KAREN DAVIDSON

Get set to count bodies on sticky traps.
It’s not everybody’s idea of a summer job, yet dozens apply for the painstaking work of identifying insect pests at the Muck Crops Research Station, Bradford, Ontario. Know the difference between a carrot rust fly and a carrot weevil? Better yet, can you differentiate between the damage of the larvae? You’re hired.

“Not much has changed,” says Dr. Mary Ruth McDonald, professor of plant agriculture at the University of Guelph since 1997. “We’re still training summer students to identify insects and diseases. We thought drones with their aerial imagery would have a promising future, but there are still wrinkles to be sorted out.”

These rituals are the basis of Integrated Pest Management (IPM) for onion and carrot growers, mostly resident in Ontario and Quebec. Together, they steward 20,000 acres of carrots and 13,400 acres of onions using IPM strategies: genetic, cultural, physical, biological and if necessary, chemical. Pesticides are a last resort. Growers rely on the crop scouts to say when an economic threshold has been exceeded and when it’s time to spray with reduced-risk insecticides.

Onion and carrot grower Kyle Horlings is a neighbour to the Muck Crops Research Station. He knows first-hand how valuable the weekly crop scouting is, in addition to replicated, annual research trials. He cites the example of several years of fumigant testing with chloropicrin (Pic-Plus).

“Instead of using a broadcast fumigant, we now use a site-specific fumigant in the hill of the carrot to kill nematodes and Pythium,” he says. “We’ve seen better crop yields in the Marsh.”

Continued on page 3
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The British Columbia Fruit Growers’ Association held its 131st annual general meeting in Kelowna on February 11-12, re-electing Oliver grower Pinder Dhaliwal as president. He is joined by Peter Simonsen, vice-president. Directors include: Ravinder Bains, Deep Bhat, Ari Gill, Sukhdev Grewal, Talwinder Ras and David Dobromig.

The Nova Scotia Fruit Growers’ Association held its annual general meeting in late January 2020 electing Peter Eisses, Centreville, to the role of president. He fills the shoes of past president Larry Lutz. Joining him on the executive are vice-president Janet Chappel and treasurer Robert Pellet.

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Congrats to the Farmers’ Markets Ontario winners of Awards of Excellence. The 2019 Farmers’ Market of the Year goes to Lisa Cooper and the Uxbridge Farmers’ Market for its turnaround performance at a new location. The Second Wedge Brewing Company’s parking lot. The 2019 Best in Innovation award goes to Carmen Locke who organized a fundraising supper for the Simcoe Farmers’ Market, celebrating its 40th anniversary this year.

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Vineland Research and Innovation Centre welcomes Hussam Haroun as director of automation. In his new role, he will oversee activities related to automation, artificial intelligence and digital agriculture technologies. He launched his own start-up after patenting and commercializing a new technology during graduate school. As CEO, he secured more than $3 million in seed investment and grew the company to 30 employees with multi-million dollar annual revenues.
The future: something old, something new

Ten years ago, I thought that the future of plant protection revolved around more and better reduced-risk pesticides and improvements in IPM monitoring methods and programs. Now there are so many more options.

~ DR. MARY RUTH MCDONALD

Continued from page 1

These refined crop protection strategies are working. In 2019, the weather was such in Ontario’s Holland Marsh that no insecticides were recommended for onion thrips or fungicides for downy mildew. It was too cool and dry. Because thrips counts remained below the spray threshold, growers saved four to six insecticide sprays. In the case of downy mildew, growers had a savings of four to eight fungicide sprays.

In previous outbreaks of thrips, the grower would spray the same insecticide twice, then change to a different mode of action. This targets a single generation with a single insecticide. The next generation of thrips would be exposed to a different mode of action. With this tailored recommendation, the spray threshold can now be increased from one to three thrips per leaf. A biological control fungus has been tested but is not effective.

This case study was shared by Dr. McDonald in her “back to the future” presentation at the McGill Sustainability Research Symposium on January 30.

“Ten years ago, I thought that the future of plant protection revolved around more and better reduced-risk pesticides and improvements in IPM monitoring methods and programs,” she said. “Now there are so many more options.”

Here are five ways crop protection is changing.

New equipment for new disease

Spare traps have modernized in that they collect spores in vials that are checked daily. Through DNA extraction, the spores can be identified and quantified as to whether thresholds are high enough to warrant spraying. This equipment is proving helpful with a new foliar disease, Stemphylium leaf blight which has emerged only in the last decade in onions.

“It’s still a puzzle,” explains McDonald, referring to the rise of Stemphylium. “We’re not sure if it’s global warming. It tends to develop in warmer temperatures but we also see it at cooler temperatures. With enough warm growing seasons, maybe there are enough of the pathogen to overwinter.”

This disease has proven tough to control, showing resistance to commonly used fungicides. Even some new products are not as effective as they should be.

Insecticide-coated seeds

Growers are now fortunate to source onion seed from California that has been pre-treated with a microscopic coating of insecticide to fight against onion maggot. This delivery system means that growers don’t have to handle the insecticide application. Additionally, a much smaller amount of insecticide is used and targeted.

Marker assisted selection

Plant genetics are progressing rapidly for better resistance to insects and diseases. Similar genetics but with different genes for disease resistance should slow the development of plant disease epidemics. Another interesting development is that vegetables are bred to emerge faster so that they can outcompete weeds. This is an important part of breeding carrots for organic production.

Field robots

McDonald foresees more use of small, self-propelled equipment, some using solar power. Planters, harvesters, monitors and sprayers will be highly efficient and able to work day and night. Spacing can vary so that plants can be seeded and harvested as needed, at optimum timing. Monitoring can be site-specific to an individual plant or leaf. If sprays are needed, they can be applied to very small, specific areas or to the whole field.

More and more, robotic weeder are being adopted for physical, non-chemical control of weeds. A robotic weeder made by Nexus in Nova Scotia will be tested in Ontario’s Holland Marsh in 2020.

Communication channels

Kevin Vander Kooi, research technician for the Muck Crops Research Station since 1997, has witnessed many changes over the years. The forecasting systems for disease have evolved and improved with new equipment. Resistant weeds, particularly pigweed, are becoming troublesome. He’s worried about the lack of herbicides to control pigweed in carrots.

What has changed the most is the way in which information is communicated to growers through Twitter (@MuckIPM) and a website: www.uoguelph.ca/muckcrop/

“This trap collects spores in a vial each day. Stemphylium leaf blight, for example, can be identified by its spores using molecular means. Twenty years ago, this modern spore trap was not in existence nor was the disease found in onions in the Holland Marsh north of Toronto, Ontario.”

