

## SOIL FERTILITY

# Dig deeper for fertilizer prescriptions by plot



By early May, all the inputs are in place for a new crop of asparagus. Like many perennials, asparagus needs long-term planning for soil fertility that will support high yields for a life cycle of 10 to 15 years. Access to variable rate technology to apply fertilizers is changing how growers think about their soils and managing them for more uniform yields. Mike Kungl, St. Williams, Ontario, is one such example. When he scratches down into the earth, he commonly finds earthworms: nature's tilers. Photos by Glenn Lawson.

KAREN DAVIDSON

From a geological perspective, the soils in the sandy plains of southwestern Ontario are young. Mike Kungl plans to make the most of his lucky inheritance after almost 40 years of growing asparagus near St. Williams, Ontario.

"The old-timers used to say there was a kilometer of feeder roots if you dug up an asparagus crown," says Kungl. "Asparagus has a massive root system, when you take the feeder hairs into account."

When planted in rows, four feet apart, asparagus roots can be found stretching across the underground aisle, tangled together. To support that web of life takes long-range planning. In the two to three years before planting asparagus plugs, Kungl soil samples more intensively than most. He takes a soil sample for every acre, and certainly for every different soil zone in the intended field.

"Growers are taking soil fertility more seriously," says Kungl. "My soil textures are variable, from sharp sand to sandy loam."

That willingness for a fertilizer prescription by plot comes from the fact that GPS allows growers to manage fields in a more targeted way. The technology allows finetuning of nutrients by zone. Kungl says that soils tend to be acidic, so it's best to have a neutral pH of 7. One ton of lime per acre achieves this target. Next, potash is important for the rapid cell development that takes place in asparagus stalks. For asparagus growers, there's only one chance to add phosphorus to make a strong root system, and that's when planting the plugs for the bed that's going to produce 6000 - 8000 pounds per acre for the next 10 to 15 years.

Phosphorus is a hot topic in agriculture. In general, phosphorus is available in soluble, partially stable and stable forms. Plants have access to the available soluble portion. However, this soluble portion can also be removed from the field whenever there is water

movement due to rain or snow melting, either on the surface or through tile drainage systems. That's why cover crops are recommended to keep soil – and water—in place.

Not to be forgotten is the touchstone of soil health: organic matter. While manure can be used, Kungl prefers mushroom compost from a Leamington plant. His observation is that the heat-treated compost results in a weed-free and heavy metal-free amendment to the soil. This compost is applied a year or two before planting and can also be applied again at the end of June harvest.

This attention to detail, well in advance of planting asparagus, results in more consistent yields over the life cycle of the crop. To stabilize the long-term yield curves of 50 acres of asparagus, Kungl is always taking five or six acres of the older, spent plots out of production and planting new ones.

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Storage, containers & packaging PG16

## AT PRESS TIME...

### FMC buys insecticides

On March 31, DuPont announced it would divest a portion of its crop protection business, including some research and development capabilities, to FMC Agricultural Solutions (FMC). The transaction satisfies DuPont's commitments to the European Commission in connection with its merger with Dow.

Under the terms of the agreement, FMC will acquire DuPont's cereal broadleaf herbicides and chewing insecticides portfolios – including the active ingredients of rynaxypyr, cyazypyr and indoxacarb. In the horticultural realm, growers will know these active ingredients under the brand names of Coragen and Altacor (rynaxypyr) and Exirel and Verimark, (cyazypyr). Patents do not expire for rynaxypyr until 2022 and cyazypyr's in 2024.

In addition, FMC will acquire the DuPont Crop Protection research and development pipeline and organization, excluding seed treatment, nematicides, and late-stage R&D programs, which DuPont will continue to develop and bring to market.

FMC Agricultural Solutions, based in Philadelphia, is poised to play a larger role in crop protection according to *CropLife Magazine*. In an interview published April 13, Mark Douglas, president, FMC, explained that the nine active ingredients in FMC's current pipeline are late-stage, however the company is

acquiring 15 active ingredients from DuPont – nearly all at early-stage development. Most are herbicides or fungicides. He is also excited about acquiring DuPont's library of 1.8 million compounds.

To date, FMC has been investing under six per cent of annual revenue on R & D, but expects to increase research capacity to more than eight per cent. That would equal about \$300 million annually.

This is not the only savvy acquisition that FMC has made in recent years. It bought Cheminova for \$1.8 billion in 2015, providing access to key countries in Europe as well as more penetration in India, Australia and Latin America.

Ag retailers are responding positively to DuPont's divestiture to FMC on the promise of more R & D in chemistry, as opposed to an emphasis on seed traits.

Source: *DuPont March 31, 2017 news release*

### U of G's \$20M revolution

The University of Guelph has received its single largest-ever gift: a \$20 million donation from the Arrell Family Foundation to transform the global food economy and further strengthen U of G and Canada as agri-food leaders.

"This landmark gift will allow our University to address the defining challenge of our time: food security, safety and sustainability," said U of G president Franco Vaccarino.

U of G is the No. 1 agri-food school in Canada, with a 150-year history in agriculture and a global reputation for excellence," Vaccarino said. "We are uniquely positioned to make a difference."

"The Arrell family has shown incredible generosity and foresight in making this gift, and we are grateful to them for their faith in our agri-food prowess."

The donation will create the Arrell Food Institute at U of G. The University will provide matching funds of \$20 million, for a total commitment of \$40 million. Along with recent government and private funding – including a \$77 million award from the Canada First Research Excellence Fund for the Food from Thought project – this new gift brings the total investment in agri-food at U of G to more than \$150 million in the past 12 months.

"The Arrell Food Institute will influence research, policy, practice and behaviour. It's a bold initiative, and its impacts extend nationally and globally," said Tony Arrell, a U of G alumnus and chair and CEO of Burgundy Asset Management in Toronto.

The new funding will support new research chairs and scholars, international food innovation awards and a prestigious annual conference.

"This gift will help U of G and Canada to lead the agri-food revolution," said Prof. Evan Fraser, director of the Arrell Food Institute and holder of the Canada Research Chair in Global Food Security.

## NEWSMAKERS

Congratulations to **Paul Bosc Sr.**, recently presented with the Award of Merit by the Grape Growers of Ontario. After graduating with wine degrees from Burgundy, he immigrated from France to Ontario's Niagara peninsula and in 1976, founded Chateau des Charmes with vinifera grape varieties. The Bosc family now farms 280 acres in four locations all within the St David's Bench and Four Mile Creek sub-appellations.



Paul Bosc Sr., photo courtesy GGO/Denis Cahill.

The Canadian government has appointed **Steve Verheul** as the chief trade negotiator for NAFTA talks with Washington. Since 2009, he's been Canada's point man on the negotiations with the EU on the Comprehensive Economic Trade Agreement (CETA).



Prior to that, he worked in international trade policy at Agriculture and Agri-Food Canada from 1989 to 2009, where he worked on NAFTA negotiations, the Uruguay Round of Multilateral Trade Negotiations that led to the World Trade Organization (WTO) and the Doha Round of WTO negotiations. He was Canada's Chief Agriculture Negotiator from 2003 to 2009, responsible for leading Canada's involvement in international trade negotiations on agriculture, including the WTO.

Garlic Growers of Ontario have elected a new board of directors for 2017. Congratulations to **Joann Chechalk**, president; **Peter McClusky**, first vice-president; **Steve Droog**, second vice-president; **Dan Hemstock**, treasurer; **Norman de Groot**, secretary; **Mark Wales**, past-president. Directors include: **Bob Romaniuk, Paul Smith, Dean VanRaay, Janice Wright**.

The British Columbia Cherry Growers have elected their 2017 board. **Sukhpaul Bal** remains president, **David Geen** is vice-president and **Graem Nelson** is secretary. Directors are: **Andre Bailey, Bryan Key, Chris Danninger, Erin Carlson, Ravi Dhaliwal, Niel Dendy, Neal Van der Helm**. "As for market access, we are hoping to hear back from Japan if we will soon be able to do some trial shipments in the near future," says Sukhpaul Bal. "South Korea also remains high on our list for market access."

Brock University's Cool Climate Oenology and Viticulture Institute (CCOVI) organizes the annual Cuvée celebration of Ontario VQA wines. As part of this year's event, the prestigious Cuvée Vineyard of Excellence Award went to **Gerald Klose**, whose Niagara-on-the-Lake, Ontario vineyard has some of Ontario's oldest vines. Sponsored by BASF Canada Inc., the award recognizes a grape grower who promotes excellence in vineyard practices.

The Ontario Hazelnut Association confirmed its 2017 board of directors at a recent annual meeting. They are: **Linda Grimo**, chair; **Martin Hodgson**, vice-chair; **Les High**, secretary; **Scott Deslippe**, treasurer. Directors include: **Mark Brown, Nathan Crocker, Gordon Chinnick, Dave Ferguson, Adam Koziol, Toktam Taghavi, Ivan Tamminga, Randy Wilson, Barb Yates**.

The BC Strawberry Growers' Association has announced its 2017 roster of directors. **Ed McKim**, president; **Alf Krause**, vice-president; directors **Dave Khakh, Jeff Husband, Mike Lepp, Steve Neufeld, Bob Shoker**.

The BC Raspberry Industry Development Council's 2017 board of directors includes: **Arvin Neger**, chair; **Mark Van Klei**, vice-chair; **Paul Sidhu**, treasurer; directors **James Bergen, Terry Gill, Jack Braich**. BC Raspberry Growers' Association president is **Sukh Kahlon** and **Mark Adams** is the packer/processor representative.

Farm and Food Care Ontario has elected its 2017-2018 board of directors. The newly elected executive is: **Brian Gilroy**, chair; **Christine Schoonderwoerd**, vice-chair; **Jim Gowland**, treasurer; **Sandi Brock**, secretary; **John Maaskant**, past-chair.



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COVER STORY

# Dig deeper for fertilizer prescriptions by plot

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Asparagus growers aren't the only ones thinking about fertilizer in a fresh way. Apple grower Doug Balsillie, Harrow, Ontario believes that "luxury amounts" of fertilizer have been applied in the past with no economic benefit. So what do asparagus and apples have in common? Both crops are perennials requiring long-term planning for establishment. Hundreds of acres of new high-density orchards are now being planted, with only one chance to get the fertility right.

Balsillie points to recent research in both cherries and apples that trees are drawing on nitrogen in their buds from nitrogen applications the previous fall. Surprising? By dissolving urea fertilizer in his spray tank and applying in the fall, Balsillie achieves the additional benefit of breaking down any remaining tree leaves that might harbour apple scab over the winter.

This ecosystem approach has not gone unnoticed by vegetable growers. Those who are growing sweet corn, peppers or field tomatoes are preparing

the land well in advance of next year's crop.

"Growers are being rewarded," says Paul van den Borre, precision farming specialist, Scotland Agromart. "We're noticing that those who have gone into longer term production – both organic and mainstream -- are taking more time to prepare their soil beds and the crops have never looked better. We're offering soil amendments such as turkey compost which is applied exactly where it's needed."

These growers of annual crops may be looking enviously across the fence at their neighbours growing grains and oilseeds. Here's where 'Big Data' from GPS is making a difference. The ability to track field inputs by grids or zones can be matched to yields.

"Horticulture is not there yet," says Van den Borre, "because we're growing intensively in smaller acres and the harvests are for the most part still by hand."

What's missing is the ability to compare yields with inputs such as fertilizers. No doubt, this will be one of the next advancements in horticulture.



Mike Kungl prepares asparagus plugs to refresh several acres every two years, while retiring older stands. It takes three years for a new stand to produce.

“

Growers are taking soil fertility more seriously. My soil textures are variable, from sharp sand to sandy loam.

~MIKE KUNGL

”

## INTERNATIONAL

### GLOBAL

#### The U.S. economy dominates



The above graphic is compelling in terms of the United States generating almost 25 per cent of the global GDP. The red block also highlights the relative capacities of Canada and Mexico. Just as interesting, look to the continent of Asia and particularly the growing heft of China which produces almost 15 per cent of global GDP.

Source: FreshPlaza.com

### PERU

#### Peruvian companies quit China



The Peruvian Chamber of China Commerce notes that many Peruvian companies have abandoned the Chinese market, despite a free trade agreement that came into effect in 2010.

Only 27 of the 73 companies that started exporting to China in 2010 are still in that market in 2016 says Miguel Galvez Escobar, chamber director. "Maybe they couldn't consolidate their business relationships because many employers sold their products at a distance and were not present at the time of the arrival of their first order. Therefore, they couldn't shake hands personally with the customer, which is one of many very important cultural aspects in doing business with China," Escobar said.

Source: FreshPlaza.com

### SOUTH CAROLINA

#### Peach crop frost-bitten



A March freeze has destroyed nearly 90 per cent of the peach crop in Arkansas and South Carolina. Unusually warm February temperatures prodded the peaches into early bloom, which were then devastated by a March 18 frost, reported the *Charlotte Observer*. The peach crop is worth about \$90 million.

"Peaches are a signature crop in South Carolina and this weather anomaly has devastated peach farmers," said Hugh Weathers, South Carolina commissioner of agriculture. "However, as South Carolina farmers have shown again and again, they are resilient and with the help of allied industry partners, they will survive this devastating blow."

Source: FreshPlaza.com

### UNITED STATES

#### Frozen blueberries a hit



The U.S. Highbush Blueberry Council has identified retail and commercial food-service as business audiences with the most potential to drive blueberry volume. Among the top fruits, including bananas, strawberries, apples, grapes and citrus, blueberries are the only one expected to increase consumption numbers in 2017. Strategy is important going forward because blueberry production has increased so much. North America's crop grew from 193 million pounds in 1995 to 750.2 million pounds in 2015.

The Blueberry Council's campaign will end in early May. Frozen blueberry volume sales increased seven per cent between 2015 and 2016.

Source: U.S. Highbush Blueberry Council

CROSS COUNTRY DIGEST

ALBERTA

# Video explains irrigation in the Oldman River watershed

Southern Alberta's history and geography are aptly illustrated in a video series produced by the Oldman Watershed Council (OWC) in collaboration with Potato Growers of Alberta (PGA). A three-part video series talks about the use of water in producing potatoes along with a range of rotation crops that add organic matter to the soil.

