conventional potatoes,” explains Fett. “They need at least six to eight weeks to sprout.”

CONTINUED ON PAGE 3

POTATO PRODUCTION

Precision farming is still evolving for field vegetable growers



“The seed is planted dead center in the hill, so we don't have the problem of potatoes emerging from the side and increasing the probability of sunburned potatoes. That's a bigger problem than many recognize.

~ SHAWN BRENN

KAREN DAVIDSON

Global positioning systems (GPS) are not news, but how they are used in horticulture's

field vegetables is a work in progress. Twelve years ago, Brenn-B Farms started using GPS to improve tillage in herbs and field vegetables.

“At that time, and still today,

there are no weed control products available for herbs,” says Shawn Brenn, who is one of the larger suppliers of herbs to major grocers in Ontario from his Waterdown farm. “There

are no herbicide registrations for herbs and too much labour was going into hoeing.”

GPS systems allowed him to plant herbs in 16-inch rows, then to follow up with a multi-tiller – a power tiller – within one inch of the plant. Mechanical tillage was used once or twice until the herb crop is established and shading the soil. If the mechanical tillage is too frequent, the soil dries out. This advancement saved many hours of labour in his 250 acres of leafy green crops.

Besides the savings in labour, Brenn began mining the cache of management information that GPS allows in conjunction with farm software programs. Soil fertility and nutrient management are essential to support these finicky crops. Most of his acreage is rented, so it's been more important than ever to map the fields for fertility values and to keep accurate spray records.

“In the early days, farm software programs were oriented to grain farmers, but we've been able to customize these programs for the vegetable side,” he says. “It's not perfect, but we're better able to manage crop inputs and rotations.”

In addition to herbs, Brenn B Farms is a large potato grower. It's not unusual for 15 potato varieties to be grown. As GPS has become more advanced, the data files are transferred automatically from field computers to desktop. Variable rate lime and fertilizer are becoming more of a focus on his farm now that they are able to analyze more detailed information from

their field computers.

“Corn growers have been able to plant higher plant populations on their best ground and then reduce that number for poorer land,” says Brenn. “We're now able to make similar calculations for vegetables.”

Brenn is loyal to the Trimble brand of GPS. He's able to plant potatoes in straight rows and use the same AB line to ensure the hilling process places the hill directly over the center of the potato seed piece. “The seed is planted dead center in the hill, so we don't have the problem of potatoes emerging from the side and increasing the probability of sunburned potatoes. That's a bigger problem than many recognize.”

Today, the collected field data helps make important management decisions in regards to crop inputs, costs, time allocations for certain tasks to be completed, weather conditions and elevation maps to assist in tile drainage and managing surface water.

“We're able to do a much better job managing our fields and crop rotations,” says Brenn. “You can imagine how much easier it is to colour code by crops, especially with 15 different potato varieties.”

Higher potato yields can't be attributed to straight rows by simply installing a GPS system, however the ability to fine tune production practices as a result of information captured by this technology can. Brenn is confident in saying that his labour savings and finetuned management processes help pay for the investment.

Delegate insecticide now registered for aerial application

Potato growers across Canada now have the option of applying Delegate insecticide by air for outstanding control of Colorado potato beetle and European corn borer.

“If a seed treatment was not used, or is not offering sufficient control of insects, plan to use Delegate insecticide in your crop. Delegate is a non-neonic product which provides rapid foliar control of target pests. This aerial application registration is an opportunity for applicators and growers to integrate an excellent new control measure with a unique mode of action into their programs,” says Mark Alberts, product manager at Dow AgroSciences.

The active ingredient in Delegate is spinetoram, a member of the spinosyn class of

chemistry (Group 5) and controls a broad spectrum of pests by both contact and ingestion. It provides quick knockdown and residual activity in many fruit, vegetable and field crops, including potatoes. Delegate affects the insect nervous system, and no other class of products—organophosphates, carbamates, pyrethroids, neonicotinoids—affects the insect nervous system with the same mode of action as Delegate. It does not interact with the known binding sites of other classes of insecticide. Because of Delegate's unique mode of action, it is an excellent rotational product that can be used in an IPM system.

Further information on Delegate is available at DowAgro.ca.

Source: Dow AgroSciences



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POTATO PRODUCTION

Fingerlings fetch high prices in niche market



Above photo: Fett Farms markets fingerling potatoes in 50 lb and 25 lb cartons as well as cartons of 15 2-lb polybags.



Photo top right: Specialized harvesting equipment is required with a pitch chain that is 20 mm, half the size used for conventional potatoes.

Photo bottom right: Blue potatoes are fancied by restaurateurs.



“
I had 200,000 pounds of fingerlings that stored very well this past winter.
 ~ STEVE FETT
 ”

CONTINUED FROM PAGE 1

He predicts an early spring on the sandy plain soils of Norfolk County and will be planting as early as possible, no later than the first week of April. The idea is to get the crop to maturity as quickly as possible, harvested and into storage.

Mid-September weather can be tricky if rains soak the fields. Hand-harvesting is hard enough without a sodden field. The reason fingerlings are so expensive is that they must be picked out of the furrow into bins. For this job, Fett hires 10 offshore workers.

Once out of the field, the potatoes are washed and graded. European-sourced equipment is designed with smaller brushes to wash fingerlings and that can size the long shape. Then they go into cold storage.

“I had 200,000 pounds of fingerlings that stored very well this past winter,” says Fett.

The strong U.S. dollar against a weakening Canadian

dollar has kept prices attractive for domestic buyers. Fett has been busy filling orders all winter long and is looking forward to the new season.

One would think that a U.S. market would also be in play, but Fett has discovered through experience that maybe one out of every five shipments gets across the border. USDA officials are reluctant to expedite Canadian product in order to protect local markets stateside. “It’s very discouraging for both me and the buyers in the U.S.” he says.