Two generations of specialists examine the trial plots at the Muck Crops Research Station, Bradford, Ontario. L-R: Dennis Van Dyk, OMARFA vegetable specialist; Kevin Vander Kooi, research technician, Muck Crops Research Station; Dr. Mary Ruth McDonald, professor of plant agriculture, University of Guelph; Master’s student Alexandra Dacey.

The Grower goes “Behind the Scenes” with Dr. Mary Ruth McDonald, professor of plant agriculture at the University of Guelph to discuss what’s new in integrated pest management. A return to old manual practices is getting a thumbs-up with field robots.

Editor’s note: The Muck Vegetable Growers’ Conference to be held April 1 and 2 in Bradford, Ontario, will be available live through Adobe Connect. If you can’t attend in person, you can see the slides and hear the speakers. It’s also possible to forward a question in real time.

The Growing edge of new and improved carrots.
Apple grower margins sliced too thin

MYRNA STARK LEADER

With many apple growers facing a third year of losses and 2019 costs of production growing larger compared to poor returns, the tone was somber at the 131st BC Fruit Growers’ Association (BCFGA) annual general meeting and convention held in Kelowna Feb. 11 and 12.

Although BCFGA represents about 400 members who grow mostly apples and cherries, challenges in the apple business were the focus for the approximately 100 growers who attended.

“The tree fruit sector is at a crossroads,” says Pinder Dhaliwal, president of BCFGA.

Eighty to 90 per cent of BCFGA members market through the BC Tree Fruit Cooperative which distributed an average initial production payment of $0.15 lb for all fruits marketed. The average cost to grow is between $2.20 to $5.00 lb depending on various factors.

To help address the critical situation, the BCFGA board of directors brought forward a late resolution entitled Disastrous apple growth is between $.20 to $0.50/lb marketed. The average cost to grow is between $2.20 to $5.00 lb depending on various factors. The BCFGA board of directors brought forward a late resolution entitled Disastrous apple crop, some from poor farming practices and neglected farms, some from backyard trees as well as some from old orchard wood being transported and used as firewood. For 2020, the budget of the Sterile Insect Release (SIR) program remains at $480 per acre, of which growers pay $140/acre thanks in part to revenue generated by sales of sterile moths to the U.S. “It’s worse everywhere—U.S., Australia,” says Melissa Tesche, SIR’s general manager.

Compounding the pressures are labour issues such as attracting and keeping staff, on-farm housing, increased requirements for foreign worker programs and minimum wage of $13.85 per hour rising to $14.60.

on June 1, 2020. Agricultural Land Reserve changes are adding more regulations for farmers including what can be done to value-add on the farm, limiting home size and number of homes. And, apple prices face downward pressure from U.S. apple imports and smaller packers opting out of the coop system.

Both new Cooperative president Steve Brown and new CEO Warren Sarafinchan said the coop is close to finishing a go-forward plan and promised to share it with growers shortly.

“But make no mistake about it, the biggest hurdle will be saying united,” says Brown.

By video from Asia where he was attending marketing meetings, Sarafinchan says every element of the business has been studied and the way forward will involve trust, collaboration and innovation including more communication with growers.

“We have a lot of work to do. I don’t want to minimize the effort to get there . . . I’m convinced we have a future but it will come down to some decisions . . . When you don’t make decisions, that’s a decision and we won’t put ourselves in that position.”

Economies are such that most of the province’s replenant dollars are going into new cherry orchards, not apples. In 2019, 97 apple acres and 202 cherry trees, compared to 152 and 45 in 2015. (Ambrosia apples and Staccato cherries are top varieties) That said, BCFGA has requested immediate action to renew the program for a further seven years. The current program ends in 2021 with the deadline to apply April 20 of this year.

“This long-term program is important, particularly during these challenging times,” says Dhaliwal.

One bright spot is the popularity of the Ambrosia apple. “Ambrosia is not a commodity apple,” says Glen Lucas, general manager, BCFGA. “Our problem is that we are trying to sell it all in western Canada. Trade agreements with Asia are good and an opportunity for us. We used to ship apples to Britain.”

One development is that the New Varieties Development Council, formerly the Ambrosia Council, applied for and received funding to promote Ambrosia in the under-served eastern Canadian market. With new apple varieties still in the future, Lucas says Ambrosia efforts should be directed to markets outside Canada, maybe even Europe now that Brexit is reality.

Given challenging times, more than 30 resolutions came to the floor, everything from opposing new provincial burning regulations to request changes to AgriStability, for example to make it more equitable for multi-crop farms. There were also calls that the CAP program provide a grant for food safety equipment such as hand washing stations and other equipment now required to meet standards, a call for an independent study of the cherry production insurance program and a call to reduce the Ignite pre-harvest interval from 40 to 14 days. Growers also called for immediate federal research funding to find effective ways to combat Apple Clearwing Moth.

Producers were also strongly encouraged to apply for AgriStability and use their Agri-invest funds for these rainy days “It’s very scary,” commented one grower. “The government might come through once but what happens if this situation happens again next year?”

“The late resolution has hit the nail on the head,” said south delegate Denise MacDonald. “This time around, I feel like the rules have changed. We’re getting too many programs that farmers have to pay for to be compliant . . . climate change adaptation, food safety . . . If we really want food security in this country, then we really need to support the primary producers.”

Referring to the Agricultural Land Reserve, one grower opined, “I think it comes back to when they (the province) protected the land, now they have to protect the farmers.”

Myrna Stark Leader is a freelance agricultural journalist based in Kelowna, BC.
Well-known apple industry innovator Don Peters has been named the 2019 Arysta Golden Apple Award winner. The award was posthumously presented on February 18 at the Ontario Fruit and Vegetable Growers’ Association annual meeting. Peters, who had served as vice president of N.M. Bartlett Inc. since 1987, died in December 2019 after battling cancer.

"Don was very well respected throughout our sector and dedicated his career to working with growers, designing solutions to help improve apple growing in Ontario," says Cathy McKay, chair of the Ontario Apple Growers. "He had an uncanny ability to problem-solve and think outside the box, and left his mark on many apple technologies and facilities across our province."

An inventor at heart, Peters designed and built a wide range of innovations, from the first fully automated apple packing line with electronic grading and defect sorting in 1990 to an electrically-driven, remote control bin moving system in 2016. He also designed apple packhouse layouts for many of Ontario’s leading apple producers, and travelled widely to find the best equipment and practices for his customers.

Peters was passionate about crop protection and pest control, working together with a professor from Western University to develop the first electrostatic sprayer. This technology is still offered on sprayers around the world today to reduce off-target pesticide application. He also served as chair of the Ontario Provincial Council of CropLife Canada in 1989, where he tackled issues such as triple rinse containers, and was involved nationally on CropLife Canada’s Marketing Code of Ethics Committee in the 1990s.