The Oldman River flows west to east from the Rocky Mountains through the communities of Fort Macleod, Lethbridge and on to Grassy Lake. That's where it meets up with the Bow River to form the South Saskatchewan River which eventually drains into Hudson Bay.

"The potato industry is one of the largest agricultural users



of water in the Oldman Watershed but we are also one of the most efficient users of water," writes Terence Hochstein, PGA executive director in a March newsletter. "The irrigation industry as a whole was one of very few industries that met the GOA –

Water for Life Strategy – 2003 initiative that called for a 30 per cent improvement in water conservation, efficiency and productivity from 2005 to 2015."

Over time, Hochstein has been shocked at how the potato industry has been "villainized and victimized" about its use of

water.

"We hope that the opportunity to produce these videos and share them with the general public will start the conversation about what we do," says Hochstein. "The questions and comments may not all be positive but at least

we can have the conversation."

Check out these educational videos by going to: [www.youtube.com/watch?v=faC VLpoERto](http://www.youtube.com/watch?v=faC VLpoERto)

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## CROSS COUNTRY DIGEST

## NOVA SCOTIA

## Pazazz apple named President's Choice by Loblaw

Loblaw, Canada's largest food retailer has recognized the Pazazz Apple from HoneybearBrands with its top honour – selection as a President's Choice product. A mark of distinction for more than 30 years, President's Choice status is only bestowed on produce and other food items that demonstrate truly exceptional quality, taste and great value to customers.

Grown locally in Canada by Van Meekeren Farms near Lakeville, Nova Scotia, Pazazz is a premium winter apple variety and has been in development in conjunction with Honeybear Brands for more than nine years. A descendent of the crowd-pleasing Honeycrisp, Pazazz has a unique blend of sweet and tart flavours and explosive crunch that has

attracted a loyal following of customers in just a few short years on the market. "Each year there are literally hundreds of candidates for President's Choice status," says Mark Boudreau, Director, Corporate Affairs, Loblaw Atlantic. "We consider each very carefully for perfect taste, appearance, premium quality and a uniqueness they offer to our Loblaw customers. Pazazz scored highly across the board and was an easy selection for us to make."

Available now, Pazazz will be sold in 2lb special President's Choice branded bags in select Loblaw stores while supplies last.

"This is a huge honour and we're very excited," says Michael Van Meekeren, co-owner, Van Meekeren Farms. "Pazazz

**Pazazz**  
Wow Right Now!



is a young variety compared to many available today and because it's a winter variety that peaks in flavour in the winter months, it gives apple lovers something that is very difficult to get at this time of year – a premium apple variety with that just-picked freshness." Pazazz is harvested in late October but reaches the perfect balance of sweet and tart flavours during the winter months, arriving at Loblaw and other retailer shelves in early January each year. This season the variety has exceeded all retail goals and expectations.

The star of Honeybear Brands' varietal development Pazazz is also

grown in the United States including up and down the Mississippi River Valley in Minnesota and Wisconsin, as well as in Washington and New York. The variety is currently being tested with growing partners in the southern hemisphere to potentially increase Pazazz's in-season availability to retailers and their customers in Canada and the U.S.

For more information about Pazazz or Honeybear Brands visit [www.PazazzApple.com](http://www.PazazzApple.com) or [www.honeybearbrands.com](http://www.honeybearbrands.com).

*Source: Pazazz March 23, 2017 news release*

## QUEBEC

## Put your heart into fruits and vegetables

The Quebec Produce Marketing Association (QPMA) has launched its "I love 5 to 10 servings a day" campaign for 2017. For major impact, this year's campaign, produced by Gendron Communication, returns to television, and will air from April 10 to May 14 on various Radio-Canada channels, and simultaneously online.

Once again, the campaign is meant to remind consumers about the importance of eating more fruits and vegetables as part of a healthy lifestyle choice, and also about the amazing variety of ways that their benefits can be enjoyed.

For a second year, "Put your heart into it" will be the campaign signature, conveyed on four different visuals. In

the coming weeks, audiences can see 15-second spots, as well as integrated banner commercials during shows on the Radio-Canada main channel, as well as on various specialty channels such as RDI, Explora and ARTV. Viewers will discover or rediscover the colourful hearts of the campaign by following the popular tune "Les p'tits coeurs" by

Manuel Brault.

At the same time, the campaign will run online, appearing on various sites, including [lapresse.ca](http://lapresse.ca), [tou.tv](http://tou.tv), [ricardo.ca](http://ricardo.ca), and [telequebec.tv](http://telequebec.tv), and on social media through Facebook ads and videos. And by teaming up with Les Éditions Pratico-Pratique, the campaign will enjoy another window for extra visibility.

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## BRITISH COLUMBIA IN FOCUS

## B.C. targets \$15 billion in agrifood and seafood revenue by 2020

KAREN DAVIDSON

On May 9, British Columbia's election will be an important test of Premier Christy Clark's Liberal brand in the province. Her riding of Westside-Kelowna is next door to the agriculture minister's riding of Kelowna-Lake Country. Norm Letnick is well-known to the apple, stone fruit and grape industry of the Okanagan Valley as well as the berry, vegetable and greenhouse sectors of the Fraser Valley.

Whoever wins the election, the fact remains that British Columbia is poised for more success in horticulture. Overall, British Columbia's agri-food and seafood sector generated \$13 billion in revenue in 2015 and has targeted \$15 billion in revenue by 2020. Agriculture accounts for two per cent of the province's GDP.

Last fall, the BC Ministry of Agriculture and the BC Innovation Council hosted an Agritech Innovation Challenge which is looking at four key areas: improving berry competitiveness (mechanization), pest management and loss reduction; nutrient management; greenhouse efficiency. *The Grower* will be tracking progress in these core areas.

## Harnessing the power of artificial intelligence for greenhouse growers



Ecoation Innovation Solutions system at work in a floral greenhouse

**Plants don't lie about their own health.**

~ SABER MIRESMAILLI



Saber Miresmailli, a doctorate in plant science from the University of British Columbia, has been thinking about plant signaling for a long time. It wasn't a straight line. In fact, he's researched biofuel crops at the University of Illinois and worked as executive science officer for Sumatics LLC in New York. But in 2007, studying chemical ecology at the University of British Columbia, he was struck by the complexity of plants and their internal communication networks.

"Plants don't lie about their own health," he says. "There are a combination of changes inside a plant before the symptoms of stress are visible. It's similar to people catching a cold. There are physical changes before the signs of fever and a runny nose."

Miresmailli's 'aha' moment was imagining the benefits of detecting plant pests, diseases or deficiencies before visual symptoms such as leaf wilting or scarring occur. Over the years, he and his team have developed a radically new system that can predict crop health using the power of artificial intelligence software and a new sensor device that captures plant signals. Housed within a mobile platform that uses equipment and infrastructure commonly found in greenhouses, the sensors capture "plant signals" and communicate this data to the artificial intelligence system for processing. The artificial intelligence systems make predictions about crop health and the location of crop problems and send the results to a grower's desktop computer or smartphone. This is a step

ahead of capturing ambient temperatures or humidity levels that surround a plant.

His vision was the impetus for founding the company Ecoation Innovative Solutions Inc. in North Vancouver in 2010. Dr. Miresmailli realizes that growers know how to interpret plants with regular crop scouting. His system, however, extends the grower's presence in the greenhouse and covers a 10-acre phase every five days or less. The objective is to enhance crop value, reduce operating costs and increase IPM success.

"The earliest possible detection – and treatment -- of pests, diseases and deficiencies can prevent economic damage," he says. "This system measures the actual plant state rather than conditions around the plant. We also enable growers to digitize

and preserve their expert knowledge and legacy."

Field trials are underway with two BC greenhouse growers this spring to document efficacy and economic value, says Brian Kahnert, chief revenue officer. "We'll be ready to introduce this to a broader range of growers in July 2017, first in tomatoes and then in peppers."

Interestingly enough, work is already underway in floral greenhouses. Plant signaling is common across varieties. In fact, roses are very similar to tomatoes in their plant signals.

At this stage, Kahnert acknowledges that greenhouse growers are overwhelmed with technology and that another stand-alone system would not be welcomed within greenhouses. So partnerships are being explored with key

technology companies including greenhouse automation and enterprise resource program systems.

In mid-March 2017, Ecoation completed successful seed financing of \$1 million. Angel investors from North America and the European Union participated including investors from the Creative Destruction Lab and the Vancouver Angel Forum. These financial supporters are themselves entrepreneurs with highly successful company ventures in information technology, artificial intelligence, banking and agriculture who have validated the artificial intelligence (AI) technology and business plan.

It's a pivotal year for the company, commercializing the science. Like all entrepreneurs, the horizon beckons with the next innovation.

BRITISH COLUMBIA IN FOCUS

# What's new in irrigation monitoring technology

Our new sensor data transport technology has been validated by the Summerland Research and Development Centre, BC

~ RON HARTMAN

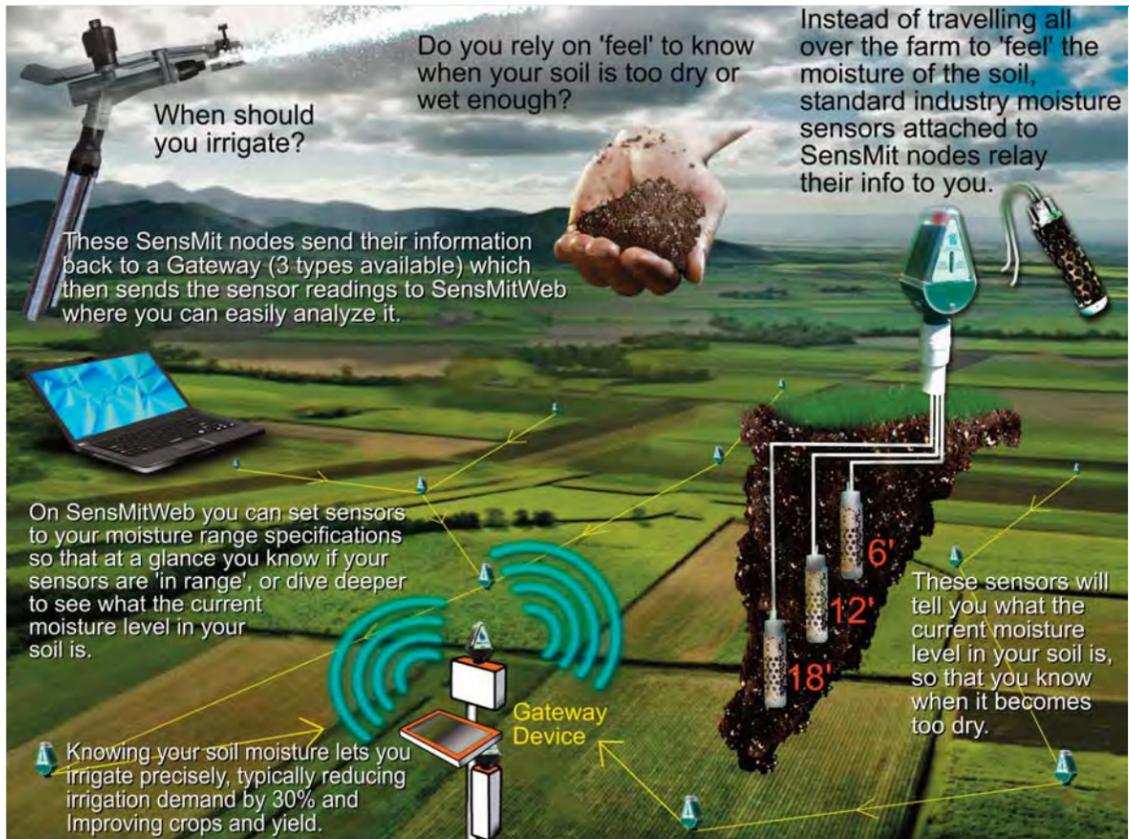
Technology is rapidly changing the stewardship of resources. BC-based iDUS Controls Ltd. is one such example in the remote sensing sector. Its product SensMit focuses on real-time farm information management, monitoring the application of correct amounts of water to reduce waste and negative environmental impacts while increasing yield and crop quality.

Until recently, such systems have been expensive and too difficult to deploy and maintain for farmers. This remote-sensing technology coupled with data aggregation focuses on soil moisture and growing conditions.

“Our new sensor data transport technology has been validated by the Summerland

Research and Development Centre, BC,” says Ron Hartman, president, iDUS Controls Ltd. “In addition to use in many American states, it is already deployed in a number of vineyards in British Columbia, including Sun Rock, Mission Hill, Quail’s Gate and Thomas Ranch.”

Developed in B.C., the SensMit Mesh consists of a series of radios (nodes) that are connected to soil moisture, temperature and tipping bucket sensors; a base station (to collect data from the nodes) and a cell modem (to send data to the Internet). Each radio node automatically relays its messages forward, enabling economical data collection over large areas. This patented technology has no batteries. Instead, the solar-powered



system functions well over extended periods of time. This creates an efficient meshing radio system to cover large tracts of land with reliability in all weather, light and night-time conditions.

The low-cost system is completely scalable says Hartman. It is easy to deploy for monitoring soil and environmental conditions through soil moisture sensors, a temperature

sensor and a tipping bucket to measure rainfall or sprinkler irrigation. It can also include multi-sensor suites. The application programming interface enables linking to farm management software while SensMitWeb allows data viewing at a glance.

The SensMit base unit and its family members identify each other automatically when units are activated within a

designated distance of each other. They then establish a unique secure communications dialogue, where the base unit either reports to a laptop or directly to the web. A local technology provider can start supplying via an open-source maker program. A complete system – including 24 soil moisture sensors -- costs about \$5,000 U.S. Web service is quoted at about \$600 per year.