While fingerlings are profitable now, Fett frets about rising costs. If the Ontario Retirement Pension Plan moves forward, by 2019, he’ll be paying an extra \$1500 per offshore worker or \$15,000 per year. Increased costs of five to seven per cent for corrugated containers as well as spiraling hydro costs continue to make dents in the margin.

The Fett’s hope these costs won’t erode their optimism for the fingerling potato market that’s been steadily growing by five to 10 per cent a year.

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POTATO PRODUCTION

Understanding phosphorous acid on injury and uptake in tubers

KAREN DAVIDSON

The question and answer period at information days is always revealing. That's when growers signal they are keen to know more.

The subject of phosphorous acid has been on potato agendas for several years now, but the management of this product continues to evolve. Andy Robinson, extension potato agronomist for North Dakota State University addressed this topic at the recent Manitoba

Production Days in Brandon and received plenty of questions afterward.

Phosphorous acid is applied to protect potato crops from pink rot and late blight tuber rot. It can be applied as a foliar treatment as well as direct on tubers going into storage. However, when phosphorous acid is applied as a foliar, growers often report leaf burning especially if the crop is under moisture, fertility or disease stress.

Researchers such as Neil Gudmestad, Steve Johnson and

others have reported the product to be highly effective at controlling late blight and pink rot. Digging into the trial work, additional data shows benefits in controlling silver scurf in storage. It is not effective against soft rots, Pythium leak and Fusarium.

Part of the problem, says Robinson, is that there are many application use patterns – chemigation, aerial, ground – that result in variation of application. One of the questions is whether adjuvants can reduce injury from phosphoric acid.

After several trials in the last two years, Robinson concludes that the product can be applied earlier than dime-sized tubers with higher water carrier volumes. He cautions, however, that this work is ongoing and further research will validate the results from the first year's trial. To reduce leaf burn, use lower rates of 2.4 to 3.3 litres per acre. Silicone surfactants may help but don't apply a foliar fungicide for two to three days after using a silicone surfactant because these surfactants will prevent fungicides from sticking to the leaves.

When storage tuber testing

was complete, Robinson recorded that with air and air plus chemigation treatments, there was more phosphorous acid in the tubers tested. Chemigation alone had less phosphorous acid in the tubers tested. Robinson notes that other research in avocados suggests 100 ppm is needed for *Phytophthora* spp. control.

In summary, Robinson recommends that three or more

applications of phosphoric acid are best for pink rot control. Timing is important. Surfactant and silicone adjuvants can help reduce injury when phosphoric acid rates were low, that is less than 2.4 litres per acre.

Multiple applications of low amounts of phosphoric acid at the right time with a surfactant/silicone will provide the least injury and best protection from pink rot.





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POTATO PRODUCTION

Bacterial soft rot: new name, new pathogen new problem?



The pith decays and this may occur without external symptoms.



Symptoms appear from the seed piece up into the stem and foliage. Black to dark-brown water-soaked lesions appear. Wilt and leaf chlorosis can be seen.



Tubers get infected through the stolon or contaminated in the soil or storage. Symptoms can range from vascular discoloration to complete decay. It may initiate at the stolon end, in the lenticels or wounds.

Host	Old Name	New Name
Potato	<i>Erwinia carotovora</i> subsp. <i>atroseptica</i>	<i>Pectobacterium atrosepticum</i>
Potato & other crops	<i>Erwinia carotovora</i> subsp. <i>carotovora</i>	<i>Pectobacterium carotovora</i> subsp. <i>carotovorum</i>
Potato, corn, chrysanthemum	<i>Erwinia chrysanthemi</i>	<i>Dickeya dianthicola</i> <i>Dickeya solani</i> Other <i>Dickeya</i> spp.

Last year's reports of *Dickeya dianthicola* from Maine to Michigan are this year's concern for potato growers. What's worrisome is that the bacteria is spread through seed potatoes causing blackleg and soft rot.

These diseases are very similar and the different names indicate where the disease occurs says Tracy Shinners-Carnelley, director of research and quality enhancement, Peak of the Market and one of the organizers of the recent Manitoba Potato Production Days in Brandon. This topic was on the agenda to allay concerns. Many people in the North American potato industry are talking about *Dickeya* spp. this winter.

Blackleg affects the vines during the growing season. Tuber soft rot affects tubers in the field and during storage and transit.

Both *Pectobacterium* and *Dickeya* spp. cause similar wilt and decay symptoms in plants and tubers. The symptoms are often indistinguishable. Pathogen "behaviour" is different. *Dickeya* spp can initiate disease with less inoculum, has greater ability to spread through vascular tissue, is more aggressive and needs a higher optimum temperature to flourish.

Dickeya appears to be less hardy in the soil and outside of plants compared to *Pectobacterium*. It's unlikely that *Dickeya* can overwinter freely in the soil.

There are multiple species of *Dickeya*. Shinners-Carnelley says the first report in potatoes was in the Netherlands and most

early findings were of *D. dianthicola*. A more aggressive strain emerged in the mid-2000s and was named *D. solani*.

From 2007-2009, Solke De Boer, senior research scientist with the Canadian Food Inspection Agency (CFIA) in Prince Edward Island, led a survey to identify the pathogens associated with bacterial stem rot in Canada. The team's results indicated that the predominant pathogen isolated from infected stems and tubers was *P. atrosepticum*. Two isolates were presumptive positive for *Dickeya* spp, but further testing confirmed they were not *D. solani*.

"I'm not aware of any more recent Canadian blackleg surveys," says Shinners-Carnelley. "While the incidence of blackleg can fluctuate from year to year, there are no reports of significant occurrence and losses due to blackleg. In Canada, the CFIA's Seed Certification Program has strict tolerances for blackleg and this may be largely responsible for limiting the incidence of blackleg in the potato industry."