Peters grew up on a small fruit farm in Jordan Station and graduated from Brock University in 1972 with a Bachelor of Science degree. He first joined Bartlett’s in 1973, and became a territory sales representative in the Leamington area the following year where he worked closely with local growers on care and use of crop protection products and orchard equipment.

"Don loved his work and working with people and dedicated his life to the betterment of agriculture and the Ontario apple industry," says McKay.

The Arysta Golden Apple Award is presented annually to a recipient who has made outstanding contributions to the Ontario apple industry. The Ontario Apple Growers represents the province’s commercial apple farmers. Visit www.onapples.com.
Traditionally, the Ontario Fruit and Vegetable Growers’ Association (OFVGA) gives its award of merit to an individual in recognition of service to the industry. Occasionally, it has been awarded to a program or a couple of people. This year the award is going to thousands of people for their dedication to the Ontario Food Terminal.

The OFVGA would like to show its appreciation to the farmers, wholesalers, salespeople, cashiers, tow motor operators, drivers, the people that clean the docks, remove the snow, provide security, the buyers, maintenance workers, food terminal board, office staff, and the management team.

The Ontario Food Terminal is a public-private partnership that provides Ontarians and Canadians with fresh and affordable produce. No public monies are used in the operation of this facility as the operation is entirely self-funded from fees charged to users of the terminal. On any given day, more than 5,000 people work there. Today, the Ontario Food Terminal is the largest produce distribution centre in Canada, and the third largest in North America, after New York and Los Angeles.

By having a facility where both Ontario growers and wholesalers are together – a one-stop shopping environment is created. This is a win for the buyers, wholesalers, and growers.

The Food Terminal provides the space for small- and medium-sized operations to participate in the growing, buying, and selling of fruits and vegetables. The market supports Ontario farmers, local fruit and vegetable stores, independent grocers, restaurants, caterers, farmers’ markets, food distributors, non-profits and charities, institutions, as well as larger grocery stores that require specialty produce.

Anyone who has visited the Food Terminal knows that it is a special kind of person that works and thrives there! Some employees arrive between midnight and 1:00 am. The majority arrive between 3:30 and 6:00 am. Where else would you find people willing to start their job so early in the day? These are all special people and each and every one of them needs to be thanked for all that they do.

Without this huge team of individuals working together we would not have an Ontario Food Terminal.

Alison Robertson is executive director, Ontario Fruit & Vegetable Growers’ Association.

Photos by Glenn Lowson
OFVGA ISSUES AND ACTIVITIES

Engaging and coordinating multiple voices to government

Early in February OFVGA met with its government relations firm, McMillan. Vantage to strategize priority issues for the coming months and year. The staff at McMillan has become very strategic assets for the OFVGA as it navigates today’s political landscape. The provincial government is nearly two years old and with that comes changing priorities as it positions itself for the next election. The federal landscape is considerably different with a minority government at play.

So, what does this all mean for government relations strategy? From the meeting with McMillan, some themes became clear.

A single voice is not enough. In an age where it is easy for anyone and everyone to influence government through social media, having a single voice, even if representing thousands of fruit and vegetable farmers, is still only a single voice.

Government needs to demonstrate that it has heard from all sides and that the position taken is going to be supported by the majority of stakeholders who have an opinion on the matter.

The message needs to remain consistent. Multiple voices do not mean multiple messages. Messaging to government needs to be done in a consistent and coordinated manner so that elected officials are not getting conflicting perspectives.

A few phone calls are more impactful than many emails. When industry needs to get the government’s attention on a matter in a hurry, coordinated calls from grassroots farmers to their elected representatives are far more likely to incite action.

Provincial organizations have an increasing role in lobbying the federal government. In the past, I believed that provincial organizations such as the OFVGA needed to work through their national association, such as the Canadian Horticultural Council (CHC), to get traction on federal issues. More and more the federal government has become receptive to receiving regional perspectives, recognizing policies can impact provinces in drastically different ways.

National organizations continue to have a vital role to play. Having staff in Ottawa is valuable to maintaining ongoing relationships and point of contact with the federal government. CHC, for example, needs to be strong to coordinate messaging for the provinces.

So, what does this mean for government relations activities at the OFVGA? For starters, it means we need to employ the grassroots to carry messages to local Members of Parliament and Members of Provincial Parliament. To prepare farmers for some of this work, the OFVGA has recently partnered with Farm and Food Care Ontario to offer Speak Up training during two sessions in March.

Nationally, the OFVGA is increasing its efforts on federal issues. Two of the sector’s top issues are crop protection and labour, which are impacted substantially by federal legislation. To support this, the OFVGA is working to increase its efforts at the federal level both directly in Ottawa, but also meeting with local Members of Parliament who, if informed, can effectively carry our message to Parliament Hill. It is important for all provinces to consider this targeted outreach to support the work done in Ottawa by our national voice, CHC.

The themes I just noted don’t override my primary approach which is to build relationships within government and be as collaborative as possible. Government relations is not an exact science, which can be even more challenging during turbulent times. This is why OFVGA works so closely with McMillan as we work to carry and coordinate the voice of Ontario’s fruit and vegetable sector at the provincial and national level.

Want to see an issue highlighted here, or learn more about how OFVGA represents growers? Contact Gordon Stock, senior policy and government relations advisor, at gstock@ofvga.org or 519-763-6160 ext 125. More detailed updates can also be found at www.ofvga.org/news.

GORDON STOCK
Senior Policy Advisor & Government Relations, OFVGA

A single voice is not enough. In an age where it is easy for anyone and everyone to influence government through social media, having a single voice, even if representing thousands of fruit and vegetable farmers, is still only a single voice.

– GORDON STOCK

Stokes Seeds Trial Evaluation: Researching the best for our customers since 1881.

OUTLAW
37 days. Upright bushy plant with concentrated set of glossy, 5.2 in/13 cm dark pods.

EVERGLADE
43 days. Upright, glossy 6-7 in/16-17 cm fruit with high yield potential.

BESPERADO
50 days. High quality 1 seed medium green bean with straight pods.

ACCOLADE
83 days. Tight seed cavity and extra firm dark orange flesh provides longer shell life.

— Quality Seed Since 1881 —

Grower priorities for the next provincial budget

The Ontario government is getting ready to bring down its next budget. Part of that preparation includes consultations with many different stakeholders to learn about what is important to Ontarians when it comes to provincial government spending.

The government actually understands these kinds of consultations on many different legislative changes they are contemplating, not just the provincial budget.

That’s why one of the activities OFVGA spends a bit of time on is participating in these consultations, whether by attending in person to make a presentation or by submitting written comments.