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# The innovators focus on convenience and taste

The New Product Showcase is one of the highlights of every CPMA show. Don't miss these Canadian entries at the Metro Toronto Convention Centre.



## Carisma potatoes by EarthFresh

Canada's first low-glycemic response, all-purpose potato resulted from the company's partnership with potato breeder

Agrico and its focus on reducing sugars and increasing high dry matter. The science is based on blood glucose testing done on human subjects, says Stephanie Cutaia, marketing for

EarthFresh. The tests were done at the world-renowned Low Glycemic Response Labs by Dr. Thomas Wolever and his research team at the University of Toronto. For more informa-

tion, go to: <http://carismapotatoes.ca/about-carisma/why-is-carisma-unique/> When Health Canada approved the claim, the designation was introduced to Ontario retailers last year. EarthFresh is a proud supporter of Diabetes Canada.

The company describes the flavour of Carisma potatoes as melt-in-the-mouth and creamy.

that has great colour retention, and is great for roasting or barbecuing.

## Jumbo cherries by Consolidated Fruit Packers Ltd.

Not all good things come in small packages. These jumbo cherries are incredibly sweet and plump and are Just Picked from sunny orchards in the Okanagan Valley.

## BEES FOR POLLINATION



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**Sun Parlor Honey Ltd.**  
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## CANADIAN HORTICULTURAL COUNCIL

## PMRA process critiqued

The chair of the Canadian Parliamentary Standing Committee on Agriculture and Agri-Food, Pat Finnigan, recently wrote a letter to the Minister of Health, Hon. Jane Philpott, regarding the proposed re-evaluation of imidacloprid by the Pest Management Regulatory Agency (PMRA). In his letter, Mr. Finnigan expresses concerns over the lack of transparency in the PMRA's process, and that dialogue with stakeholders must be initiated earlier in the re-evaluation process, before a decision is published, to allow for scientific input and new data to be obtained. About the proposed re-evaluation itself, Mr. Finnigan notes:

"Farmers and pesticide registrants are afraid that discontinuing imidacloprid would force farmers to use greater quantities of ineffective pesticides, resulting in even greater environmental damage and possible harm to the applicator. It is in fact a concern that the environmental and health effects of a greater use of alternative products have not been weighed in the re-evaluation of imidacloprid.

The loss of the pesticide imidacloprid remains a great concern for the agriculture sector, and the Committee hopes that you will take our concerns into account in your decision concerning the re-evaluation of imidacloprid."

Mr. Finnigan's letter was based on public hearings that were held on March 7 and 9, 2017. Thank you to Dr. Justine Taylor, of Ontario Greenhouse Vegetable Growers, and Craig Hunter, of Ontario Fruit and Vegetable Growers' Association, for providing their valuable testimony. The Canadian Horticultural Council has since completed its grower survey on imidacloprid use and has submitted its report to the PMRA. The data collected serves to inform the PMRA of actual use patterns in support of a revised re-evaluation decision.

## Funding for food safety

The Honourable Lawrence MacAulay, minister of Agriculture and Agri-Food Canada, recently announced a contribution of \$1 million to support international bodies that develop standards for food

safety and plant and animal health.

The contribution of \$1 million is allocated to eight initiatives and projects as follows:

1. CAN \$325,000 to support accelerated delivery of scientific advice by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) by increasing meeting frequency and by providing a higher level of scientific support to the work of JMPR experts;
2. CAN \$80,000 to convene the Standards Committee (SC-25) meeting in May 2017, where the International Movement of Grains standard will be discussed;
3. CAN \$90,000 to organize one Expert Working Group (EWG) to advance work on an International Standard for Phytosanitary Measures on the authorization of entities to perform phytosanitary actions;
4. CAN \$180,000 to hire an OIE Technical Coordinator and Training Facilitator to develop and implement three regional seminars in 2017 (Asia,



Chair, Pat Finnigan

Americas and Middle East) on OIE standards relevant to the import and export of animals and animal products, the practice of import risk analysis, and the use of the standards in the process of status recognition;

5. CAN \$115,000 to organize one joint expert meeting of the Joint FAO/WHO Expert Meetings on Microbiological Risk Assessment (JEMRA) to enhance the availability of scientific advice on Shiga-toxin producing *E. coli* (STEC);

6. CAN \$100,000 to develop an IPPC-manual on pest free areas (PFAs) and areas of low pest prevalence (ALPPs);

7. CAN \$50,000 to support delivery of scientific advice by the Joint FAO/WHO Expert Meetings on Nutrition (JEMNU); and

8. CAN \$60,000 funding envelope be directed to the Codex Trust Fund Initiative to support the full and effective engagement of all countries in the Codex Alimentarius Commission.

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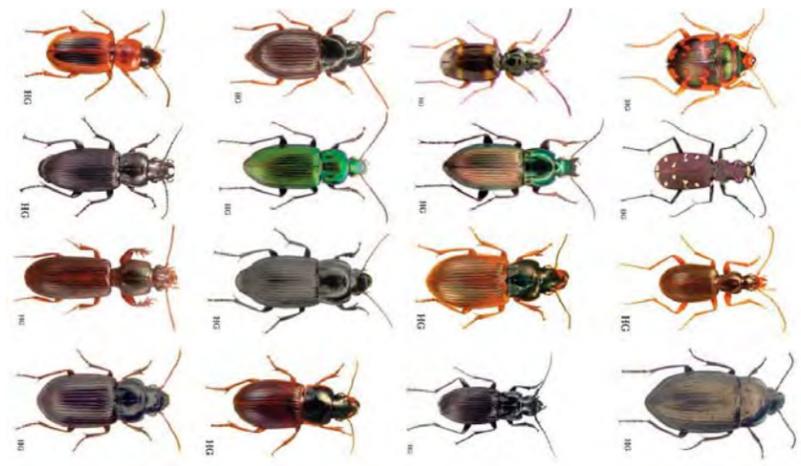
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66TH ANNUAL MUCK VEGETABLE GROWERS' CONFERENCE

# Natural enemies found effective against carrot rust fly



Larvae emerge in late May and cause tunneling damage in carrots, making them unmarketable.



Beetle diversity. Photo by Henri Goulet, Agriculture & Agri-Food Canada

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KAREN DAVIDSON

Carrot rust fly is an insect pest which causes sporadic damage to carrots in Ontario's Holland Marsh. The University of Guelph Muck Crops Research Station, reported about 10 per cent damage in test plots in 2016. But once present, the larvae emerge in late May and cause tunneling damage in carrots rendering them unmarketable.

In 2011, damage was severe in test plots at 19.3 per cent, prompting more research. In the trap counts conducted last year, a second generation of larvae emerged the end of July and peaked again in late August. While many insecticide controls have been investigated such as foliar applications, seed treatments and in-furrow applications, no treatments have been found to reduce carrot rust fly damage.

Jason Lemay and Zachariah Telfer, former M.Sc. students at the University of Guelph decided to survey for beneficial natural enemies of carrot insect pests and investigated whether current Integrated Pest Management (IPM) programs affected these natural enemies. In 2016, they were pleasantly surprised to find 36 species of ground beetles – rove beetles, hister beetles and others – several of which were natural enemies. In fact, they identified more than 3,000 individual natural enemies in 40 traps over the growing season.

"The species richness is driven by the naturalized areas in the marsh," says Lemay. "It appears the existing IPM programs for carrot rust fly and carrot weevil do not negatively affect the populations of natural enemies associated with these economically important insect pests."

With this positive finding, efforts are now underway to naturalize the enlarged canal berms as forage and shelter sites for natural enemies. If this can be done then increased populations of natural enemies should provide better control.

## 66TH ANNUAL MUCK VEGETABLE GROWERS' CONFERENCE

## Finding the right balance in sustainable pest management

KAREN DAVIDSON

As one of the most intensively farmed areas in Canada, the Holland Marsh is high-profile because a major highway dissects the district. Besides the public relations advantages of consumers seeing a lush “garden” of vegetables in dark muck soils, the Holland Marsh is also under scrutiny for its intensive farming practices.

What commuters may not see is that growers are practising Integrated Pest Management (IPM) – growing a healthy crop with the least possible disruption to agroecosystems and encouraging natural pest control.

Dr. Cynthia Scott-Dupree, Bayer CropScience Chair Sustainable Pest Management at the University of Guelph, spoke to the recent Muck Vegetable Growers' Conference about that topic. She announced a new research initiative to improve sustainable pest management for carrot insect pests and enhancing beneficial insect populations. Government funding is pending.

Here's what the 10 members of the research team hope to do. Improve IPM decision-making and forecasting for carrot insect pests. Evaluate reduced-risk insecticides and biopesticides for carrot insect pest sustainable management. Survey for beneficial insects. Enhance the newly expanded berms/dykes at the Holland Marsh to optimize conditions for natural enemies of insect pests and pollinators. A number of partners have signed on including Bayer CropScience Inc and Syngenta Canada Inc - Operation Pollinator, and Pollinator Partnership Canada.

As reported by Jason Lemay (opposite page), a number of natural enemies have been found in abundance, according to 2015 and 2016 surveys. The immediate opportunity is to rejuvenate the berms. Five canal berm sites will be established as well as 10 crop sites within the marsh. In 2017, the plan is to plant the canal berm sites with a seed mix developed by Syngenta-Operation Pollinator plus butterfly milkweed and other shrubs such as haskap, red currant and shining willow. In 2018 and 2019, they will assess these sites for natural enemies and pollinators to determine which is the best planting option.

“We're very optimistic about funding,” says Scott-Dupree. “Now we need to have growers and collaborators on board providing us with berm sites.”



Butterfly milkweed



Crop scouting

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*fig. 4*

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# Wanna trade?



**JAN VANDERHOUT**  
CHAIR, OFVGA

Partnership (TPP) it leaves some wondering what will the impacts of this new reality be on the North American Free Trade Agreement (NAFTA). Certainly, there will be some changes in American trade policy in the next while but I am firmly of the opinion that we, as Ontario growers should be aware and engaged with our trading partners to the south and if we play it smart, there is no reason for despair.

We will remain in good stead with the U.S. because we are trading partners with them and we have similar if not equal standards of production with our southern neighbors. We treat our labour force in like manner to the U.S. We respect the environment similarly. We have stricter pesticide use standards and product availability. Our food safety standards are also at par with America. Product quality and flavour is comparable to that of American producers. The biggest reason that I am not too concerned

about produce trade with the U.S. is that we import far more produce than we export putting us in a comfortable bargaining position.

As our leaders go to the bargaining table with regards to trade it will be important for them to respectfully maintain that Ontario-grown produce should continue to cross the border south as freely as American produce crosses the border north.

It would be naive to think that trade will take care of itself so I am glad that we as Ontarians and Canadians have the opportunity to interact with American government officials and talk through any possible issues around trade. I am glad that Ontario agriculture minister Jeff Leal is going to the United States this month for the purpose of trade. I am especially glad that President Trump is pragmatic and sees the value in trading partners such as Ontario and Canada to trade products as the seasons change and enjoy

the benefits and diversity of the various products that we grow in our respective lands and climate regions. It is important for us as producers to raise awareness of the importance of trade with the U.S. for our continuing viability as Ontario growers.

Food safety will be an important detail for governments to collaborate on as the Food Safety Modernization Act (FSMA) standards do not always align perfectly with CanadaGAP and under the Global Food Safety Initiative (GFSI). Common ground will need to be established to ensure safe food is being grown and imported into both of our great nations and that consumers can have confidence in the safety of the food they eat. From a food safety perspective our produce is already some of the safest in the world and should be recognized as such.

Growers need to maintain a dialogue with leaders both federally and provincially. Of course, the Ontario Fruit and

Vegetable Growers' Association and Canadian Horticultural Council speak on your behalf but it is equally important that we advocate with our local political leaders for continued open borders for produce. Those who supply only local markets should not think international trade is not their problem. If the produce that is exported now were to be kept in our domestic markets the impact on wholesale prices could be catastrophic across the board for all of us including our American trading partners who would also be selling into a depressed market.

America is implementing some changes these days with the goal of creating a more vibrant economy, jobs, a safe and secure food supply and of course a great place to live. We need to be part of this initiative in order to maintain our own economic vibrancy as well as maintain our great relations with our American trading partners.

As growers we are always dependent on having customers buy our products. Some of our customers are in Ontario or Canada and others are across national borders, most often our trading partners to the south.

Since the beginning of the year there has been some angst about the Trump administration and the impact it will have on our trade with America. After the United States' withdrawal from the Trans Pacific

## WEATHER VANE



Fortunately, spring 2017 has been kind to Ontario's tender fruit industry with minimal winter injury. John Fedorkow, Niagara-on-the-Lake, Ontario admires his peach orchard. Photo by Denis Cahill.

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## PERSPECTIVE



## South Africa: Where sustainability is a whole new ball game



**OWEN ROBERTS**  
U OF GUELPH

In North America and Europe, sustainable fruit and vegetable production is often connected to environmental or economic measures. But as I learned on a recent trip to South Africa with other agricultural journalists, sustainability is part of that country's very survival. It's fragile, evolving, and from a management perspective, almost unimaginable.

South Africa, especially the extreme southwestern portion called the Western Cape, is blessed with exceptional fruit production. Apples, table grapes, olives, peaches and oranges abound. Canada and other countries import South African produce; on my tour of the Ceres Valley, we visited Dutoit Agri, which had a shipment of Granny Smith apples earmarked for Canada.

Dutoit, a family business, has a whopping 4,500 hectares of fruit and vegetables under irrigation. During peak season,

it employs almost 7,500 workers. It's a huge operation and for the most part, quite modern.

But for many commercial South African farmers, "quite" modern is as close as they'll get to operating at full efficiency. Dutoit and others, such as Johannesburg-area farmer Brent Parot, who employs 600 permanent workers and another 2,500 seasonally, are torn between mechanization and providing jobs.

Says Parot: "You can't be sustainable without mechanization. But if we mechanize, we take jobs away from people. Without jobs, they are forced into crime, to feed themselves."