In recent years, there have been some severe losses in the eastern U.S. resulting from seed decay caused by *D. dianthicola*. This occurrence has created much discussion and concern about *Dickeya* and the potential impact that it could have on the industry. Seed Certification Programs in the U.S. do not have established tolerances for blackleg.

This background is for information purposes only and to make growers aware of the risk

“

I'm not aware of any more recent Canadian blackleg surveys.

~ TRACY SHINNERS-CARNELLEY

”

and to be proactive to prevent the introduction and establishment of any new disease threats, including *Dickeya* spp.

Going forward, Shinners-Carnelley recommends that growers follow best recommended practices for management of all bacterial diseases. This includes using clean seed, cleaning and disinfecting seed cutting and handling equipment, planting seed that is well suberized, and into well drained soil 10 – 13°C. Handle tubers in such a way to minimize bruising and wounding. Store tubers with good air flow, humidity and as cool as possible.

In conclusion, blackleg and tuber soft rot can be caused by a few bacterial pathogens. A more aggressive pathogen has emerged. These pathogens may "behave" differently and can be very difficult to distinguish by field symptoms. Management strategies remain the same. Be aware of the risk and always follow biosecurity best management practices.



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POTATO PRODUCTION

What global trends mean for Canadian farmers

KAREN DAVIDSON

In China, the potato is rising. And that's just one of many developing countries where potatoes are in increasing demand. From Peter VanderZaag's perspective, potatoes are on a roll. The internationally-renowned potato breeder operates Sunrise Potatoes near Alliston, Ontario but travels extensively for his consultancy. He brought his perspective from China, Africa and South America to the Ontario Potato Conference on March 1.

The potato has an ability to produce more energy and protein per unit of land and water than nearly all other crops. Improved water use efficiency is needed as climate change affects many continents.

"When we look at sustainable potato production, we'll be looking at the potential of cisgenics to control major diseases," says VanderZaag. "Gene silencing and editing can eliminate bad traits so that more harvest can be utilized. Bacterial wilt remains a huge challenge in tropical mid elevations and highlands."

International trade of fresh potatoes is changing rapidly. Southwest China has a big advantage for export to neighbouring Asian countries. Lowland valley farmers collaborate in the province of China's Yunnan province and grow high-quality potatoes for large-city markets. They achieve yields of up to 87 tonnes per hectare. While yields for rice, wheat and maize have maxed out, yields of potatoes are increasing.

Mixing potato flour with wheat flour has resulted in noodles, steamed bread and dumplings which find favour with the Chinese. "This is bread for the poor in western regions of China where more than 50 million still exist in poverty," says VanderZaag.

Regional trading within continents will increase with improved infrastructure. This is certainly true in India, Pakistan and Bangladesh which has an ideal climate for winter crop potatoes. India alone has more than 6000 cold storages which can hold 5000 tonnes each to supply potatoes during the hot rainy season. Indians like potatoes in curry as well as other dishes.

The Andean region of South America remains the home of the potato. From a breeder's perspective, it remains the centre of diversity with more than 4000 native varieties still grown by Andean farmers. The International Potato Centre is the global guardian of the tuber genetics.

Plant Breeders Rights will continue to be important. "The length of time that a registered variety can collect royalties is too short," says VanderZaag. "Canada is considering making it 25 rather than 20 years."

VanderZaag predicts that public private partnerships in breeding will help develop synergy and will lead to rapid breakthroughs in variety development. This will also reduce the development costs for private breeders.

Public acceptance of cisgenics and gene editing will require education, but the documentation of benefits for small farmers around the world and the case for controlling late blight should help.

Leading Global Exporters of Prepared and Preserved Potatoes		
Country	U.S. dollar value	% of global trade
Netherlands	\$1.9 billion	22.3%
Belgium	\$1.9 billion	21.5%
United States	\$1.4 billion	15.5%
Canada	\$971 million	11.2%

Competitive advantage right now goes to the northwestern United States and northwestern Europe. See chart above.

"My global perspective is bullish for commodity potatoes but less so for Ontario and Canadian growers, who should invest in specialty niche markets," he says. Although Ontario growers are within eight hours' truck delivery of more than 100 million people, the cost of production and low yields are major disadvantages. He cites the competition from neighbouring provinces as another major factor for weakening returns in commodity potatoes.



Peter VanderZaag is pictured in a SW China mountainous region with a Muslim Tribal group, where the women do the field work including harvesting and marketing.

“When we look at sustainable potato production, we'll be looking at the potential of cisgenics to control major diseases.”

~ PETER VANDERZAAG



Indigenous potatoes of Peru

Re-evaluation of chlorothalonil fungicide (Bravo, Echo)

EUGENIA BANKS

The facts

1. From 2011-2014, the Pest Management Regulatory Agency (PMRA) conducted a re-evaluation of the fungicide chlorothalonil.
2. On 1 Nov 2014, PMRA issued a Proposed Re-evaluation Decision proposing the continued registration for the sale and use of products containing chlorothalonil in Canada. Their evaluation of available scientific information found that products containing chlorothalonil did not present unacceptable risks to human health or the environment when used according to label directions.

The unexpected

3. On 11 February 2016, PMRA issued an Amended

Proposed Re-evaluation Decision. While some agricultural uses of chlorothalonil do not present unacceptable risks to human health, new risk-reduction measures have been proposed. The most important for potato growers is the number of sprays, which will be reduced from 12 to one per growing season.

4. This amendment to the Proposed Re-evaluation Decision is a consultation document.
5. PMRA is inviting stakeholders to submit comments as well as detailed proposals to further refine risk assessment and risk mitigation. PMRA will accept comments and proposals for a period of 60 days, starting Feb 11, 2016.