This is one of those behind-the-scenes activities that makes up an important part of advocacy and of how OFVGA makes sure grower concerns are brought to the forefront. We also work collaboratively with the fruit and vegetable commodity organizations on these consultations to ensure our messaging is consistent and complementary when we are attending similar events or responding to the same consultations.

Here are the issues we have put in front of the provincial government as part of the budget consultation:

Competitiveness pressures: Growers continue to deal with ongoing competitiveness challenges from legacy government policy and current trade instability. We appreciate ongoing efforts to reduce red tape and make it easier to do business in Ontario, but in light of these pressures, we are asking the government to maintain adequate supports for Ontario’s second largest agricultural sector.

OMAFRA budget and resourcing: We support the government’s focus on fiscal responsibility and efficiency, but we’re concerned about potential program and service cuts at the Ontario Ministry of Agriculture, Food and Rural Affairs that could have negative impacts on our long-term sustainability and competitiveness.

For example, OMAFRA’s strong network of extension specialists is an invaluable resource to the sector that we encourage the government to maintain.

Risk Management Program (RMP) cap: We’ve been actively working with Minister Hardeman and OMAFRA staff on a review and redesign of the Self-Directed Risk Management (SDRM) program for horticulture. We appreciate the government’s ongoing support of RMP and SDRM, and are asking for implementation of the 2018 campaign promise to raise the overall program cap from $100 to $150 million.

Financial protection for growers: There has been little progress federally to establish a national system to protect fruit and vegetable growers from risks related to slow payment, non-payment and bankruptcy. So we’ve had some meetings with provincial government representatives around the potential of addressing some of these risks at the Ontario level and are asking the government to continue to investigate some possible options.

Foodland Ontario funding: Foodland Ontario is one of the most visible aspects of OMAFRA’s services to the industry and is very well recognized by consumers. It’s in the interest of everyone involved in local food that the brand remains strong and well supported, and we would welcome discussions with the ministry about how we can collectively ensure the ongoing success of the program.

Industry input into Canadian Agricultural Partnership (CAP): In order to leverage the CAP funding programs successfully, they must be delivered in an accessible, ongoing and predictable manner. We’re asking for the opportunity to provide input into how funding is accessed, allocated and delivered.

Northern Fruit and Vegetable Program and Fresh from the Farm: Through the northern school program, we provide more than three million servings of fresh fruits and vegetables to more than 76,000 students in more than 415 northern Ontario and Indigenous schools. Fresh from the Farm offers healthy fundraising options for Ontario schools. We have appreciated the strong government support of both of these programs and encourage the province to continue to partner with us on these initiatives in the years to come.

To some of you reading this, it may seem as though we talk about the same issues all the time. And you’re not wrong. Government advocacy takes time and with many different organizations and sectors vying for the government’s ear, it’s important for us to be persistent and consistent – especially when many decision-makers are unfamiliar with who we are and what we do.
**Research from the Canadian Centre for Food Integrity (CCFI) shows that people want to know about how food is grown in Canada. More to the point, they want to hear about it right from the source: farmers. Those on the land are the most preferred source of food production information, surpassing any other group.**

That’s a huge vote of confidence.

It’s also a lot of pressure. There are almost 38 million Canadians . . . and about 193,000 farmers. That’s a tonne of people with questions, but comparatively speaking, not that many with answers.

Yet some in the industry think 193,000 voices is too many. Speak with one voice, they say. I think they mean speak with one opinion on policy issues; they believe too many opinions emanating from the farm community are confusing. That’s especially true if the audience is decision makers who don’t really understand agriculture, but are making policies that impact a wide range of commodities.

The question of who will rise up nationally to explain farming practices to the public has been asked many times and for many years, but seldom answered.

Now, a couple of initiatives are underway, or pending, that makes it look like Ottawa is following the lead of grassroots efforts such as Canada’s Food Day in August, and stepping to the plate.

First, momentum is gaining for Canada’s Agriculture Day, a national celebration intended to put the spotlight on agriculture and food production. This event, now in its fourth year, is strategically held in February to remind everyone that agriculture is a year-round pursuit.

This year the organizers, Ag More Than Ever (another national effort), staged a campaign called “Forks Up,” asking participants to post a selfie of themselves with some Canadian food on their forks. It was a good use of social media and the ongoing drive to reach a wide audience.

But the big dog’s still on the horizon. Over the next five years, Agriculture and Agri-Food Canada (AAFC) is planning to spend about $25 million on a campaign to promote Canadian food and agriculture. No one knows much about it yet. A few weeks ago, AAFC announced it was seeking a marketing firm that could carry out such a national campaign. It won’t have any trouble finding one: this is a huge opportunity for one of Canada’s many superb agri-marketing companies to throw their hat in the ring, and explain why the importance of agriculture and the knowledge of agriculture is an eclectic ride through the ups and downs of life, finding one’s inner peace, and the ups and downs of life, finding one’s inner peace, and the ups and downs of life, finding one’s inner peace, and the ups and downs of life, finding one’s inner peace.

Marilyn Smith: Peace, Love and Fibre.

Marilyn is a popular media personality, award-winning cookbook author, and the only Professional Home Economist in Canada who is also an alumna of the Second City Comedy Troupe, making her the self-proclaimed funniest P.H.Ec. in the world. Her talk on our long-term health all about territory. The agriculture sector is way, way behind the curve right now. This CCFI research also showed most Canadians – more than 90 per cent – know little, if anything, about agriculture and about how food is produced. That kind of a statistic pro-motes anxiety about our food system, not trust. And there are so many good reasons to have trust in Canadian food. That’s one of the messages I hope is communicated in the national campaign.

To me, the main thing is that something is finally being done on the national stage to explain farming. Someone’s taking the lead. The federal election showed us Ottawa has a new step.
Navigating legal requirements as employers

If you employ workers on an Ontario farm, you may at some point find yourself in a situation where you receive a compliance order from a provincial employment standards officer. It may be about an issue such as overtime pay, holiday pay, vacation pay, or other employment standards for which there are agriculture-specific rules and exemptions. Or perhaps you don’t even have a compliance order letter sitting on your desk, but rather you just want to know what your legal requirements are in these areas and get some clarification.

In these instances, Ontario growers are encouraged to take advantage of the resources available through the Labour Issues Coordinating Committee (LICC) which can help growers assess their situation before they resort to getting a lawyer. LICC is a grower-led cooperative of several industry groups including FARMS, the Ontario Fruit and Vegetable Growers’ Association, and commodity organizations.