Crime against farmers is already bad enough, without taking steps to make it worse. Although problems between white and black farmers are mostly confined to where land claims have been filed with the federal government by black farmers – those who were displaced when apartheid arrived in this country in 1948 – the mood is tense all the way from the top down.

The instability caused by South Africa's inept president Jacob Zuma is perpetuating economic and social conditions that have opened the door for racist factions to terrorize mainly white farmers, and bastardize the equality goals of 1994's Restitution of Land Rights Act. This act was brought forward by Nelson Mandela to enable indigenous

“  
You can't be sustainable without mechanization. But if we mechanize, we take jobs away from people. Without jobs, they are forced into crime, to feed themselves.  
”

~ BRENT PAROT

black South Africans to lay claim to parcels of land that were theirs before apartheid ripped the country apart.

And what a shame that Zuma is at the helm. The world was starting to look favourably on Africa overall for investment, which is desperately needed because so little capital is available domestically. The African Private Equity and Venture Capital Association says private financiers invested \$3.8 billion in 145 deals across Africa in 2016, including many in agriculture. That was more than 50 per cent higher than the previous year.

There's no question commercial white farmers are still the main voices of authority

here. But from what I saw, they are working hard to adapt to the country's seesawing political climate. In fact, Dutoit seemed as interested in showing us the social responsibility side of its operation as its technical side. That's how much emphasis they're placing on trying to promote harmony.

For example, workers live too far from larger centres to travel to and from work. So they are offered housing, in what appear from the outside at least to be decent homes, located on the farm grounds.

For children, the company owns three primary schools which are run by the Western Cape Education Department. It has six registered crèches and

five after-school centres where learners receive food and are helped with their homework. As well, Dutoit funds a workers' health plan that supports medical clinics, qualified nurses and trained healthcare workers, providing services on a weekly basis.

There are no claims on Dutoit land. But the family members will have to work hard every day to stave off criticism of their ownership, to continue finding new markets and products, and to feed the thousands of South Africans who depend on them for jobs.

Now there's a tough sustainability goal. Imagine trying to manage that.

### LETTER TO THE EDITOR

## Be more proactive in environmental leadership

Re: Just trying to thrive, April issue

I am a small business owner and fruit grower, and certainly understand the business pressures that are alluded to in the article. However, while there are multiple capital costs involved in starting and running a business, it was disappointing that the article infers that completion of an Environmental Compliance Approval is an unreasonable cost that cannot be passed on. It seems agricultural businesses in Ontario love all the technical resources and grants available from the government, but protest when we are regulated.

After 28 years of consulting to companies in the manufacturing and related industries regarding environmental issues, it seems to me that agriculture

is treated fairly lightly in comparison, and I think a day is coming when agriculture will bear a heavier regulatory burden for environmental impacts. By proactively and voluntarily setting its own stronger environmental guidelines now, the agricultural industry would show leadership, as is happening with nutrient management. This would help the ag industry take a leadership role in educating the public about environmentally sustainable agriculture, instead of being reactive.

I believe this will help us maintain our public image, encourage better pricing and revenues – and perhaps encourage our young people to come back to the farm.

*Phil Moddle, P. Geo.*  
*Melbourne, ON*



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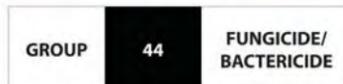
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## There is too much happening in 2017

BRUCE KELLY

As our fields green up and blossoms return to the trees, we know that we have once again survived the long Canadian winter. Mixed with the usual farmer optimism of a new growing season, however, is an uneasy feeling that 2017 is going to be a year of much change within Ontario's agriculture landscape.

2017 will be a year of tremendous opportunities – there is a tremendous opportunity to feed the citizens of Ontario and New York State. Demand for the safe and quality products that we produce has never been higher and our ability to meet this challenge on a near 12-month-a-year basis has never been so close. But at the same time, there are a number of significant challenges ahead.

Let's look at the list of issues we will be dealing with during 2017:

**Carbon Tax** – The impacts of the carbon tax (sorry it's not a tax it just feels like one) is just starting to be felt by producers on their winter heating costs and field producers as they fill their fuel tanks for the coming planting season. This tax – which was not supposed to be on coloured fuel – is impacting both those who heat and who drive, and if you look at the proposed pricing ramp, its impacts after 2020 are impossible to

ignore or sweep away as a bit of inflation.

**Electricity Pricing** - While some relief has been promised recently by the Ontario government for lowering monthly rates, Ontario electricity prices are higher than some of our neighbours and the policies and financing that led to high rates has just been "financed" farther out. For those that move machinery, pump water, spin fans or pump coolant as part of their business, electricity remains a concern.

**Storm water and runoff ponds** – Greenhouse operators in the areas of the Leamington tributaries and the Thames River watershed were required to apply for an Environmental Compliance Approval (ECA) for their storm water management facilities by April 1, 2017. Once in place, the ECA requires that farmers sample their ponds monthly and respond to any samples that indicate levels above those prescribed in the ECA. All other greenhouse operators across the province will be required to apply for their ECAs within the next year.

**Sustainability** – While CanadaGAP does a great job in ensuring food safety in the vegetable sector, the public is ever demanding in wanting stricter and stricter regulation on how food is produced and raised. Those speaking to the public



can – and often are – spreading false information to market a particular product, which inevitably makes providing legitimate information even more difficult. In many respects, the rise of social media and the anti-science movement has made communicating with the public even more difficult, specifically since as information-rich messaging and risk-reward business answers do not resonate like many of negative campaigns do: NO GMO, or Pesticide Free, etc.

**Pesticide use** – The tool kit of pesticides is getting smaller and smaller. With proposed elimination of more neonics and a dwindling list of products offered in the relatively small Canadian market, manufacturers have little motivation to even fill out the re-approval paperwork for off-patent products.

**Animal & Animal Transportation Codes of Practice** – Newly released codes for transporting livestock, pork and poultry production are driving change among livestock operators. Those operators are modifying barn equipment and re-designing facilities to meet new housing requirements for pen sizing, and loading facilities. Sometimes producers are even walking away from facilities that are not fully depreciated in order to meet these new requirements.

**Lake Erie Phosphorus Management** – After consultations in 2015 and 2016 we are now looking at a regulatory environment that is going to focus hard on soil erosion and the 4R approach to nutrient

management. 2017 and 2018 will start to see some changing discussions about fertilizer usage, and the government may be looking for nutrient plans from all farmers, not just those in livestock. While some of these new practices might actually save farmers money, others may increase the general costs of doing business.

**Land Costs** – I was recently in the near north and saw firsthand how some farmers from the south are moving or expanding their enterprises north to take advantage of more cost-efficient land. Here in the south where monster houses continue to appear on farmland with great regularity, expanding

one's operation gets harder and harder and more operations are hemmed in by urban neighbours, which negatively impacts the economics of farm production. Depending on where your operation is, and what products you grow, these issues may have a greater or lesser impact on what you do.

Regardless, we are certainly juggling a lot of balls in the air. Good farming to all in 2017.

For more information on Farm Environmental or Animal Welfare projects at Farm & Food Care Ontario, contact Bruce Kelly at [bruce@farmfoodcare.org](mailto:bruce@farmfoodcare.org)

*Bruce Kelly is programs manager, Farm & Food Care Ontario.*

### COMING EVENTS 2017

- May 3 AgScape Annual General Meeting, University of Guelph – Science Complex Atrium, Guelph, ON
- May 9 OMAFRA IPM Workshop for Tender Fruit and Grape Growers, Rittenhouse Hall, Vineland, ON
- May 9 – 11 Canadian Produce Marketing Association 92nd Annual Convention and Trade Show, Metro Toronto Convention Centre, Toronto, ON
- May 30 Potato Scouts IPM Training Session, Ontario Potato Board office, Elora, ON
- May 31 Food and Beverage Ontario Annual Conference, Steam Whistle Brewery, Toronto, ON
- June 4-8 International Organization of Biological Control Meeting (Western Palearctic Region), Niagara Falls, ON
- June 11 Ontario Agricultural Hall of Fame Induction Ceremony, Country Heritage Park, Milton, ON
- June 13-15 United Fresh 2017, West Hall, McCormick Place Convention Center, Chicago, IL
- June 16 Garlic Growers of Ontario Field Day, Dashwood, ON
- June 23 Ontario Hazelnut Association Grower Trial Site Tour, Farm of Drew Dalgleish, Wheatley, ON
- June 25 Ontario Hazelnut Association Grower Trial Site Tour, Rodney and Blenheim, ON
- June 26 Cornell University Fresh Market Vegetable Field Day
- July 5 Ontario Apple Growers Summer Tour, Niagara, ON
- July 17-18 BC Wine Grape Council 18th Annual Enology and Viticulture Conference and Trade Show, Penticton Trade Show and Convention Centre, Penticton, BC
- July 17-19 Federal-Provincial-Territorial Agriculture Ministers' Meeting, St. John's, NF
- July 28-30 PMA Foodservice Conference, Monterey Conference Center, Monterey, CA
- August 3-4 Triggs International Premier Vinifera Lecture Series, Brock University, St. Catharines, ON



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Agrium

## RETAIL NAVIGATOR

## Do you understand your shrink?



PETER CHAPMAN

When I worked at Loblaw one of our biggest areas of focus was to reduce shrink. In retail, the definition of shrink is anything that you pay for that never makes it to the cash register or does not go through the cash register at the correct price. There are many reasons for shrink in retail; some are the same on the supplier side.

When was the last time you were able to quantify everything you have produced but not been able to sell? There are a number of reasons for this, some of which are:

- A) Over production
- B) Product produced does not meet specs
  - a. Caused by outside issues such as weather
  - b. Caused by employees not executing
  - c. Caused by equipment problems
- C) Your customers can cause shrink (we explore this in more detail below)
- D) Your item has a seasonal window and it did not move when it would sell
- E) You produced what is required but were missing a packaging component so you couldn't ship

## Quantify the cost

The first thing you need to do is quantify the cost of your issue. It is different in every business. I understand it isn't very motivating to calculate the cost of what you didn't sell but it will help you understand the magnitude of the problem. We used to review our shrink numbers by store by week. Sometimes I would get the numbers back and have a hard time accepting them. I would challenge them and almost every time it was true and there was a reason for the issue.

Once you are measuring shrink you can chart your progress and get the problem fixed. One of the great things about eliminating shrink is the money falls right to your bottom line. If possible, share the progress with the employees who can influence the results. Sometimes they don't understand the magnitude of their actions.

## Customers can cause shrink

Your customers do not understand the impact of their actions. Retailers cancel product from purchase orders without understanding the true cost of these changes. In the end you have to allow for these changes in your cost. Retailers don't want to hear that their cost is higher because they drove it up with their own inability to operate properly.

Clarify your terms of doing business with them. If they give you 48 hours to fill an order but then change it within 12 hours of the shipping time, this will cost you money. Explain the issue to them if it continues to happen and quantify the cost to your business. Often the person making changes to a purchase order is a buyer who really is not judged by product cost. Go to your category manager and share the issues if they are more than just once in a while.

Another area of shrink caused by customers can be when they do not give you enough lead time to produce product efficiently. If you have to call employees in at higher over-time wages or incur higher cost per unit for small runs this will cut into your profits. We all want the sale but you have quoted a price based on certain costs in your business. Always define order lead-time with your customers. They order from systems so the difference of a few days should not make a huge difference to them. They will push back if they don't like your terms. The time can be important to you so try to get what you need.

There are many examples where suppliers produce product that customers do not buy. You should be planning with your customer to ensure you have the same idea for product required. This should be part of your sales plan. Depending on the number of markets you serve and the unique qualities of your product this can be a small problem or a significant shrink. Make sure your customer understands the level of dependence you have on them. If you produce the product only for them and you quoted a price based on 10,000 they need to take the 10,000. If you have the feeling they will fall short, be proactive and remind them of the deal. You might not get full price but if they are the only market you need to get something.

The most important thing you can do to reduce the shrink caused by your customers is to clarify everything up front. Do not assume they know you have to produce 10,000 or that you need 36 hours to produce product. Define the parameters up

front so you have a means to negotiate if there is a problem. With the right relationship your customer should not be causing shrink in your business. If you eliminate the customer as a driver of shrink, you can focus on the other issues outlined earlier.

If you have any questions about shrink, please give me a call at (902) 489-2900 or send me an email at pchapman@gps-business.ca. Next month we will talk about distribution costs and how they can impact your profits.

## RETAIL NEWS

## Selling food is going to change

Recently, Bloomberg News reported that Amazon has invited some of the largest consumer packaged goods companies selling food to a meeting. They want to share insights into their methods of selling the products and encourage food processors to focus on the opportunity. The headline refers to bypassing Walmart -- we aren't there yet!



There is no doubt selling food is going to change and it has impact throughout the value chain. Distribution, packaging, marketing will all change as consumers have more options. Producers and processors need to begin work in this arena. My prediction is the center of the store items in grocery will be impacted first.

Peter Chapman is a retail consultant, professional speaker and the

author of *A la Cart-A suppliers' guide to retailer's priorities*. Peter is based in Halifax N.S. where he is the principal at GPS Business Solutions and a partner in SKUfood.com, an on line resource for food producers. Peter works with producers and processors to help them navigate through the retail environment with the ultimate goal to get more of their items in the shopping cart.

pchapman@gpsbusiness.ca

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\*Translation: Where are we going next?

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\*Translation: Panama!

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**FOCUS: STORAGE, CONTAINERS AND PACKAGING**

# Intelligent packaging: choosing the best options for corrugated boxes

KAREN DAVIDSON

It's an unforgiving environment out there: in the field and in the marketplace. The costs of packaging produce and moving it by pallet, jacks or forklifts are only moving up.