Comments should be emailed to PMRA: publications@tpsgc-pwgsc.gc.ca

6. Before the final re-evaluation decision, PMRA will consider all comments received in response to the Proposed Re-evaluation Decision released in November 2014 and the amendment released in February 2016. PMRA has stated that: A science-based

approach will be applied in making a final decision on chlorothalonil.

The Action Plan

The re-evaluation of chlorothalonil affects all horticulture crops in Ontario. Crag Hunter, from OFVGA, is one of the most knowledgeable pesticide experts in North America. He will be writing a response to PMRA and has agreed to give a 15 minute update at the Ontario Potato Conference on March 1st.

The Ontario Potato Board is actively working with other growers' organizations to send to PMRA science based comments to ensure that the number of chlorothalonil applications per year on potatoes is not reduced.

Eugenia Banks is potato specialist, Ontario Potato Board.

POTATO PRODUCTION

Pink spud, French fry are super performers from Agriculture and Agri-Food Canada

Accelerated release selections were unveiled on February 10 at three locations across Canada: Guelph Research and Development Centre, Lethbridge and Fredericton Research and Development Centres for two years of non-exclusive evaluation.

One is a potato that not only stands out on the plate but is a nutritional stand-out. Its dark pink flesh and red skin is rich in anthocyanins. Another could be a French fry lover's dream, allowing farmers to increase yields of the type of potato used by fry processors by as much as 35 per cent when compared with the industry stalwart Russet Burbank. They are among 16 new potato selections that Agriculture and Agri-Food Canada's potato breeding team is releasing to industry this year to test for itself and see what it thinks.

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One is a potato that not only stands out on the plate but is a nutritional stand-out. Its dark pink flesh and red skin is rich in anthocyanins.

”

The selections were narrowed down from more than 120,000 hybrid seedlings that were grown and tested and measured over six years in AAFC greenhouses, laboratories and fields across the country. The selections are the result of continuing technological advances that are allowing Agriculture and Agri-Food Canada researchers to probe the complicated DNA of potatoes to identify genes and strands of DNA linked to traits of interest, leading to germplasm with better yields, nutrition and cooking and processing qualities. The selections also feature disease and pest resistance that make them less demanding on the environment. With each genetic marker that is identified, researchers are able to more quickly and accurately search through hundreds of different kinds of potatoes, including centuries-old heritage varieties and wild species, for potential breeding candidates that will produce new hybrids with the desired traits.

PHOTO: The “pink spud” was one of many showcased in the recent accelerated release program operated by Agriculture and Agri-Food Canada (AAFC). Photo courtesy of AAFC.



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Controlling potato diseases such as early blight, white mould and Rhizoctonia black scurf can be a complex job. That's why we developed new Sercadis™ fungicide. With consistent, continuous control of key diseases and highly systemic activity, Sercadis enables you to tailor your fungicide program to fit the specific application timing and tank-mixing needs of your farm. That's what we call flexibility. Call **AgSolutions®** Customer Care at 1-877-371-BASF (2273) or visit agsolutions.ca for more information.

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CROP PROTECTION

Alternative products test well in pink rot suppression

KAREN DAVIDSON

Pink rot (*Phytophthora erythroseptica*) in potatoes is ubiquitous in Canada. When 500 potato growers attended Manitoba Potato Production Days earlier this winter, they were all ears for the latest results on suppressing this disease.

“It’s largely a tuber issue,” says Rick Peters, Agriculture and Agri-Food Canada’s potato researcher in Charlottetown, Prince Edward Island, although all underground tissues can be infected. “You see it especially in wetter falls when resting spores germinate and you get a ‘swimming spore’ that enters through the eyes of the tubers – stolons can be infected earlier in the season after which the pathogen moves down the stolon into the tuber.”

For the last decade, in-furrow treatment or foliar sprays of Ridomil (metalaxyl-m), applied at tuber initiation and two weeks later, have suppressed this disease. However, resistance is building to this chemistry, first noticed in New

“It’s largely a tuber issue. You see it especially in wetter falls when resting spores germinate and you get a ‘swimming spore’ that enters through the eyes of the tubers.

~ DR. RICK PETERS

Brunswick in 2005 and also in Maine and North Dakota. Not until 2012, did this phenomenon reach Prince Edward Island.

Industry rallied including Syngenta, Ridomil’s manufacturer and grower groups from PEI, Manitoba and Alberta to fund broader research. Samples were taken across Canada in 2013 and 2014, confirming levels of 50 per cent resistance in Ontario and provinces east. Only a few isolated cases of resistance were identified in Manitoba and Alberta.

Peters recommends that a national survey on the incidence of Ridomil resistance in pathogen populations be

continued. Data for individual farms can provide the basis for pink rot management decisions. More research into alternative disease control strategies is required. Phospites may play a more important role in the management of pink rot if Ridomil resistance becomes more widespread. Other in-furrow treatments to manage pink rot in daughter tubers appear promising.

To date, products such as Confine Extra, Rampart and Phostrol have been applied to foliage with good results for disease suppression. Their positive environmental profile is also good news in this story, says Peters.



Impact of neonics on bees has been significantly overstated

PIERRE PETELLE

Two reports from the Pest Management Regulatory Agency (PMRA) provide some very important perspective on the hotly debated topic of a certain type of pesticide – neonicotinoids.

The PMRA recently released two draft reports – an interim re-evaluation of a specific

neonicotinoid, imidacloprid, and a value assessment of all neonicotinoid seed treatments for corn and soybeans. The major takeaway from these two reports: the concerns regarding the impact of neonics on bees have been significantly overstated and these tools provide real value for Canadian farmers.

Over the last several years neonics have been the subject of intense scrutiny from media,

activists and some governments. While many have tried to associate bee health challenges with farmers’ use of neonics, it’s becoming increasingly clear that neonics are important tools for farmers and can be used safely without compromising bee health.