Not all rules are clear cut, and sometimes disputes between a grower and an enforcement officer need to be settled at the Ontario Labour Relations Board or at higher levels of court such as the Ontario Divisional Court or even the Supreme Court of Canada. Court cases not only resolve individual disputes, but they can also serve to set legal precedent for other farms in similar situations in the future. For this reason, LICC will at times intervene in court cases to represent broader industry interests, such as a recent court case brought by Rouge River Farms in response to a Ministry of Labour compliance order, which denied agricultural status and related legal provisions to major parts of the farm.

The farm’s appeal, supported by LICC, was successful in 2019 and now serves as legal precedent to ensure similar farms in the same situation are not treated unfairly as if they were industrial or commercial employers. If you have questions about your legal rights and obligations as an employer, or you are considering next steps with a compliance situation, Ontario growers are encouraged to reach out to your commodity association office to be put in touch with Stefan Larrass at licc.stefanlarrass@gmail.com, with your question or concern.

Stefan Larrass is policy advisor, Ontario Fruit & Vegetable Growers’ Association.

COMING EVENTS 2020

March 3  Asparagus Farmers of Ontario Grower Day, German Hall, Delhi, ON
March 3  BC Cherry Association Annual General Meeting, Ramada, Kelowna, BC
March 3-4  1st Annual Nova Scotia Department of Agriculture Minister’s Conference, Halifax Convention Centre, Halifax, NS
May 10  Invasive Pest Information Night, The Hare Wineries, Niagara-on-the-Lake, ON 5:8 pm Pre-registration: lbell@invasivespeciescentre.ca
May 10-12  Canadian Horticultural Council Annual General Meeting, Westin Ottawa, Ottawa, ON
Mar 15-21  Canadian Agricultural Safety Week
March 17  Nova Scotia Fruit Growers’ Association Spring Workshop, Fire Hall, Berwick, NS
March 25  Farm & Food Care Speak Up seminar, Simcoe Research Station, Simcoe, ON
Mar 24-26  Minor Use Priority Setting Workshop, Hilton Lac-Leamy, Gatineau QC
March 25  Farm & Food Care Speak Up seminar, Vineland Research & Innovation Centre, Vineland, ON
Mar Apr 1  Global Berry Congress, Rotterdam, Netherlands
March 31  Ontario Tender Fruit Growers’ District 3 & 4 (Essex, Kent and Lambton) Annual General Meeting,Colsant’s Tropical Gardens, Kingsville, ON
April 1  Ontario Tender Fruit Growers’ District 5 (Haldimand-Norfolk) Annual General Meeting, The Blue Elephant, Simcoe, ON
Apr 1 – 2  Muck Vegetable Growers’ Conference, Bradford, ON
April 2  Ontario Tender Fruit Growers’ District 1 & 2 (Niagara) Annual General Meeting, Hernder Estate Winery, St. Catharines, ON
April 2  3rd Annual Ontario Craft Wine Conference & Trade Show, Beanfield Centre, Toronto, ON
April 8  Grape Growers of Ontario Annual General Meeting, 7 pm, Club Roma, St. Catharines, ON
April 15  Farm & Food Care Annual Conference & Speakers’ Program, Country Heritage Park, Milton, ON
April 24-26  Cavèe Weekend, Scotiabank Conference Centre, Niagara Falls, ON
April 30  Strawberry and Raspberry IPM Training, W. Galen Weston Centre for Food, Durham College, Whitby Campus, Whitby, ON
May 2-6  International Strawberry Symposium, Rimini, Italy
May 7  Strawberry and Raspberry IPM Training, OMAPRA Resource Centre, Simcoe, ON
May 12  Ontario Garlic Workshop, Guelph, ON
Different strokes for different folks

Take a few minutes to think about how different retailers. A simple exercise is to take a piece of paper and put the different retailers across the top, into separate columns. On the side of the page list all of the attributes you can think of that impact your product and the relationship with that retailer. It becomes very clear where they are different.

There are more categories you can add but it is obvious from this table that you need to work on different opportunities with different retailers. You should start with their format and what they are trying to accomplish in the market, and then consider how your business interacts with them. If you are struggling to think of how they are different visit the store. Take note of the messages you see on signage and what they are saying to consumers. Look at the merchandising to see how they are displaying your products and others in the category.

Don't just change the cover page

Trust me, I could tell if a supplier just changed the cover page on their presentation to me. It is frustrating to your customers when you do not take the time to consider what they are trying to work on and be a part of their program to make their store succeed. You will sell many more of your products when you figure out how to do it within the program they have for their overall store.

If you consider the information in the chart, your meeting with retailer A should focus on quality and a pricing program that will allow them to advertise the item a number of times during the year. This is how they are trying to drive traffic into their stores. They want to differentiate locally so you need to support these initiatives and tag them in your social media that shares your story. This is what will resonate with them and help you develop the relationship you need to accomplish your goal, which is to sell products. Your program for the upcoming year should include recipes and a plan for demos.

When you are preparing for a meeting with retailer B you need to focus on value and what opportunities you have for them to drive volume. You also need to address the quality issues you had. What changes have you implemented to ensure it will not happen again? Is it possible for your quality people to talk to their quality people? Work on this so you do not have to deal with it in the future.

Your plan for retailer B should not include recipes or demos because that is not what they are focused on. They might even see that as a waste of money and think of you having extra money to spend with them on your every day price. Do not give them the opportunity to reallocate your marketing dollars.

When you build separate programs you need to assess the spend with each retailer to ensure it is fair and equitable. Total up all the different investments you are making with each retailer and add them to your everyday selling price. Does it make sense for the volume you are doing with each retailer?

One issue that is always a challenge is freight. Some retailers want a delivery every day to their warehouse. For some reason, even on storage crops they think it is ‘fresher.’ There is a cost to this if you are not delivering full loads every time. Try to illustrate this to them. They will not always agree but you need to show them how much you are investing to provide 12 pallets on six loads as opposed to three full loads. All of these costs add up.

One size does not fit all

It is more work to create separate programs but in the end you will be rewarded with better relationships and more sales. You will generate the sales differently in different stores and that is what will make you more valuable to them. You do need to be ready for the question about why you are doing something different in another store. As long as you can illustrate how different things support their position, they should be happy.

If you have any questions about creating a unique plan for your customers please give me a call at (902) 489-2900 or send me an email at peter@skufood.com. Next month we will discuss how to understand the investments you need to make.

WHAT’S IN STORE?

Packaging is changing

We know there is a lot of focus on sustainability, the environment and many other topics related to this complicated issue. My preference is to look at the total environmental impact of a product, the packaging and the distribution. That can become very complicated and perhaps it is unrealistic. What I worry about is that industry will have change mandated that is not the right change.