Ralph Young, technical advisor, Association of Independent Packaging Companies (AICC), spoke to a recent meeting in Mississauga, Ontario about the factors to consider for optimizing corrugated packaging. He is one of the leaders in the movement toward light weight

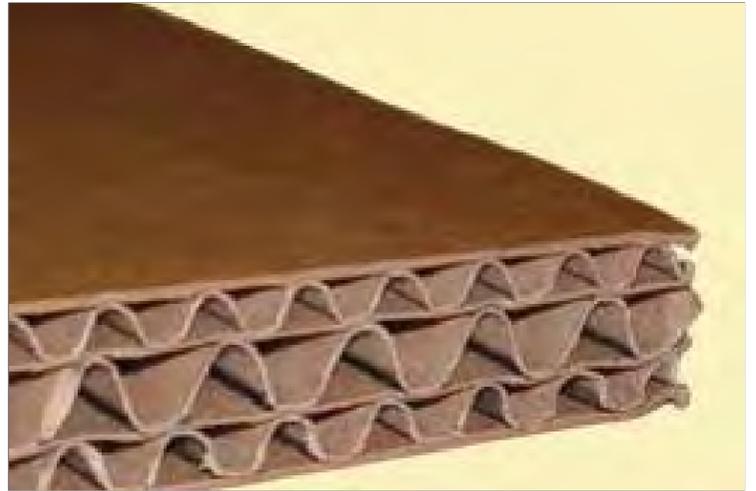
containerboard and corrugated engineering in North America. With his three and a half decades of experience in the corrugated industry, he's on the front edge. So how to make the most intelligent decisions to preserve fresh produce? Here's his counsel.

1. Consider the array of substrate materials and fit to your need: recycled, light weighting, optimum flute profiles. The newest lightweights are produced by Atlantic Packaging (Whitby and Mississauga, Ontario), Cascade (Niagara

Falls, New York) and Kruger (Trois-Rivieres, Quebec).

2. Pick the best design for your need: co-pack, field pack, wet pack. Design makes a difference in performance and so does the cost. Automate where possible to save labour and achieve the best stacking performance.

3. Test your box in the field for the worst possible scenario. It's easy to overdesign a box, says Young. But make sure it's the least amount of fibre yet strong enough to endure the trip from



Optimize flute profiles



Slot depth affects final box compression



your particular field situation to your end destination. Document the trip with photos to make sure the carton is standing up to in-field weather and the configuration on the pallet. Challenge your suppliers.

4. Ask your corrugated supplier(s) about the origins of their containerboard supply or corrugated. If it's offshore corrugated, make sure that local tests are done to make sure it meets your standards through the entire distribution channel.

"I have personally seen at least eight European and Middle Eastern containerboard suppliers participate in combined board trials here in North America," says Young. "While all of these producers of lightweight recycled linerboard generated the desired Edge Crush Test (ECT) levels required with reduced fiber, only one was chosen. This begs the question, "How extensive will your design experiments be going forward?" While these light grades may be more appropriate to non-agricultural

applications, the selection process remains the same.

5. Understand the key characteristics of linerboard medium and flute with the impact on the combined corrugated box.

6. Think performance and fit for use. In the best conditions, 50 per cent of the strength of the combined board can come from two liners and the other 50 per cent from the fluted medium. End users don't always consider this technical aspect.

7. Explore the factors that affect final box compression: box style, print crush, recycled fibre content, poor bonding, poor flute formation, excessive slot depth, scoring, cutouts and holes. Understand the process!

If margins are good, then growers might not be looking to save that last nickel and dime from their packaging. However, it's very easy to over design a box. Get to know the latest in the features and benefits of corrugated packaging.

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**FOCUS: STORAGE, CONTAINERS AND PACKAGING**

# Block pallets offer transportation savings

According to an independent study conducted by The Poirier Group (TPG) in Canada, a single distribution center can save an estimated half million dollars every year simply by using block pallets instead of traditional Canadian pooled stringer pallets. The five-week study estimated total annual savings for a Sobeys warehouse location at \$497,500, which included \$441,100 in transportation savings and \$56,400 savings in operational efficiency.

Lisa Vegso, PECO Pallet general manager, Canada, said: “We are very pleased to have clear proof of what we knew already: using block pallets can lead to improved efficiencies and substantial cost savings throughout the supply chain. We hope this study helps more distributors throughout Canada and the U.S. to understand the significant benefits of using four-way block pallets such as PECO.”

In April and May 2016, PECO Pallet hired The Poirier Group (TPG), a business consulting firm, to conduct a five-week independent study on block pallet utilization in a

selected Sobeys distribution center. TPG conducted exploratory and fact-finding interviews at the Sobeys warehouse, collected data, and recorded their observations. TPG then analyzed the data and modeled potential annualized benefits in both time and cost savings. PECO Pallet funded the study and collaborated on the overall approach and timeline, but otherwise had no involvement during the evaluation process.

The most dramatic cost savings were related to transportation efficiency. The average weight of a typical Canadian pooled stringer pallet is 90 pounds, versus 65 pounds for a PECO or similar block pallet. TPG calculated the additional fuel costs that are incurred for transporting the additional weight of stringer pallets. Even more significant savings were identified due to the increased cube utilization possible with four-way block pallets. With stringer pallets, the average number of pallets per load is between 24 and 28. Block pallets allow for up to 30 pallets to be loaded on the floor



Photo by Glenn Lawson

**The average weight of a typical Canadian pooled stringer pallet is 90 pounds, versus 65 pounds for a PECO or similar block pallet.**

of the trailer. The combined transportation savings from increasing the cube and reducing pallet weight was estimated at \$441,100 per year.

Additional cost savings were identified in operational efficiency. At the Sobeys warehouse, researchers

observed that stringer pallets cause issues and delays during loading. While the true four-way entry of a block pallet enables easy access and the ability to pinwheel with a standard pallet jack, stringer pallets require the use of dock stockers, which leads to

additional capital and equipment maintenance costs. The total estimated savings in operational efficiency from using block pallets instead of stringer pallets was estimated at \$56,400.

Source: PECO Pallet news release

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**FOCUS: STORAGE, CONTAINERS AND PACKAGING**

# Get up-to-date with new nutrition label guidelines

KENDRA MILLS

Packaging is one of the most important tools we have to sell our product. It is a heavy-lifter that has the opportunity to communicate product attributes, recipes, nutrition and much more. More thought is going into packaging in our category, which is great to see, however, it is important to stay on top of regulations, changes or guidelines.

For instance, the Nutritional Facts Table (NFT) that must appear on all food packaging has recently undergone some changes. To provide current information for any packers or companies that are currently examining their packaging, I interviewed Sally Blackman, the Canadian Produce Marketing Association's resident packaging expert, to provide some resources and tools to help in that process.

Kendra: The Canadian NFT that we are used to seeing on food packages has undergone some changes for implementation as early as 2017. Can you comment on some of the changes that we should expect to see?

Sally: For fresh fruits and vegetables the NFT is considered voluntary and is not compulsory. As a result of the new amendments to the regulations, even when an allowable compliant health or nutrient content claim is made on packages or in advertisements of fresh fruits and vegetables, an NFT is no longer required. There are several changes in the NFT which will be required by 2021 and they include:

- More consistent serving sizes
- Increased font size for serving size and Calories; adding bold line under Calories
- Revised % daily values for some nutrients; % daily value added for sugars

- Updated list of core nutrients – Add potassium, remove Vitamin A and Vitamin C (note: additional nutrients can still be included)
- Adding amounts in milligrams for potassium, calcium and iron
- Footnote added at bottom of table about % daily value

Kendra: Our industry conducts business on both sides of the border. What are the differences between American NFT and the Canadian NFT?

Sally: The new U.S. NFT label and the new Canadian NFT have several differences, including:

- Canadian NFT must be presented in both official languages
- Order of presentation of core nutrients
- Serving size placement and presentation
- Calories presentation
- U.S. requires Added Sugars information
- Difference in required vitamin declaration

The compliance date for the U.S. NFT is July 26, 2018 for companies with sales less than \$10M and July 26, 2019 for companies with sales more than \$10M.

Kendra: Although it is voluntary, most, if not all of our PEI Potato packers choose to display the NFT on their packaging. How long until packaging must transition to the new NFT?

Sally: The new NFT will be required by December 14, 2021 which is a transition period of five years from the date of the publication of the amendments.

*Kendra Mills is marketing director for the PEI Potato Board. This article excerpt is reprinted with permission from the March/April 2017 issue of PEI Potato News.*

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PLUG AND PLAY

## FOCUS: STORAGE, CONTAINERS AND PACKAGING

## Enhancing quality of BC's sweet cherry crop

KAREN DAVIDSON

British Columbia's sweet cherry industry has grown to 4,000 acres in recent years. Export success is driving more research into preserving quality characteristics in storage. That's why Dr. Kelly Ross, Agriculture and Agri-Food Canada (AAFC), has been delving into the effect of orchard conditions on quality and bioactives content of freshly harvested and stored Staccato sweet cherries.

Her 2015 results were recently presented at the annual general meeting of the BC Cherry Growers' Association. Cherries were analyzed from six orchards at Oliver, Penticton and Summerland. Quality attributes consist of firmness, size, soluble solids, titratable acidity, stem pull force, stem browning, stem shrivel, pitting and decay.

The study was conducted at the respiration facility at AAFC's Summerland Research and Development Centre. The harvested cherries were studied at 0.5°C (ideal storage) and 5°C and 10°C (non-ideal temperatures which do occur) at fresh storage and again at seven and 28 days. Bioactives such as total phenolics and anthocyanins were also studied.

What Dr. Ross found was an effect of orchard on all quality attributes as well as storage effects on everything except brix level. For all orchards, firmness increased while in storage.

One-year results show that respiration rates at harvest could be used as a predictor of storage quality in terms of attributes such as stem shrivel, decay, titratable acidity levels and stem pull force. More data analysis will be required of the 2016 year and upcoming 2017 season to see if trends hold.

"In addition to relating higher respiration rates with quality loss, the data shows the importance of keeping temperatures low. At low storage temperatures of 0.5°C, respiration can be kept low enough to reduce the manifestation of poor quality attributes," says Dr. Ross. "Smaller cherries have higher respiration rates and show more quality issues upon storage. More work needs to be performed to determine whether smaller cherries in general do not store as well as larger cherries due to higher respiration rates or whether smaller cherries obtained from a tree pruned to produce larger cherries are subject to quality issues due to higher respiration rates."

For the 2017 season, Dr. Ross will be conducting research on temperature and respiration differences between

cherry cases packed on the outside of a pallet versus the interior and how quality is affected. It's likely the case that the sweet cherries undergoing transportation experience different local environments in terms of temperature and gas composition depending on location within the pallet versus the global temperature and gas composition of the transport container.

*Photo courtesy of Danielle Ediger.*



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FOCUS: STORAGE, CONTAINERS AND PACKAGING

# Rapid cooling not always best for 'Gala' apples!

JENNIFER DeELL

It is commonly recommended to cool apples as fast as possible after harvest to maintain firmness and good quality. However, with advancements in rapid establishment of controlled atmosphere storage and the advent of postharvest treatment with 1-methylcyclopropene (1-MCP), fast cooling may not always be the best recipe. This study investigated the effects of rapid versus slow cooling on the quality of 'Gala' apples.

Pacific 'Gala' apples were harvested from a commercial orchard near Simcoe, Ontario. At harvest time fruit averaged 19.9 lb firmness, 13.1% soluble solids concentration (Brix), 541 mg malic acid per 100 ml juice, 91% red color, 2.1 ppm internal ethylene concentration, and 3.9 starch index (based on the 1 to 8 scale, Cornell University generic starch chart). Internal ethylene ranged from 0.4 to 4.8 ppm and the starch index from 2 to 7, which is typical variation in maturity of 'Gala' apples.

Apples were transported to the OAG Apple Storage Research Lab within one hour of harvest. Half of the fruit was cooled rapidly to 3°C and the other half was cooled slowly from 20 to 10°C overnight, while SmartFresh (1 ppm, 1-MCP) was applied to half of the fruit within each cooling regime during this time (24 hours). Apples cooled rapidly with or without SmartFresh were then

	Internal ethylene concentration (ppm)	Firmness (lb-force)	Soluble solids concentration (%)	Malic acid (mg/100 ml) <sup>1</sup>	Internal browning (%) <sup>2</sup>	Internal stem-end Browning <sup>3</sup> (%)	Lenticel damage (%)	Lenticel rots (%)
<b>1 Day at RT<sup>4</sup></b>								
<b>No SmFr</b>								
Rapid	0.2	16.5	14.0	389	32	17	0	3
Slow	0.3	16.5	14.1	472	5	15	0	0
<b>+ SmFr</b>								
Rapid	0.5	16.6	13.5	412	23	30	0	7
Slow	0.3	17.8	13.7	425	0	10	0	0
<b>7 Days at RT</b>								
<b>No SmFr</b>								
Rapid	0.9	16.7	13.8	354	59	27	1	11
Slow	0.8	16.7	13.9	439	11	28	2	2
<b>+ SmFr</b>								
Rapid	0.4	16.8	14.1	377	52	34	13	23
Slow	0.5	17.9	14.0	409	6	15	2	4

Table 1: Quality of Pacific 'Gala' apples treated with or without SmartFresh, cooled rapidly or slowly, and stored in controlled atmosphere storage (2.5% O<sub>2</sub> + 2.0% CO<sub>2</sub>) at 1°C for 8 months, plus 1 or 7 days at room temperature (~22°C).

<sup>1</sup> mg malic acid per 100 ml of juice

<sup>2</sup> internal browning only at the stem-end, also called shoulder browning

<sup>3</sup> incidence, regardless of severity

<sup>4</sup> RT = room temperature, SmFr = SmartFresh, Rapid = cooled rapidly, Slow = cooled slowly

transferred to 1°C. Fruit cooled slowly with or without SmartFresh remained at 10°C for six days, then at 4-5°C for seven days, 3°C for 17 days, and finally at 1°C for the remaining storage duration.

Controlled atmosphere storage (2.5% O<sub>2</sub> + 2.0% CO<sub>2</sub>) was established for all apples six days after harvest, with temperatures set as noted above. After eight months of storage, apples were removed and evaluated for quality after one and seven days at room temperature (~22°C). Results are presented in Table 1.