The horticulture industry has demonstrated quite clearly that it can effectively use pesticides, including neonics, without harming pollinators. The horticulture sector and beekeeping industries are partners in success. Beekeepers depend on flowering crops for sources of pollen and nectar, and they also benefit from providing pollination services. Growers whose crops require pollination very much depend on bees.

If we look at the most recent reports from PMRA in conjunction with the latest Statistics Canada numbers on the national beekeeping industry, which show that colony numbers in Canada are at a new high, we’ve got a pretty positive story to tell about Canadian agriculture. Our farmers are safely and responsibly using innovations like neonics to sustainably produce food for Canadians and those around the world.

PMRA’s re-evaluation of imidacloprid specifically reveals that this neonic does not pose a risk to bees when used as a seed treatment or foliar spray when label directions are followed.



Photo by David Bianchi.

This is in stark contrast to the claims by some groups that neonic seed treatments are devastating bee populations. In fact, the government of Ontario has justified its restrictions on farmers’ use of neonic seed treatments by pointing to bee health protection as the rationale.

There’s an apparent disregard for agriculture by the Ontario government and this is a worrying trend. This latest scientific information now also needs to be considered by the Quebec government as it embarks on its regulatory process to ensure that policies are not disadvantaging farmers while providing no benefit to pollinator health.

The draft value assessment from PMRA clearly states that

these tools provide real value for farmers and that they are an important part of crop production.

When it comes to the safety and importance of tools like neonics, science is clearly on the side of agriculture. However, as is becoming increasingly evident, science itself is not enough. Whether it’s industry or growers, we all have a role to play in helping educate the public and decision makers about what farmers do and why they do it.

With so few people connected directly to agriculture anymore, those in the agriculture industry need to loudly and proudly tell their story before someone else tells it for us.

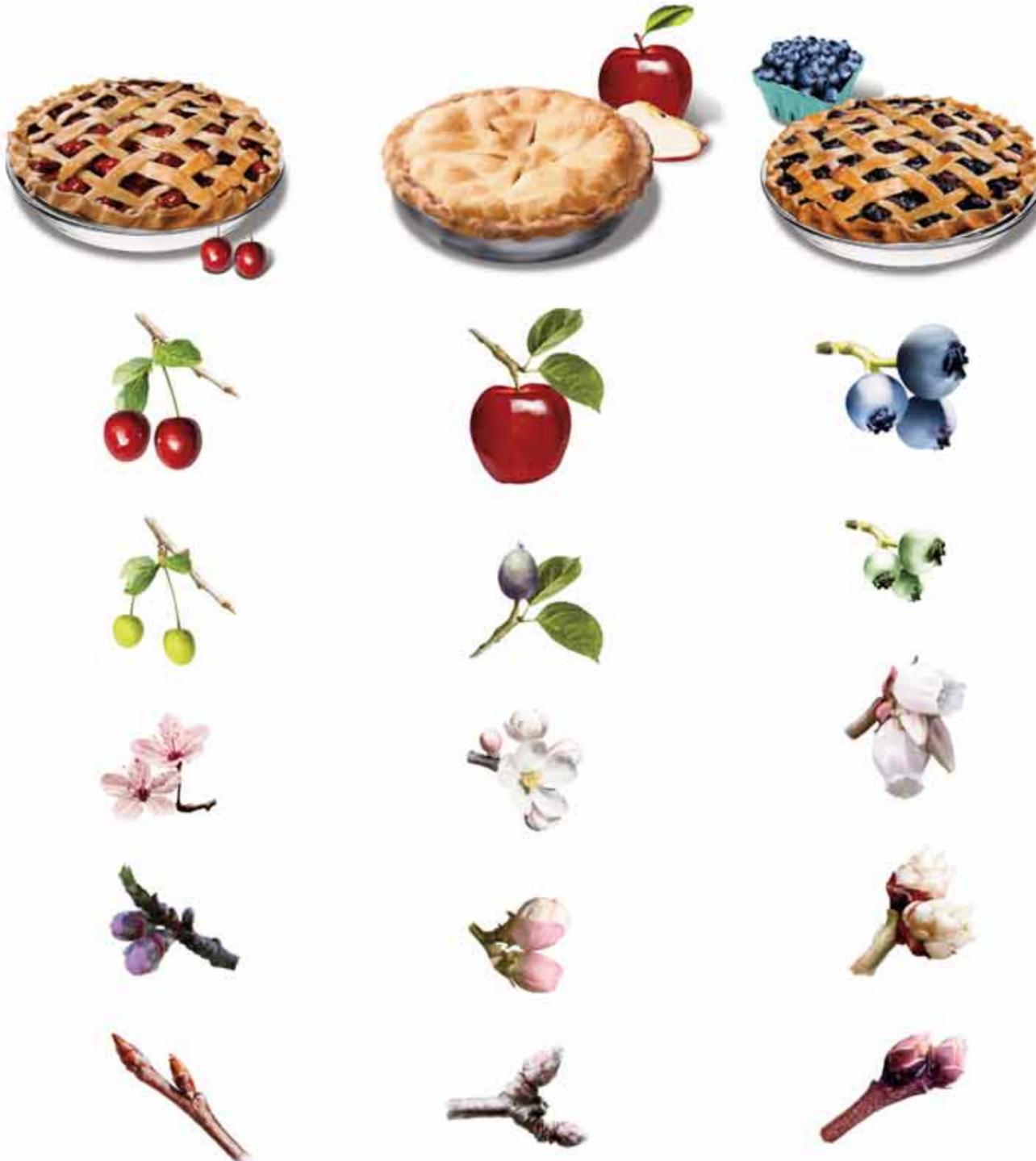
Pierre Petelle is vice-president of chemistry, CropLife Canada.

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CROP PROTECTION

New Sercadis fungicide offers growers more flexibility

BASF Canada Inc. (BASF) has been granted registration for Sercadis fungicide for control of many key diseases in a wide array of horticultural crops.