When I was in the store this week the laundry detergent caught my attention. The packaging is very unique and I believe it is the biggest reason the product is on the shelf in the natural food section. A compostable fibre container of laundry detergent is definitely unique, considering there is 80 feet of five-deck shelving in the regular grocery section with single-use plastic bottles. My question is would you buy it?

From a quick look in the store you get 66 wash loads compared to 60 wash loads of the next product on the shelf. You also pay $14.99 vs. $8.29 or you can leave the natural food section and go to the grocery aisle where Tide original 24- wash load is $8.99.

What would you buy? More importantly what will consumers buy?

Every day low price (EDLP)

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KAREN DAVIDSON

By end of March, seed potatoes will be on route to their final destinations for #plant2020.

**Potato Production**

Alberta leads seed potato supplies, up 21 per cent

*Photo courtesy of Michiel Buijsse, Buijsse Farms, Taber, Alberta.*

By end of March, seed potatoes will be on route to their final destinations for #plant2020.

**British Columbia** – Doug Gilmore and his son Chad grow 60 acres of seed potatoes in the Pemberton Valley north of Whistler. They have a plant date of late May after the snow pack recedes. Their seed supply is sold out with the exception of the Chieftain variety. Most of their seed goes to growers in the Lower Mainland. "When I started farming in the early 1970s, there were 17 seed growers in the Pemberton Valley but we’re down to five now," says Gilmore. "Farmers can’t afford to buy land due to skyrocketing real estate prices so close to Whistler and Vancouver. There used to be a thousand acres of seed potatoes in this valley but now there’s only about 300."**

Alberta – John Ekkel is in a positive mood with 660 acres of seed potatoes sold for 2020. He and his children Jeff, Dustin and Kayla farm near Lacombe. About 60 per cent of their seed goes to the U.S. as far as Arizona. Processing companies are expanding both in the U.S. and Canada, so demand signals are encouraging them to look into growth opportunities. "We had one of the best harvests in four years," says Ekkel, referring to 2019. "Quality is excellent." They are increasingly growing private varieties for Dutch and American companies. "We know two years in advance what the prices will be. This helps de-risk the farming operation."**

**Ontario** – Glen Squirrel, Shelburne, Ontario grows 50 acres of seed, supplying local customers. He is sold out on popular varieties such as Chieftain and Yukon Gem. He will top-up seed supplies from New Brunswick and Prince Edward Island, reflecting the 40 per cent decline in Ontario seed supplies as reported by Agriculture and Agri-Food Canada. "Quality is good," he says. "There’s nothing like a hot, dry year like we had in Ontario last year to make a good quality crop. We did not have the harvesting issues as in some other provinces."**

**Quebec** – Laurence Côté, Quebec Parmentier, represents growers with 3,000 acres of seed potatoes in the Saguenay region. “Supplies are tight,” says Côté. “We are experiencing strong demand for reds, yellows and round whites. There are still some russets available such as R. Burbank and Goldrush.”

The good news is that PVY levels are very low. There was virtually no frost damage in 2019, compared to the previous year. There are fewer off-type, misshaped potatoes. It was virtually a perfect growing season in the Saguenay in terms of precipitation, and that led to good harvesting conditions. Overall, the mood of growers is very good going into 2020. The seed sector is very organized in Quebec. Equilibrium between supply and demand has been achieved for years.

**New Brunswick** – Gailen Allan, located a few miles from the McCain headquarters in Florenceville, New Brunswick, is sold out of seed potatoes from his 145 acres. All of his customers are within a 50-mile radius of the farm. McCain has invested in two new lines, signaling the need for more potatoes and therefore seed. "We had a great harvest last year and quality is excellent," says Allan. “A neighbouring grower is currently grading Atlantics to go south, and there are less than one per cent culls.”

The total acres of seed potatoes in New Brunswick are declining due to farmers retiring from the business, but that means opportunities to expand for others willing to dedicate resources to the business. Allan, for example, is taking on the new chipping variety Lamoka and is the exclusive dealer for Turnick.

**Prince Edward Island** – Donald Stavert grows 300 acres of seed potatoes near Summerside. Prince Edward Island suffered different effects of September’s Hurricane Dorian depending on location. Some growers were hard hit with six inches of rain in 24 hours while others experienced high winds.

Most of his supply is sold out with exception of Kennebec. He is taking good quality out of storage facilities. Reds are in high demand at 24 cents/lb because the Red River Valley in the U.S. had a poor crop last year. "I’m getting enquiries from Manitoba," reports Stavert. "There is diminishing demand for round whites. However, demand exists in the Caribbean for long whites."

**Equilibrium between supply and demand has been achieved for years.**

*Editor’s note: for more analysis, go to page 14.*
Is pink rot on your radar?

Defend your crop with Orondis Gold.

Applied in-furrow, Orondis® Gold fungicide goes to work early in the season, protecting your potatoes throughout the year from damaging diseases such as pink rot and Pythium leak. Orondis Gold combines the power of metalaxyl-M (Group 4) with oxathiapiprolin (Group 49) – a new mode of action to suppress pink rot and help manage resistance.

For more information, visit Syngenta.ca, contact our Customer Interaction Centre at 1-877-SYNGENTA (1-877-796-4368) or follow @SyngentaCanada on Twitter.

Always read and follow label directions. Orondis, the Syngenta logo and the Syngenta Black Bucket logo are trademarks of a Syngenta Group Company.

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**Seed synopsis 2020**

**Canadian Seed Acres Certified 2009-2019**

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<tbody>
<tr>
<td>Total Acres</td>
<td>55,500</td>
<td>57,721</td>
<td>57,810</td>
<td>55,500</td>
<td>57,721</td>
<td>57,810</td>
<td>55,500</td>
<td>57,721</td>
<td>57,810</td>
<td>55,500</td>
<td>57,721</td>
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**Canadian Seed Acres by Variety**

<table>
<thead>
<tr>
<th>Variety</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russet Burbank</td>
<td>11,538</td>
<td>11,261</td>
<td>11,855</td>
<td>13,258</td>
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<tr>
<td>Goldrush</td>
<td>3,947</td>
<td>4,365</td>
<td>3,833</td>
<td>4,148</td>
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<tr>
<td>HO2000</td>
<td>2,179</td>
<td>2,387</td>
<td>2,338</td>
<td>2,308</td>
</tr>
<tr>
<td>Norland</td>
<td>1,855</td>
<td>2,141</td>
<td>2,192</td>
<td>2,141</td>
</tr>
<tr>
<td>Ranger Russet</td>
<td>1,708</td>
<td>1,902</td>
<td>1,700</td>
<td>1,850</td>
</tr>
<tr>
<td>Shepody</td>
<td>1,766</td>
<td>1,767</td>
<td>1,525</td>
<td>1,734</td>
</tr>
</tbody>
</table>