After eight months of storage, rapid cooling resulted in significantly higher incidence of internal browning, internal stem-end browning, lenticel damage and lenticel rots in Pacific 'Gala' apples (main effects). Fruit treated with SmartFresh also had significantly higher incidence of lenticel damage and lenticel rots when cooled rapidly, compared to those cooled slowly. There were no significant effects of cooling rate on fruit firmness, soluble solids concentration, and malic acid content.

These results suggest that it

may not always be the best practice to cool 'Gala' apples as quickly as possible when long-term controlled atmosphere storage and SmartFresh treatment are being

utilized. Further research related to cooling and storage disorders is ongoing.

*Jennifer DeEll is OMAFRA fresh market quality program lead.*



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FOCUS: STORAGE, CONTAINERS AND PACKAGING

What's new in packaging at CPMA



**Pasta kit with Minzano saucing tomatoes by Sunset**

This concept embraces convenience with a nod to folks who want to have a hand in cooking and still have dinner on the table in less than 15 minutes. The Sunset Minzano pasta kit contains one pound of fresh saucing tomatoes with eight ounces of pasta and mixed seasonings chosen by Chef Roger Mooking.

**Cherto gourmet cherry tomatoes by Mucci Farms**

This cherry tomato package was designed to improve the consumer experience, increase the shelf life of the product, and provide retail partners with premium creative and merchandising efficiency. Focusing on food safety, traceability, and environmental responsibility, this item is made with less plastic than most traditional designs and 100% PET recyclable material. Consumer benefits include a tamper-evident seal, re-sealable options for longer storage, and clear visibility of the product. These vibrant, deep red cherry tomatoes are kept on-the-vine to achieve traditional tomato flavour and freshness. This irresistible bite-sized variety is the perfect portion for snacking, boasting a high flavour profile



and brix reading of 10+. Retail partners not only benefit from a conveniently sized and shaped package that is easy to merchandise, the top seal format allowed the marketing department to take full advantage of the

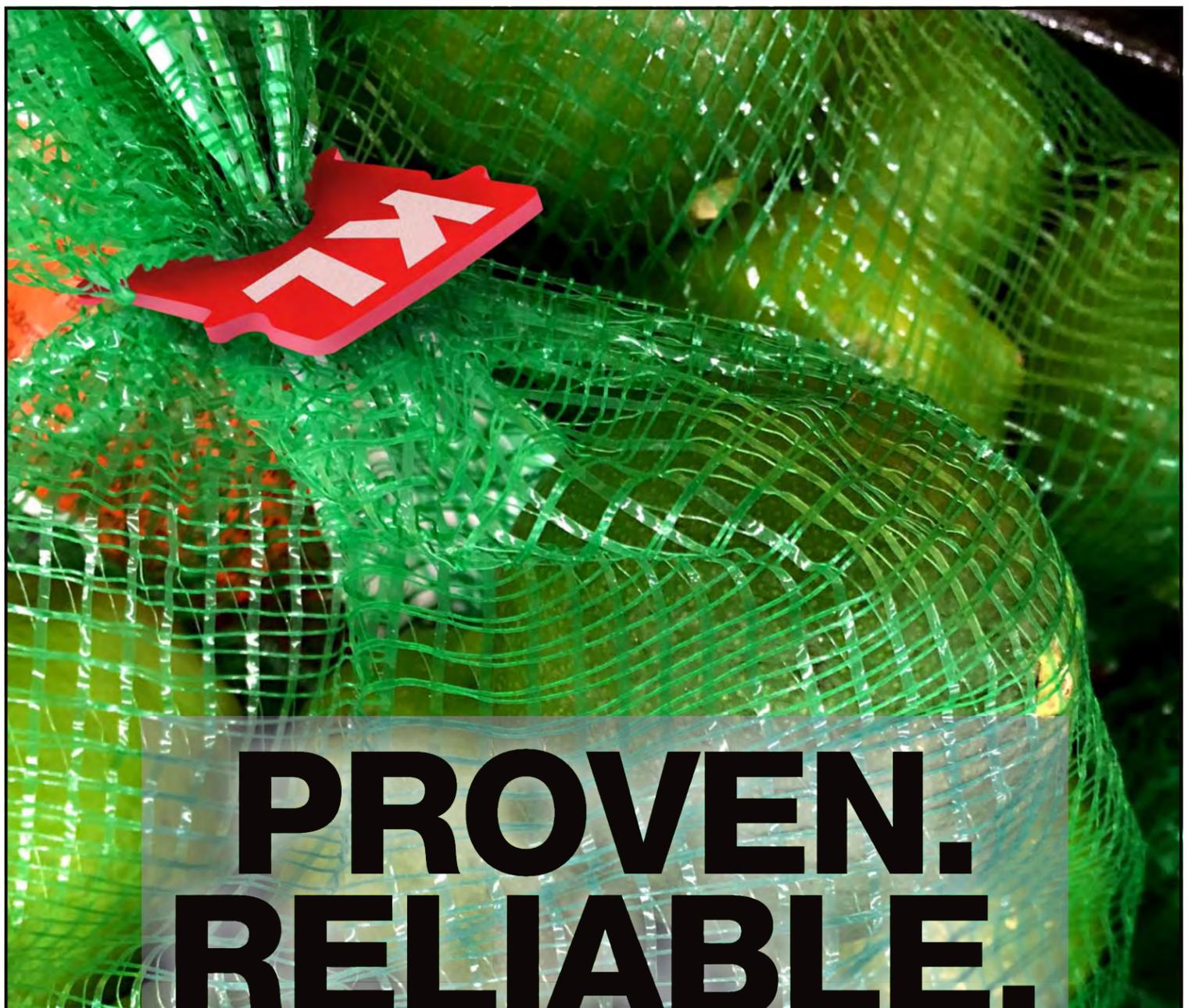
creative space. New to the fresh produce category, this product is available in a 1.5lb re-sealable top seal container. Consumers can store what they don't use and rely on this packaging for maximum freshness.

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# Ontario Berry Grower

Ministry of Agriculture,  
Food and Rural Affairs



## What herbicide tolerant crop technology will the 2017 field season bring?

KRISTEN OBEID  
JANICE LEOEUF  
MIKE COWBROUGH  
JASON DEVEAU

As spring approaches many fruit and vegetable producers are wondering what they should be watching for with the new herbicide tolerant crop technology. We've been hearing for several years about the new 2,4-

D, dicamba, glyphosate and glufosinate tolerant crops that are coming each year and to be honest it is very confusing. There are many combinations of products that can be applied (See Table 1). Both the seed and the herbicide have to be registered in Canada and in all countries we trade with prior to commercial production.

From the above table horticulture growers can expect

that there will be Roundup Ready corn and soybean planted and sprayed again on a large acreage (>90%), as well as, Roundup 2 XTend corn and soybeans. The Roundup 2 XTend corn and soybeans can be sprayed with Roundup Xtend with VaporGrip technology, XtendiMax with VaporGrip technology and Engenia.

Continued on next page

### Drift damage on grape



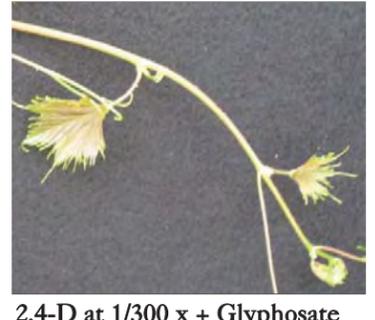
2,4-D at 1/100x



Dicamba at 1/100x



Glyphosate at 1/100x



2,4-D at 1/300 x + Glyphosate at 1/100x

### Dicamba Visual Sensitivity Scale for GA - 2017

S. Culpepper, J. Smith, E. Prostko; University of Georgia at Tifton

Lower	Moderate	Severe	Extreme
Broccoli Cabbage Kale Mustard Pecan Turnip	Cantaloupe Cucumber Peach Peanut Squash	Cotton Pepper Tomato Watermelon	Grapes* Lima Bean Southern Pea Snap Bean Soybean Sweet potato* Tobacco*
>1/75X	1/75-1/300X	1/300-1/800X	< 1/800X

Herbicide Rate of Visually Detectable Injury

For relative comparison, tomato, squash, and watermelon response to Roundup would be in the "lower" category.

\*Asterisk notes data from literature; all other data generated in 64 UGA field experiments.



### 2,4-D Visual Sensitivity Scale for GA - 2017

S. Culpepper, J. Smith, E. Prostko; University of Georgia at Tifton

Lower	Moderate	Severe	Extreme
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Herbicide Rate of Visually Detectable Injury

For relative comparison, tomato, squash, and watermelon response to Roundup would be in the "lower" category.

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The University of Georgia, in cooperation with the Georgia Department of Agriculture, has developed this information. The University of Georgia, in cooperation with the Georgia Department of Agriculture, has developed this information. The University of Georgia, in cooperation with the Georgia Department of Agriculture, has developed this information.



Dicamba at 1/300 x + Glyphosate at 1/100x

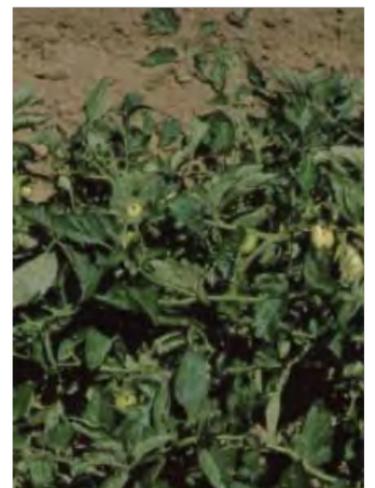
### Damage on tomato



Glyphosate injury on tomato



2,4-D injury on tomato



Dicamba injury on tomato

**BERRY FOCUS**

# What herbicide tolerant crop technology will the 2017 field season bring?

Herbicide Trade Name	Herbicide Group	Active Ingredient	Company	Herbicide Tolerant Crops	Other Herbicides that can be Applied	Date Expected
Roundup Transorb Max	9	Glyphosate as monoethanolamine salt	Monsanto	Soybean varieties with the Roundup Ready Gene  Corn varieties with the Roundup Ready Gene  Canola varieties with the Roundup Ready Gene  Sugarbeet varieties with the Roundup Ready Genex	Most Roundup Ready corn varieties are also tolerant to glufosinate	Available
Roundup Xtend with VaporGrip technology	4, 9	Glyphosate as monoethanolamine salt Dicamba as Diglycolamine (DGA Salt)	Monsanto	Roundup Ready 2 XTend Soybeans  Corn with Roundup Ready 2 Technology	Corn also tolerant to Group 1 Fop Herbicides (like Assure and Venture)	Available
XtendiMax with VaporGrip technology	4	Dicamba as Diglycolamine (DGA Salt) Formulation with VaporGrip	Monsanto (XTend Reg. 2016)	Roundup Ready 2 XTend Soybeans		2017
Engenia	4	Dicamba as N,N-Bis-(3-aminopropyl) methylamine (BAPMA Salt)	BASF (Reg. 2016)	Roundup Ready 2 XTend Soybeans		2017
Enlist Duo	4, 9	2,4-D as Choline Salt and Glyphosate as Dimethylamine (DMA Salt)	DowAgroSciences	Enlist Field Corn  Enlist Soybeans	Soybean also tolerant to glufosinate (Ignite), Group 10	2017*  2018**

\*Controlled stewardship launch where Dow Seed reps work with a few growers in their territory, plant a whole field to Enlist corn, corn is kept and fed on farm to not enter the grain channel. Also, protocols in place to account for isolation distances, volunteer corn, pollen shed, etc.

\*\*DowAgroSciences is currently working to greatly increase their seed supply for the 2018 season.

**Continued from last page**

Eventually, in the next two to four years, all cultivars of Roundup Ready soybeans will be Roundup 2 XTend and then it will be up to the farmer whether or not they use dicamba for weed control. It is thought that the greatest uptake for the Roundup 2 XTend crop varieties will be in Essex, Kent, Lambton, Middlesex and Huron counties (maybe Elgin and Perth also). Growers in the East are taking a “let’s look and see what happens in the SouthWest” because glyphosate

resistant populations are not as widespread. If an Xtend variety is a good one, then it will be planted and dicamba may or may not be sprayed.

So, it is going to be a large experiment this year with dicamba. OMAFRA is working with the Ministry of Environment and Climate Change (MOECC) and keeping them informed of all developments. The MOECC is your first point of contact if drift is suspected.

Also, see Appendix D in Publication 75: Guide to Weed Control for other MOECC

regional office contacts.

In a recent article in Southeast Farm Press, Dr. Stanley Culpepper, University of Georgia Extension weed specialist, shared his data on crop sensitivity (visual injury) to dicamba and 2,4-D. Note that most of this data is from trials in Georgia (and some of the crops on the list reflect that).

Keep in mind, spray drift is not the only way a sensitive crop could be exposed to these

herbicides. Residues in the sprayer, even after cleaning, can be enough to cause problems. See [www.sprayers101.com](http://www.sprayers101.com) for resources on sprayer cleaning and don’t forget about the dangers of temperature inversions.

Dr. Culpepper says that “some crops widely grown in Georgia are 10 to 20 times more sensitive to dicamba or 2,4-D” than they are to glyphosate. Judging by these visual

sensitivity scales, the same could be the case for Ontario. Below are some images of glyphosate, dicamba and 2,4-D injury in grapes and tomatoes.

*Kristen Obeid, OMAFRA Weed Specialist – Horticulture*  
*Janice LeBoeuf, OMAFRA Vegetable Crop Specialist*  
*Mike Cowbrough, OMAFRA Weed Specialist – Field Crops*  
*Jason Deveau, OMAFRA Application Technology Specialist*

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Day-neutral strawberry in flower. Photo by Glenn Lowson.



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## BERRY FOCUS

## Managing cyclamen mite will look different in 2017

ERICA PATE

Growers in Canada lost a tool to help manage cyclamen mite in strawberries this year, making it more challenging to control the pest once present in the field. Cyclamen mite is a pest strawberry growers and nurseries have dealt with before; however, with changing insecticide availability it's time to take another look at the pest.