“We believe Canadian horticulture growers will quickly come to appreciate Sercadis not only for its highly systemic activity and excellent disease control, but also for its flexibility in building a customized program for their farm,” says Scott Hodgins, brand manager for horticultural products with BASF Canada. Sercadis is a next generation Group 7 fungicide for fruit and vegetable growers. The active

ingredient in Sercadis is fluxapyroxad, with the global active ingredient trade name Xemium. The excellent disease control of Sercadis is enhanced with its highly systemic nature, allowing it to protect the crop as it grows. In extensive Canadian and international research and field-scale evaluations, Sercadis has demonstrated excellent tank-mix flexibility.

For 2016, BASF will focus Sercadis on:

- Pome fruit: control of apple and pear scab, powdery mildew
- Potatoes: control of early blight and white mould (foliar); rhizoctonia canker

(in-furrow)

• Onions (bulb vegetable group): control of botrytis leaf blight, purple blotch and leaf blight; suppression of stem-phyllium leaf blight and stalk rot. Sercadis is also registered in berry, brassica, brassica leafy vegetable, carrot, cucurbit, fruiting vegetables, grape, leafy vegetable, stone fruit and strawberry crops.

For more information on Sercadis, please visit AgSolutions.ca.

Source: BASF news release



Apple scab



Pear scab

Stop disease, control spores with liquid Forum

BASF Canada Inc. (BASF) has been granted registration for Forum fungicide for control of late blight and downy mildew in horticultural crops.

The highly-systemic, anti-sporulant activity of liquid Forum stops the spread of late blight and downy mildew while also preventing new infections. When used in potatoes prior to

harvest, Forum will also reduce storage rots.

“BASF is really pleased to be bringing Forum to Canadian growers. We believe that its ability to stop the spread of late blight or downy mildew will make it an invaluable tool for our customers,” commented Scott Hodgins, BASF horticultural product brand

manager.

The active ingredient in Forum is dimethomorph, a Group 40 fungicide. It should always be tank mixed with another fungicide, such as a protectant registered for control of late blight or downy mildew.

For more information on Forum, please visit AgSolutions.ca.

Check out our video interview ‘What’s new at BASF’ with Scott Hodgins, horticultural brand manager at thegrower.org

Niagara Tender Fruit Tree Replanting Cost Share Program

Application Deadline: 11:59 pm, March 31st, 2016

Grants are based on a 25 per cent cost-share, up to \$5,000 per grower. Eligible trees include peaches, plums, apricots, nectarines, tart cherries, and fire blight-resistant pear varieties grown for the fresh market. Launched through a partnership between the Friends of the Greenbelt Foundation and Ontario Tender Fruit Growers, this pilot program will support the tender fruit industry, helping it grow and succeed.

For more information and to apply, please visit www.ontariotenderfruit.ca. Click “FOR GROWERS” in the top right corner and log in using your Grower Number. Alternatively, contact Sarah Marshall at the Ontario Tender Fruit Growers at (905) 688-0990 ext. 232.



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CROP PROTECTION

Researchers explore the origins of globally invasive wild parsnip

Wild parsnip, though, is considered a globally invasive weed – crowding out native species and producing a sap that can trigger painful rashes.

Parsnips are native to Eurasia and have been cultivated as a food crop globally for more than five centuries. Wild parsnip, though, is considered a globally invasive weed – crowding out native species and producing a sap that can trigger painful rashes. A new study featured in the journal *Invasive Plant Science and Management* indicates that invasive wild parsnip (*Pastinaca sativa*) is genetically a lot closer to its vegetable cousin than previously thought.

To inform more effective management strategies, a team from the University of Illinois set out to determine whether invasive wild parsnip originated from escaped parsnip crops or from the accidental introduction of a wild subspecies from Eurasia as a consequence of international travel and trade.

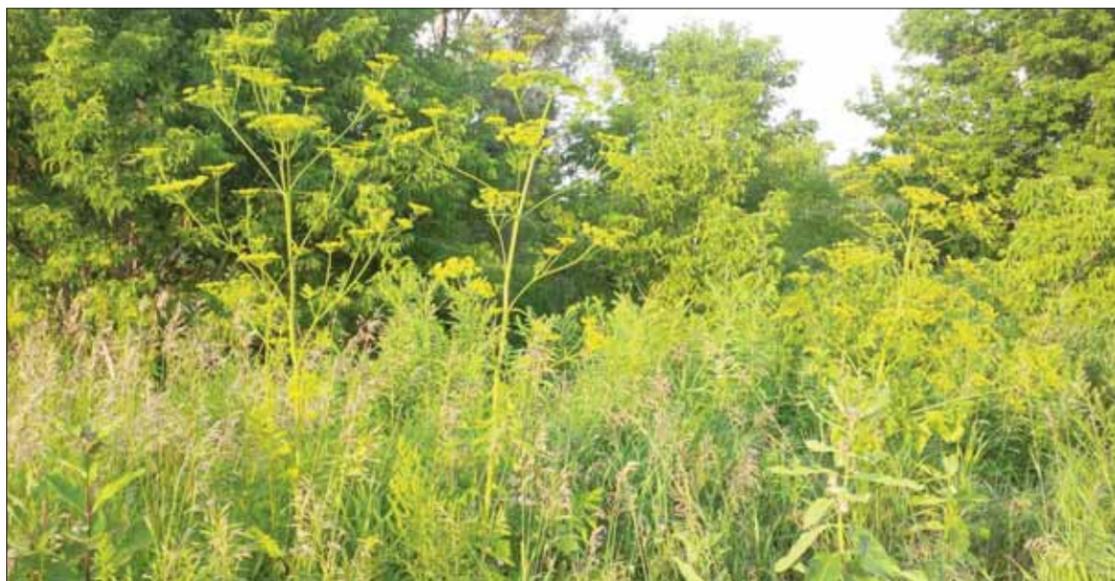
Researchers collected and analyzed genetic markers from wild parsnip growing in its native range in Europe. They did the same with wild parsnip in regions of North America and New Zealand where it is considered invasive. They also examined domesticated parsnip cultivars from the same regions.