**Canadian Seed Sector was more fortunate in that most of the crop made it into storage before winter set in. However, the Red River Valley and state of Idaho, both large seed growers, experienced some fairly high seed losses, driving industry demand across the continent. Growers would be well advised to book seed early. In addition, growers should expect that processing companies will encourage their contract growers to purchase seed of early varieties so fry plants can start on new crop spuds as soon as possible in the summer of 2020. Best of luck to all seed growers in 2020.**

**KEVIN MacISAAC**

Seed production in Canada is seeing some renewed optimism as that sector gears up to supply the needs of an expanding processing industry in North America. Seed acreage, inspected and passed by the Canadian Food Inspection Agency, has been fairly stable in the previous four years ranging from 52,720 acres in 2016 to 54,184 acres in 2018. Responding to increased demand, growers in the spring of 2019 increased acreage to 58,060 acres, with a significant portion of that expansion occurring in the province of Alberta. Regionally, there have been declines in seed acreage, particularly in the province of New Brunswick, where some growers have either exited the business or shifted production into the processing side of the industry.

The most popular seed variety grown in Canada, by a long shot, is Russet Burbank. Dual-purpose usage for both table and French fry production have allowed it to stand the test of time. Rounding out the other top six varieties by rank are: Goldrush, a fresh russet; HO2000, a “mini potato” variety; Nourland, a popular red variety; Ranger Russet, a mid-season processing variety; and Shepody, an early processing variety.

Varieties grown for processing do not usually see significant uptake until they are approved by the QSRs (Quick Service Restaurants). The fryers are slowly transitioning from a profile of Russet Burbank, Ranger Russet, Shepody, etc., to one with newer entrant varieties such as Clearwater Russet, Ivory Russet, etc. The dilemma of the seed grower is to be out of industry changes, in adequate time to build up seed stocks that end users might need.

Varietal selection on the fresh side of the industry has seen a significant movement towards yellow European selections, which are higher yielding and provide greater returns than the previous yellow industry standard of Yukon Gold.

Canadian Holdings of Potatoes Intended to be used as Seed on February 1, 2020, are 9.9 million hundred weight, which is 4.3 per cent above the three-year average for February 1st, but still below the 2017 level of 10.4 million hundred weight. Alberta leads the increase at 20.8 per cent, followed by Prince Edward Island and Quebec. Seed supply is significantly less in Ontario, British Columbia, Manitoba, and New Brunswick. Seed movement in Western Canada is ahead of schedule.
KAREN DAVIDSON

Yield10 Bioscience has probably never crossed your radar. To date, its claim to fame has been improving yield and composition traits in camelina, canola, soybeans and corn. However, the research has been promising enough to attract the attention of potato processing giant J.R. Simplot.

The biotech company based in Woburn, Massachusetts signed a research agreement in 2019 with J.R. Simplot to test three novel traits in potatoes. Known as C3003, C3004, and C4001, these traits are being deployed and tested for the first time in potatoes in U.S. trials.

“At Yield10, we believe that potato crops can benefit from traits that may increase yield or stress tolerance,” explains Dr. Oliver Peoples, chief scientific officer. “Emphasizing these traits could potentially enable a higher yield per acre, which would be more economical for the grower.”

Looking beyond yield, there could also be new opportunities in composition traits in a variety of potatoes. Improving the nutritional properties such as protein content, for example, could be very beneficial. Traits like these can create small but highly beneficial changes in potato composition that could make them more suitable either for the processing market or to fit changing consumer preferences in the fresh market.

“By using CRISPR for gene editing, it’s possible that potatoes with beneficial health and sustainability traits could reach the market place faster, said Peoples.”

Communications outreach to growers is ongoing says Doug Cole, director of marketing communications at Yield10. Whether it’s trade shows, grower conferences or meetings at the Canadian Produce Marketing Association or CropLife Canada, the company is active in face-to-face dialogue.

J.R. Simplot continues testing on Innate potatoes, using gene silencing technology. A pair of potatoes feature traits that address several of the major issues facing the potato industry, which include shrink from cold storage, late blight, sugar ends, acrylamide and black spot bruise. Innate trials are scheduled for the U.S. in 2020, but not in Canada. For more details on the gene-editing science, go to this link: www.yield10bio.com/Innovation

At the heart of Yield10’s science

In the last decade there has been a dramatic expansion of new genetic engineering and systems biology tools: genomics data; metabolic engineering; high-throughput analytical tools, including whole organism gene expression analysis and metabolomics, and powerful genome-editing technologies.

Increasing crop yield is a complex two-step carbon optimization problem:

1. Harvested seed is mostly carbon fixed from carbon dioxide in the air by photosynthesis with oxygen coming from water in the soil and smaller amounts of nitrogen and phosphate both of which are applied as fertilizer.

2. To achieve increased yield, the rate at which crops can fix carbon to has to be increased.

Based on Yield10’s experience in optimizing carbon fixation, its researchers use CRISPR gene-editing techniques to regulate carbon flux at the front end and directly increase the fixed carbon to the seed.

Will gene-edited potatoes need regulatory approval?

The regulatory environment for crop innovation is complex but in general USDA-APHIS has deemed CRISPR genome-edited traits as similar to conventional breeding, meaning they do not need to be regulated. Yield10 is currently developing engineered crops using traditional biotechnology and a series of CRISPR genome-edited traits. If genome-edited traits are successfully deployed in potato crops, they may not need to be regulated by USDA-APHIS.

“By using CRISPR for gene editing, it’s possible that potatoes with beneficial health and sustainability traits could reach the market place faster, said Peoples.”

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The GROWER
Coping with pesticide re-evaluations

KAREN DAVIDSON

About 550 growers and industry representatives attended the ever-popular Manitoba Potato Production Days in Brandon to prepare for the 2020 season. The January 29-30 event featured several speakers including Dr. Tracy Shinners-Carnelley, vice-president, research and quality, Peak of the Market.

She explained that registered pesticides are re-evaluated on a cyclical basis, every 15 years, by the Pest Management Regulatory Agency (PMRA). Modern assessment techniques and current scientific information are brought to the table. A special review may be initiated at any time if there are reasonable grounds to believe that the health or environmental risks are no longer acceptable.

During the last few years, four Group M fungicides have undergone re-evaluation. They are chlorothalonil (brand names Bravo and Pinnacle); mancozeb (brand names Manzate and Dithane); metiram (Polytam) and captan. Potato growers recognize most of these fungicides as the backbone for disease management.

Shinners-Carnelley lays out significant news for these products.

Chlorothalonil. PMRA published its final re-evaluation decision in May 2018, making substantial changes to use patterns, including potatoes. These changes must be adhered to no later than May 10, 2020.