### Monitoring:

Know how to identify the pest so you can effectively manage flare-ups or growing populations. Cyclamen mites prefer humid conditions and can be found on the midrib of folded leaves and on any protected part of the plant. These mites are microscopic, only 0.1-0.3mm in length; a 10-40X magnifying lens is often needed to see this pest. Eggs are clear and smooth, and masses look like piles of salt. Females can lay up to 90 eggs in their lifetime, and newly hatched mites reach full maturity in two weeks; populations can grow very quickly after a field becomes infested. The mites overwinter in the strawberry crown or can be present on transplants. They are a problem in the spring on new growth and can go quiet at renovation- but keep an eye out for these mites as they can rebound in the fall, even

requiring control again.

### Damage

Damage typically occurs in second-year strawberries. High infestations can lead to distorted, crinkled leaves, and can stunt plant growth. If the mites feed on blossoms the flowers will wither and die. Fruit will be small and bronzed with prominent seeds; in serious situations, cyclamen mite can reduce fruit production. Cyclamen mites are usually identified in strawberry fields by their damage, and not the actual mite.

### Management

Endosulfan products were used to control aphids, tarnished plant bug, cyclamen mite, and spittle bug up until last season. However, use of endosulfan products is no longer permitted on strawberries as of December 31, 2016. Without endosulfan the chemical options for cyclamen mite control are limited. Agri-Mek SC (6) is currently registered for control of cyclamen mite. What else can you do to manage cyclamen mite this year? Here are different methods to control the pest.

### Chemical:

Apply Agri-Mek SC to areas that have a history of mite damage, using a high-volume

spray to ensure thorough coverage. The most effective time to target cyclamen mites is when plants are succulent and actively growing, as buds emerge from the crown, either in the spring or after renovation. A high rate of kill is needed when controlling the mites because populations build so quickly.

### What are some other management strategies?

Beneficial mites and thrips can control cyclamen mite. A few growers in Ontario have experimented with introducing native, winter-hardy beneficial mite *Amblyseius sp.* to problem spots in the fall. However, some insecticides are very toxic to beneficials and can lead to cyclamen mite flare-ups. Pyrethroids are especially harmful, so take extra consideration when managing pests such as strawberry clipper weevil and spotted-wing drosophila, which are controlled by pyrethroids. Because both clipper weevil and cyclamen mite are active at the same time, limit spraying for clipper weevil, and to the edges of fields or older plantings if possible. See Publication 360, Guide to Fruit Production, appendix D, page 340 for predatory mite suppliers.

Prevent introducing cyclamen mites into new fields. Mites can be carried very easily from one field to the next by people, bees, animals and



equipment. Work in newer, uninfested fields first to avoid carrying cyclamen mites from infested fields to clean fields. Don't plant new fields near old ones if possible.

It can be difficult to distinguish between cyclamen mites and other mites in strawberry fields, so focus on managing this pest where damage has been identified. Walk your fields after renovation and look for signs of cyclamen mite damage. Flag problem areas for special attention next year.

Dr. Justin Renkema, assistant professor of entomology at the University of Florida, is examining another potential management strategy. He is leading a project funded by the North American Strawberry Growers Association to examine

the effects of applying steam to heat transplants to control cyclamen mite. Heat treatments have been shown to reduce adult mite survival, as well as suppress some disease, but the full effects of these treatments have not been examined. These heat treatments could be used pre-transplant in nursery and production fields. This project will continue into 2018.

Moving forward without endosulfan cyclamen mite management will need to include multiple, integrated practices. Plan now to use these different methods to manage this pest effectively. Avoid spreading cyclamen mites, reduce flare-ups and encourage beneficial activity.

Erica Pate is OMAFRA's fruit crops specialist.

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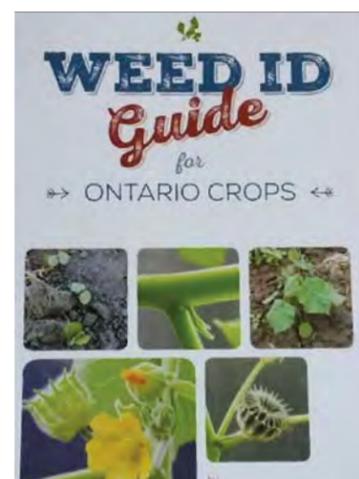
## CROP PROTECTION

### New Weed ID Guide for Ontario crops

This new publication features more than 120 species of weeds commonly found in and around agricultural fields. The Weed ID Guide for Ontario Crops is now available in the following formats:

- ePub format (124 MB file for Kindle, iBooks and other e-reader apps)
  - .pdf format (8 mb file)
  - print ready .pdf (141 mb file)
- These can be downloaded from the following website: [fieldcropnews.com/2016/09/weed-id-guide-for-ontario-crops/](http://fieldcropnews.com/2016/09/weed-id-guide-for-ontario-crops/)

- Print Copy (printing and shipping costs apply, volume discounts available) can be ordered from the following website: [www.blurb.ca/b/7797011-weed-id-guide-for-ontario-crops](http://www.blurb.ca/b/7797011-weed-id-guide-for-ontario-crops)
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Pokeweed is easily confused with pigweed in the young seedling stage.

## BITS AND BITES

## NatureFresh expands

Increased demand for premium greenhouse-grown products across the NatureFresh Farms product line has prompted one of Canada's largest independent growers to break ground on a new 106,000 sq.ft distribution center in Leamington, Ontario. Construction is to be completed by mid-summer.

"The continued expansion of our operations and launch of new products is a direct result of the growth of the NatureFresh Farms brand," said Peter Quiring, president. "Over the last few years, we have increased our production capacity to meet the demands of our retail partners. Our commitment to quality, regardless of season, is enabling NatureFresh Farms to be an integrated supplier 12 months a year. Expanding our production capabilities in Leamington shows our commitment to growing our business in Canada," commented Quiring. Family owned and operated, NatureFresh employs more than 500 people across all of its greenhouses and distribution centers in both Canada and the United States.

The state-of-the-art distribution center will enable NatureFresh to increase production and specialty packaging on site. The addition of the new facility will complement the existing five distribution centers that are currently operational across the company's 130 acres in Leamington. NatureFresh also opened a 60,000 sq.ft facility in Toledo, Ohio in fall 2016 to service the new 45 acres of greenhouse tomato production in Delta, Ohio. Due to the success of its Ohio tomato program, the company has already outgrown the Toledo facility six months after opening the doors and will be expanding in the months to come.

After doubling its organic bell pepper acreage in 2016, NatureFresh recently launched their new USDA Certified Organic TOVs and organic red grape tomatoes.

"The increasing demand for organics prompted our team to bring two new items to market this year -- both are being grown in Leamington, Ontario," said Ray Wowryk, director of business development. The organic TOVs are available in bulk format whereas the organic red grape tomatoes are available in dry pint formats.

Lastly, the company also unveiled its new Canadian grown TOMZ snacking tomatoes in March that are being packed in new top seal formats. NatureFresh grows its proprietary TOMZ brand snacking tomatoes in Delta,

Ohio during the winter and in Leamington, Ontario during the summer

NatureFresh Farms will be attending the CPMA Convention & Trade Show in Toronto, Ontario May 9-11. Attendees are invited to visit Booth 107.

*Source: NatureFresh Farms April 10, 2017 news release*



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MINOR USE

# Quash fungicide label expanded for control of diseases on stone fruit



Eastern filbert blight on hazelnuts

JIM CHAPUT

The Pest Management Regulatory Agency (PMRA) recently announced the approval of an URMULE registration for Quash fungicide for control of brown rot and blossom blight and suppression of cherry leaf spot, powdery mildew and scab on stone fruit and for suppression of eastern filbert blight on hazelnuts and control of brown rot and blossom blight on almonds in Canada. Quash fungicide was already labeled for use on a number of crops in Canada for control of several diseases. These minor use projects were submitted as a result of minor use priorities established by growers and extension personnel.

The following is provided as an abbreviated, general outline only. Users should be making pest management decisions within a robust integrated

disease management program and should consult the complete label before using Quash fungicide.

Quash fungicide is TOXIC to aquatic organisms, non-target terrestrial plants, birds and small wild mammals. The use of this chemical may result in contamination of ground water particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. Do not permit Quash fungicide to contaminate off-target areas or aquatic habitats when spraying or when cleaning and rinsing spray equipment or containers. Follow all precautions and detailed directions for use on the Quash fungicide label carefully.

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

Crop(s)	Target	Rate (g/ha)	Application Information	PHI (days)
Cherries	Brown Rot Blossom Blight	175-245	Use in rotation with other <b>brown rot, blossom blight</b> fungicides beginning at early pink stage before infection occurs up to petal fall stage	14 days
	Suppression of Cherry Leaf Spot	280		
	Fruit Brown Rot	175-280	OR beginning at green tip if conditions are favorable for disease development up to petal fall for <b>cherry leaf spot</b> .	
Apricot, nectarine, peach	Brown Rot Blossom Blight	175-245	Use in rotation with other <b>brown rot, blossom blight and scab</b> fungicides beginning at early pink stage before infection occurs up to petal fall stage	14 days
	Suppression of Scab	175-280		
	Fruit Brown Rot	175-280	OR for <b>fruit brown rot</b> make application 14 – 21 days prior to harvest	
Plums, plumcots, prunes	Brown Rot Blossom Blight	175-245	Use in rotation with other <b>brown rot, blossom blight</b> fungicides beginning at early pink stage before infection occurs up to petal fall stage	14 days
	Suppression of Scab	175-280		
	Fruit Brown Rot	175-280	OR for <b>fruit brown rot</b> make application 14 – 21 days prior to harvest	
Hazelnuts / Filberts	Suppression of Eastern Filbert Blight	245	Begin applications starting at bud swell to bud break and continue at 14 day intervals. Under conditions which favor disease development, shorten spray interval to 10 days. Do not make more than 2 sequential <b>Quash Fungicide</b> applications before switching to a non-Group 3 fungicide for resistance management. Do not make more than 4 applications per season.	25 days
	Suppression of Powdery Mildew	245-280	OR use in rotation with other <b>powdery mildew</b> fungicides until terminal growth ceases. Do not make more than 1 application per season.	
Almonds	Brown Rot Blossom Blight	175-245	Begin applications prior to disease development and continue at a 7 to 14 day interval throughout the season. Do not make more than 2 applications after petal fall. Do not make more than 4 applications per season.	25 days



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## Weed ID app for fruit and vegetable growers

Imagine calling an electrician to be told that you have a short circuit but not told how it can be repaired. That's the way many weed identification apps work; they may help you identify a weed but not how to control it in your crop.

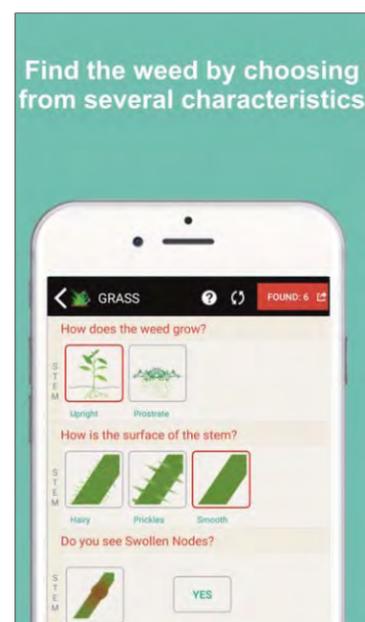
Now there's Savvy Weed ID & Control; a weed identification app that not only includes more Canadian weeds but also identifies every commercial herbicide brand in Canada that will control each weed in any crop, including virtually all fruit and vegetable crops. Developed in Canada by the same folks who have brought you Savvy Farmer for the past eight years, Savvy Weed ID & Control is an app that every farmer, agronomist, and retailer needs on their smart phone or tablet.

The best part . . . it's absolutely free courtesy of The

Savvy Farmer. Savvy Weed ID & Control uses simple language and easy to understand icons to help identify any one of 350 weeds you might encounter. That's up to five times as many weeds as with other popular apps. And the more weeds, the better your chances of identifying that mysterious weed, whether it is in your crop, your pasture, or along the ditch-bank.

What sets Savvy Weed ID & Control in a class of its own though is its real-time link to the Savvy Farmer pest control database, allowing the app to instantly search through more than 1,500 pesticide brands to identify which can control that mystery weed in any of the more than 900 crops grown in Canada.

Download it today by searching for "Savvy Weed" in either



the App Store (Apple) or Play Store (Android)..

Source: *Savvy Farmer* April 21, 2017 news release

## MINOR USE

## Report from the 15th Annual National Minor Use Priority Setting Workshop

JIM CHAPUT

Agriculture and Agri-Food Canada, Pest Management Centre (AAFC-PMC) hosted the 15th national minor use priority setting workshop in Ottawa during the 4th week of March.

This meeting brought together a wide range of participants from across Canada including university and federal researchers, crop extension specialists, provincial specialists, minor use coordinators, registrants, PMRA representatives, growers and grower organization representatives, processing companies and other stakeholders. In addition several individuals from the U.S. IR-4 program, Brazil and Australia also attended the meeting.

The purpose of this meeting was to review the top minor use priorities identified by each of the provinces for all crops including ornamentals and to establish the top priority projects for Agriculture and Agri-Food Canada, Pest Management Centre (AAFC-PMC) to do work on in 2018.

A preliminary resistance management forum was held on the Tuesday afternoon, was well attended and outlined many critical areas of concern from the various production and pest management interest groups. The first full day of the minor use program covered weed science priorities, the second day covered pathology priorities and the third day covered entomology priorities. This year biopesticide priorities were reviewed at the beginning of each discipline day and based upon national interest, three potential biopesticides projects were chosen each day for a merit analysis that will eventually choose four biopesticides Category A projects for PMC to undertake.

For the conventional minor use needs for each of the three main pest management disciplines, up to 10 top priorities (ranked as As) are chosen from a long list of identified crop protection product solutions. Additional secondary priorities (ranked as Bs) were also chosen for each discipline each day.