The data showed that cultivated parsnip and wild parsnip are not genetically distinct. Instead, both share the same genetic variants. This stands in stark contrast to carrots, for example, where wild and cultivated varieties exhibit significant genetic differences.

“With no genetic differentiation, it is difficult to determine with certainty whether wild parsnips escaped cultivation or whether they were recently bred from wild strains,” says Tania Jogesh, Ph.D., lead author of the study and now a postdoctoral researcher at the Chicago Botanical Garden.

One possible clue, though, is the high level of genetic diversity researchers found within the wild parsnip plants in each of the regions studied. Scientists say this diversity might be attributable to multiple introductions of seeds that were accidentally transported over long distances by humans.

Source: Invasive Plant Science and Management news release



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MINOR USE



In support of PMRA



CRAIG HUNTER
OFVGA

met and talked with the U.S. EPA, the NAFTA TWG, CropLife Canada, and major agricultural commodity groups, a very different set of information, and a very different 'interpretation' of PMRA actions would have ensued.

Perhaps such a review of said Environmental Commissioner would reveal who in fact he/she DID consult during this 'review.' If the tables get turned, maybe they would show a bit more responsibility to the public at large.

I will get into just a few of the items addressed in the report. The EC was critical of 'conditional' registrations. What was NOT said was that the conditional data being asked for was only supplemental, and not pivotal to making a registration decision. It may have been a new data need that arose after the initial submission had been made, that ALL registered actives would also need to produce. (The PMRA may request a data call-in at any time after initial registration on any/all actives). It may have been an additional confirmatory study that may take two or three years from onset to final data report, but would not change the basic decision to register the active. Only because this was the original submission for the active does this category 'conditional' come into play. For all the other ~680+ actives, a new data request is 'normal business.' The only issue is that the new 45-day public comment period for new registered actives has been delayed until the condition has been met. The elimination of conditional registration status will simply put the comments period in place after registration based on all the critical data, and then a subsequent request for additional non-pivotal data. Merely a slight change. Not the portrayed 'backdoor' approach inferred in the critique.

Another criticism was that

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Another criticism was that the reviews were not taking into account the desired 'cumulative' risk factors.

the reviews were not taking into account the desired 'cumulative' risk factors. This term was coined in the U.S. EPA Food Quality Protection Act (FQPA) in 1996. It was a 'desired' outcome of their re-evaluation of all pesticides. It was NOT well defined, nor were specific means to conduct such an evaluation available then. Twenty years later the EPA is not much closer. Why then did the EC take PMRA to task on this (unless directed by someone to do so?) In fact, PMRA works closely with EPA on many science matters including this one. Only when satisfactory approaches are developed should either agency jump into this new area of review. Notwithstanding, the old adage that there is never enough time to do it right, but it can always be done again would seem to apply to the EC demand on cumulative risk assessment! If the EC had dug deeper, he/she would find that no one is doing this type of evaluation!

I am particularly disgusted by the repeated insinuation that PMRA just kept registrations of certain old actives even though they posed serious health risks. Did they not peruse the changes made to labels, personal protective equipment requirements, pre-harvest interval times, re-entry interval times, the rates, and the limitation of crops labelled to mitigate those concerns? Did they not read ALL the documentation that went into those decisions? Did they not read the preamble to the Pest Control Products Act that

directs the PMRA to consider the effects of registration on commercial agriculture productivity/competitiveness? Did they even look at the public registry to see if in fact ANY incidents were reported about these actives during such times? In fact, what DID they consider here? Who played bogeyman for them?

I highly doubt it was considered without 'prompting'! It would seem that there was a witch hunt mentality at work here and not an impartial review of all the facts.

It is also to be noted that there was no mention of the conditions that PMRA was working under all the while. Due to a clause 'slipped into' the current Act (that we were unsuccessful in having stricken) the PMRA became the only national pesticide regulatory agency Worldwide that has to act based on what another foreign nation decides to do! As a result, they had to simultaneously juggle all current workload while doing 23 Special Reviews. (In spite of an appeal that these had very recently been re-evaluated, the court demanded they be done again to meet the letter if not the intent of that clause.) The staff time and expertise were (in my opinion) wasted on these while (more) important work (for Canadians) had to be delayed. It was no surprise to me that as a result, several pending re-evaluations were late in meeting deadlines. Nonetheless PMRA was roundly castigated for this as well!

All of this when several key

senior staff were retiring, off on language training, and staffing at a low ebb! It is a wonder how the PMRA kept up so well, and yet has to waste even more time to answer such shallow criticisms.

The answer is to give them the room to operate. Wouldn't it be novel to fund them with full A-base money and staffing from Health Canada, so as to not need to rely on patchwork money from others such as AAFC. Their request to keep cost recovery funds over and above current A-base has not yet been answered, yet they appear to be made 'fair game' and hung out to the attacks of other departments. Is there any truth to the rumour that Environment Canada has always lusted to control pesticides regulation? When agreement was struck to move pesticides out of agriculture, it went to Health because no one wanted it in Environment for fear of their directions and who had inside influence there. Nothing has changed, it seems to me! Is this the true motivation behind the report?

When will Health Canada stand up for PMRA?

This critical 'review' needs to be rebutted from all sides. If not, and if the EC gains any credibility, much more is at risk.

PMRA has come a long, long way and now is the time to show support for what they do (and do well) and shield them from the slings and arrows of those with different goals.

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CROP PROTECTION

Double Nickel biofungicide now available

Double Nickel biofungicide is now available for use by Canadian growers of fruiting and leafy vegetables, potatoes, grapes, strawberries, tree fruit and other crops. Double Nickel represents a new generation of fungicides and bactericides that have biologically based active ingredients, are of low risk to the environment and are sustainable crop protection solutions. Manufactured by Certis USA, Double Nickel is registered for use in five countries, including the U.S. where it has been used by American growers for more than two years.

Double Nickel is a naturally occurring strain (D747) of the beneficial *rhizobacterium Bacillus amyloliquefaciens*. *B. amyloliquefaciens* rapidly colonizes roots, leaves and other plant surfaces to prevent establishment of disease-causing fungi and bacteria, such as powdery mildew, Botrytis, bacterial disorders, damping off, and root and crown diseases, such as *Pythium*, *Rhizoctonia*, *Fusarium* and *Sclerotinia*.

Double Nickel uses multiple non-toxic modes of action to control and suppress diseases. 1) Its metabolites kill fungal pathogens by damaging cell membranes. 2) The metabolites control bacterial pathogens by disrupting cell walls. 3) Double Nickel triggers a SAR/ISR response from the plant prompting it to defend itself against pathogens. 4) Double Nickel prevents infection from pathogens through competitive exclusion. These multiple modes of action make the FRAC 44 biofungicide highly effective in the field. It also makes Double Nickel a valuable tool for the management of resistance to chemical fungicides and for use in Integrated Pest Management (IPM) programs.

Sustainability is a key feature of Double Nickel. It is of low risk to bees and beneficials. It has a four-hour re-entry, can be applied up to and including the day of harvest, at low use rates. Double Nickel is residue exempt, so there are no minimum residue level (MRL) issues limiting the export of treated crops.

The biofungicide is available as Double Nickel 55 WDG and in a liquid concentrate (LC) formulation. Double Nickel 55 leaves no visible residue on the crop.

Double Nickel 55 WDG and Double Nickel LC will be distributed exclusively by UAP Canada.



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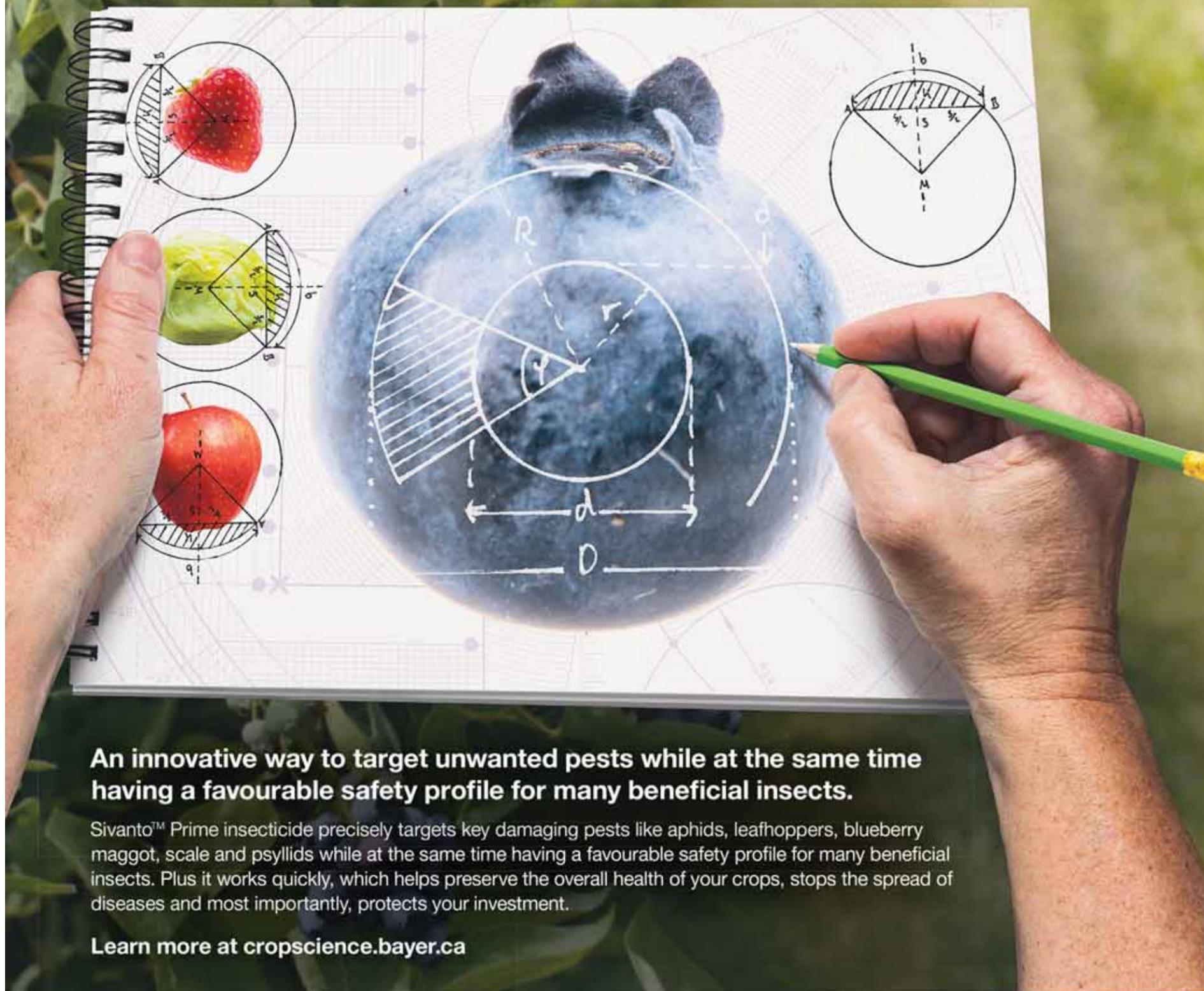
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Source: UAP news release



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