The provincial minor use coordinators could also add five regional upgrade projects at the end of the process and the organic industry could also add two priority projects to the list of chosen projects.

Additional top crop/pest issues that did not have any identifiable solutions were also chosen to be part of minor use screening trials designed to find some useful solutions for grow-

ers. At this year's meeting the top priorities chosen for this group (called APWS) included root rot on sweet cherries and fruitworm on raspberries.

The discussions, collaborations and decisions made at this meeting demonstrated the critical needs producers have and how the system can work to address them. Growers, researchers, registrants, provincial specialists and other stakeholders worked to reach

consensus and negotiate needs. Overall the process was successful and now the next step is for AAFC-PMC to complete the minor use submissions that were agreed upon.

Additionally the provinces also have to follow up on a number of potential submissions and rationales for minor use needs.

The following table summarizes the projects agreed upon for each discipline. These



Photo by Glenn Lowson

projects will be submitted to the PMRA by AAFC-PMC, and the data requirements completed in 2019-2020. Registration decisions for these will likely occur in late 2020 and 2021. A final version of the top projects

will be available this summer on the AAFCPMC website: [www.agr.gc.ca/env/pest/index\\_e.php](http://www.agr.gc.ca/env/pest/index_e.php)

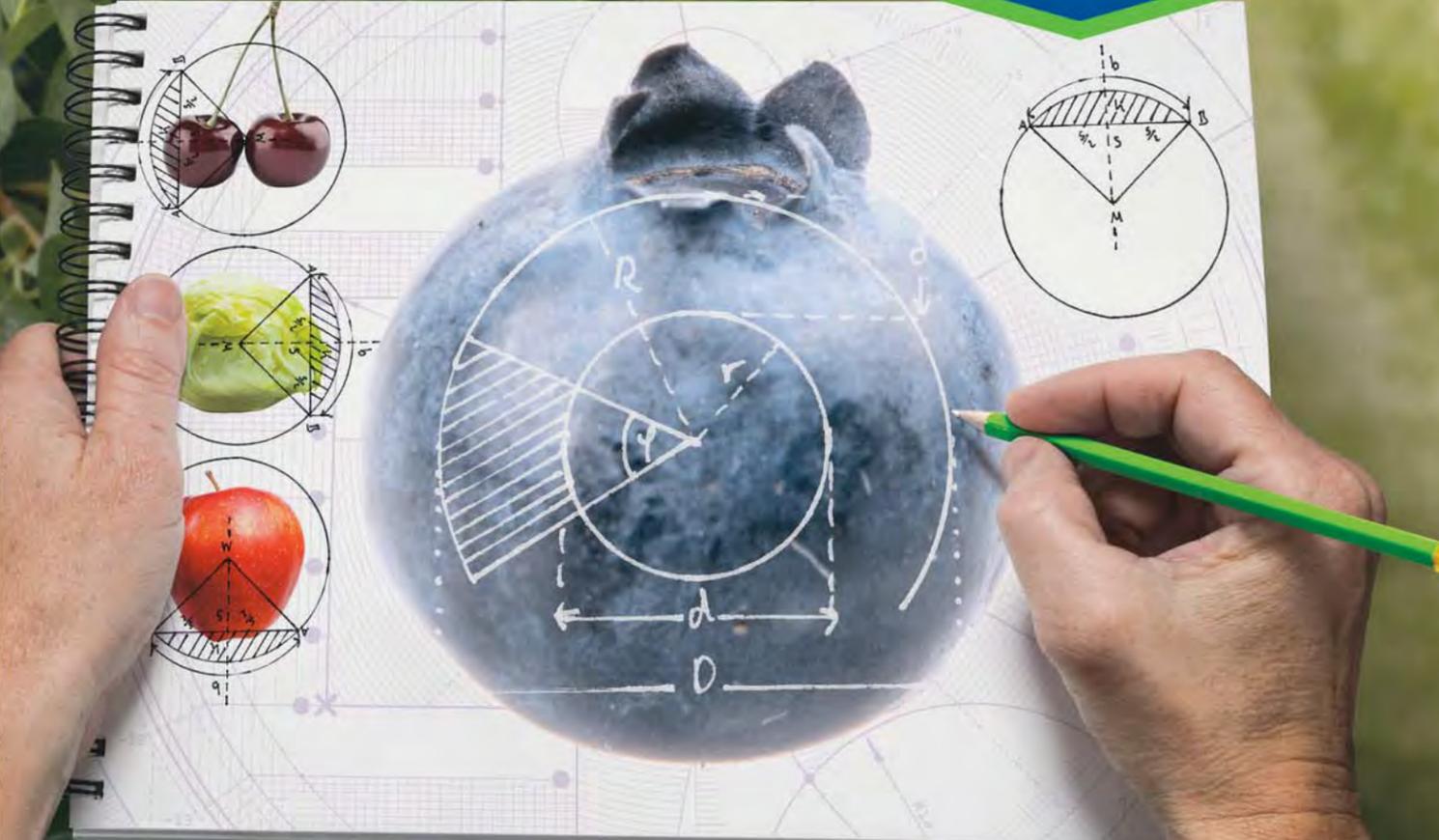
*Jim Chaput is OMAFRA minor use coordinator.*



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## MINOR USE

## CRAIG'S COMMENTS

## Only in Canada, eh?

CRAIG HUNTER  
OFVGA

I heard a great presentation last week at the Muck Crops Conference held in Bradford Ontario. An Ontario-trained, but now New York State-based scientist (plant pathologist) outlined a perfect fungicide use program to deal with the disease complex on onions. Christy Hoepfing didn't know it, but she was clearly making the very case about the looming crisis we have right here in Canada. Her program included the necessary use of chlorothalonil, iprodione and mancozeb (Bravo, Rovral and Manzate) to grow onions acceptable in the marketplace, and with a yield sufficient for a grower to make a living. New York growers at least!

In Canada, we face an uncertain future with all of these fungicides, and for several others as well. Canadian competitiveness will NOT be a consideration in the decision-making any longer. (Shame, shame!)

Never in the field of agricultural production, has so much been (proposed to be) taken from so many, with such a vacuum of reason. (With apologies to Winston Churchill!)

To add insult to injury, New York growers will continue to have full access to the Canadian supermarket shelves with their produce treated with all of these fungicides! (Because MRLs will remain in place since food residues are not in question!) How can this happen you may ask. Simply put, Canadian registration officials have

decided that the continued use of these fungicide products (which have been in use here for more than 40 years) suddenly now pose a threat to worker safety. This notwithstanding that no (none, nada, zero, nil, null, zip) incidents have been reported here of any worker effects over all that period of time!

Furthermore, their concern about worker safety is entirely based on the use of 'model' exposures, and the model does not reflect current Canadian exposure scenarios! (It may reflect the US situation in the past, yet their EPA has chosen to keep all these uses in place there in spite of using the same data base!) Furthermore, when we proposed that workers could be further protected here by the requirement of gloves to cover the only unprotected point of entry to human skin in the field, even this mitigation effort was refused. It was refused (hang onto your anger here—drum roll is indicated) because they couldn't be sure which kind of gloves should be used and more research was required!

This is from the self-same people who have a glove requirement (of unspecified type) on almost every pesticide label (6,500 and counting) for the handling of the undiluted product in mixing and loading operations! (DUH?)

Manufacturers were polled and have agreed to put this requirement on a label, and to provide the gloves, but to no avail! It would seem that there is more interest in banning the uses than in finding a way to protect these workers, mitigate their risk, and to keep agriculture competitive.

In a webinar dealing almost exclusively with chlorothalonil, they were 'so happy' (my emphasis) to offer a few more uses than those originally proposed in their re-evaluation document. They didn't understand why we were so overwhelmed! It was like we had been offered one left boot originally, but expected to be happy that we could somehow



hop across the puddle (grow a crop successfully with one application per year instead of six to eight) Now they offered us a second left boot, and expected that we would now be perfectly elated! Two left boots still means we cannot get across the (Very Deep) puddle, unless we go barefoot! They just don't get it!

Ever since pesticide regulation went from Agriculture Canada, to Health Canada, the staff understanding of agriculture has waned with each passing retirement. There are obviously none left there now to mitigate these scenarios. The hiring of bright young graduates has carried on apace, but there is neither a requirement for, nor any vestige of, agricultural production practice knowledge in the new intake. Hence, there is a default to the use of models to bridge the abyss. Even if we try to point out the realities of our use of pesticides, our earnest desire to protect our field workers, and willingness to accept new requirements such as gloves to be worn in the field, it seems all too apparent that they prefer to fall back on the use of a model to justify their decisions.

Herein lies the crux of the problem and it must end! Models should only be used in the total absence of field data. Furthermore, model-inspired outcomes should always be recalculated with 'real' data once it becomes available!

We have offered different means of gathering the information needed to make a better decision by documenting use patterns and worker

practice, but to no avail. How do you spell f-f-frustrating!

In the meantime, a collective group of Canadian plant pathologists needs to be putting their heads together and cobbling up a new disease control program for each crop currently dependent upon these fungicides. Of course, they need to figure out how to use what alternatives that now exist without creating an even worse scenario where they are lost due to the spectre of resistance. This is NOT just a threat; it is a reality just waiting to happen. Only in Canada you say? It seems that Canada is the ONLY jurisdiction even contemplating such action on these fungicides! Maybe they need to find out how all the other G7 nations can rationalize continued use, and adopt the same approach. What a concept!

All of this begs another question. Where is Agriculture and Agri-Food Canada (AAFC) in all of this? Is there no inter-departmental consultation any longer? If the growers' voices are no longer being heard, we should at least expect our federal voice to be speaking on our behalf. AAFC should be engaged in working with growers to gather the necessary worker activity patterns on every crop labelled for the use of these fungicides!

But wait! Where is CropLife Canada and its member companies on this issue? Some companies have actually declined to be engaged. Maybe they are part owners of the California data base and do not want easy access to generic manufacturers of such a new

'made In Canada' database.

The rest need to speak up, work with AAFC and the Pest Management Regulatory Agency (PMRA) needs to make the right decision!

The next step must be political-- one that **no one** wants to take. Every time things have devolved to the political stage, it becomes a lose-lose situation. But growers cannot just sit back on this one!

Can you imagine the public outcry when they found out that their tomatoes and potatoes now came from the U.S. because Canadian farmers could no longer produce them profitably here? The same for onions, and a dozen other crops. How could Health Canada staff answer for and create the briefing notes on that for their minister? I can just imagine how they would justify their use of an old U.S. model instead of actual Canadian data to remove fungicides from use, only in Canada, but accept the treated produce from elsewhere. I would just love to be the fly on that wall when the minister reads that, and knows she has to make that report in The House of Commons.

It would be much better for all involved to find a productive way forward- growers have offered their hand, and now must wait for the hand to be grasped by CropLife, AAFC and PMRA.

In the meantime, the presentation in Bradford still sticks in my craw as a reminder of what we have, and will lose without intervention.

The clock is ticking!

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## MINOR USE

## Chloropicrin 100 and Pic Plus fumigant labels expanded

JIM CHAPUT

The Pest Management Regulatory Agency (PMRA) recently announced the approval of URMULE registrations for Chloropicrin 100 Liquid Soil fumigant and Pic Plus fumigant for control of root knot and root lesion nematodes and soil-borne diseases caused by *Phytophthora spp.*, *Fusarium spp.*, *Pythium spp.*, and *Thielaviopsis spp.* in fields to be planted to bulb vegetables, cucurbit vegetables, pome fruit, stone fruit, forest nurseries and outdoor ornamentals in Canada. Chloropicrin 100 Liquid Soil fumigant and Pic Plus fumigant were already labeled for use on a number of crops in Canada for control of nematodes and soil-borne diseases.

These minor use projects for bulb vegetables, cucurbits, pome fruit, stone fruit and outdoor ornamentals were sponsored by Ontario as a result of minor use priorities established by growers and extension personnel.

The following is provided as an abbreviated, general outline only. Users should be making pest management decisions

In fields to be planted to the following crops	Target Pests	Rate CP 100 (L/ha)	Rate Pic Plus (L/ha)	Application Information
Bulb vegetables	Root knot and root lesion nematodes and soil-borne diseases caused by <i>Phytophthora spp.</i> , <i>Fusarium spp.</i> , <i>Pythium spp.</i> , and <i>Thielaviopsis spp.</i>	93	108	Broadcast or banded application
Cucurbits, CG 9		93	108	Broadcast or banded application
Pome fruit		93 - 140	108 - 162	Banded application only
Stone fruit		93 - 140	108 - 162	Banded application only
Outdoor ornamentals & forest nurseries		93	108	Broadcast application only
Onions	Pink root	93 - 140	108 - 162	Broadcast or banded application

within a robust integrated pest management program and should consult the complete label before using Chloropicrin 100 Liquid Soil fumigant or Pic Plus fumigant.

After application leave the soil undisturbed for 10 to 14 days. At the end of the exposure period, aerate the soil by plowing or deep cultivation. If heavy rains accompanied by low temperatures occur during the exposure period, working the soil several times is essential for thorough aeration. Aerate for at least 5 days after opening row.

Chloropicrin 100 Liquid Soil fumigant and Pic Plus fumigant

are toxic to aquatic organisms and small wild animals. Do not apply this product or allow drift to other crops or non-target areas. Do not contaminate off-target areas or aquatic habitats when applying or when cleaning and rinsing spray equipment or containers.

There are considerable and detailed label directions for this restricted use product including worker protection, field preparation, buffer zone and field notification requirements. Follow all precautions and detailed directions for use on the Chloropicrin 100 Liquid Soil fumigant and Pic Plus



fumigant labels carefully.

For a copy of the new minor use labels contact your local crop specialist, regional supply outlet or visit the PMRA label site [www.hc-sc.gc.ca/cps-](http://www.hc-sc.gc.ca/cps-)

[pest/registrant-titulaire/tools-outils/label-etiqu-eng.php](http://www.hc-sc.gc.ca/cps-pest/registrant-titulaire/tools-outils/label-etiqu-eng.php)

Jim Chaput is OMAFRA minor use coordinator.



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