Chlorothalonil is typically used on potatoes, tomatoes, peppers and round gourd. It is a systemic fungicide that is applied to foliage before or after some stages of disease appearance. It is labeled to control leaf spot of potatoes, potato blight and late blight.

PMRA published its final re-evaluation decision in May 2018, making substantial changes to use patterns, including potatoes. These changes must be adhered to no later than May 10, 2020.

The final decision is expected in May 2020. PMRA’s re-evaluation workplan also indicates that the proposed re-evaluation decisions for both azoxystrobin and difenoconazole should be published soon. These are also common fungicides in potato production, so the industry will need to remain engaged in the re-evaluation process in order to respond accordingly once these proposed decisions are open for consultation.

“We can only expect that acceptable use patterns, including potatoes, will be maintained. Final decisions for both azoxystrobin and difenoconazole should be published soon. These are also common fungicides in potato production, so the industry will need to remain engaged in the re-evaluation process in order to respond accordingly once these proposed decisions are open for consultation.”

Additional measures must be taken to mitigate exposure of mixers/loader/applicators, including personal protective equipment (PPE) and engineering controls. Growers must mitigate exposure of post-application workers. This means a maximum of three applications for potatoes. Increased restricted entry intervals (REI) include scouting at three days, rouging at 19 days, and handset irrigation at 23 days.

What's new is that a vegetable filter strip of at least 10 metres width must be constructed and maintained between the field edge and adjacent terrestrial or aquatic habitats to reduce risk to aquatic organisms from run-off. This filter strip is different from spray buffer strips and spray buffer zones must be observed.

Mancozeb. PMRA re-issued a proposed decision in October 2018. The revised decision proposed cancellation of all uses of mancozeb except for greenhouse tobacco. PMRA has recognized the importance of this fungicide and asked the registrant to work with the industry to prioritize crop uses. A final decision was expected in June 2020.

Metiram. PMRA completed its re-evaluation and PMRA deemed it acceptable with conditions. However, the registrant decided to discontinue this product known as Polytam.

Captan. This is another Group M fungicide which has not traditionally been used on potatoes. It recently completed re-evaluation and remains an option for potatoes. It is registered for a maximum of three applications per season, including ground and aerial application. This may be an option potato growers will want to consider in the future, especially if mancozeb use is limited.

Neonicotinoids. The insecticides imidacloprid, clothianidin and thiamethoxam have been undergoing multiple special reviews over recent years. The focus has been pollinators, aquatic invertebrates and squash bees. The pollinator special review is complete and use on potatoes was maintained. Final decisions on some of the other special reviews are expected in the fall of 2020.

Lindane. In 2012, PMRA published a proposed decision to cancel all uses of lindane (brand name Loric). PMRA continues to push back the final decision on this herbicide and is currently projecting to publish by the end of 2020.

Chlorpyrifos. The proposed decision to cancel all uses was published in 2017. The final decision publication date is not yet known.

Lambda cyhalothrin. PMRA’s proposed decision to cancel all uses was published in 2017. The final decision is expected March 2020. PMRA’s re-evaluation workplan also indicates that the proposed re-evaluation decisions for both azoxystrobin and difenoconazole should be published soon. These are also common fungicides in potato production, so the industry will need to remain engaged in the re-evaluation process in order to respond accordingly once these proposed decisions are open for consultation.

“Keeping up with re-evaluation consultations over the last few years has been challenging for both PMRA and industry,” says Shinners-Carnelley. “We continue to work closely with PMRA to look for improvements and efficiencies in the process. Limited availability of accurate, credible pesticide use data and water monitoring data remain key issues.”

The next challenge is to cope with the outcomes of re-evaluation, specifically under the following scenarios:

• The complete loss of active ingredients
• Accurately implementing the label changes according to the correct timeline as they pertain to re-entry intervals, number of applications, spray buffer zones and vegetable buffer strips

According to PMRA, the official label is the one in the pesticide registry.

“It’s important to be aware of this if you have an on-farm inventory of pesticides,” says Shinners-Carnelley. “The PCP number on the container can be used to search the PMRA label database to access current labels.”

Pesticide compliance monitoring takes place directly by PMRA and indirectly through CanadaGAP audits. Compliance includes all aspects of the pesticide label: personal protective equipment; buffer zones, vegetable filter strips; maximum rates and applications; re-entry and pre-harvest intervals; crop uses.

“We can only expect that compliance monitoring will continue to increase,” concludes Shinners-Carnelley.
Canada’s potato growers are waiting warily for the Pest Management Regulatory Agency’s (PMRA) June 2020 decision on mancozeb, the active ingredient in popular fungicides such as Manzate, Penncozeb and Dithane. “They have been the backbone of potato fungicide programs with up to 10 applications per season,” says Darin Gibson, Gaia Consulting Ltd. who offers trial testing services to crop protection companies at Newton, Manitoba. A different mindset will be required if usage is reduced to only three applications per season. And Gibson points out that early blight and late blight fungicide programs will be two different things if all uses of mancozeb are cancelled. Most premium early blight products do not control late blight, and premium late blight products do not control early blight.

Essentially, growers will need to move to products such as Allegro, Revus and Ranman, however they are targeted to late blight only. These products cost $12 to $20/acre versus mancozeb products that cost $7 to $8/acre. “This late blight program is more expensive with less protection against early blight,” says Gibson. “An additional early blight spray may be needed to compensate. With the recent loss of Polyram and the threat to mancozeb, another group M fungicide, Captan, is now on the radar but most potato growers have not worked with this product.”

As an aside, Bravo supplies are limited due to a manufacturing issue where a different formulation is required in Canada. Supplies of Echo may be more abundant. Some of the premium early blight products are very vulnerable to the development of resistance. One of the strategies to mitigate this risk, says Gibson, is to alternate or tank mix with group M fungicides. Resistance management will be compromised if some of these products are lost. Several fungicides call for group M tank mixes on the label for resistance management. Here are some examples:

- **Forum (dimethomorph)** - must tank mix with protectant. Label language: “in a tank mix with Polyram DF or Dithane DG Rainshield or Bravo 500, at the recommended product label rate.”
- **Curzate (fluopicolide)** - Apply in a tank mix with Bravo (chlorothalonil)
- **Reason - Dithane (mancozeb) or Bravo**
- **Scala - Bravo**

“Starting this season, if you tank mix Presidio, Reason, Scala with Bravo, you have used one of your three allowable chlorothalonil applications,” says Gibson. Some fungicides are pre-mixed with group M fungicides. For example, Gavel is a pre-mix of zoxamide and mancozeb. “If we lose mancozeb, Gavel is affected. If we are limited to three sprays of mancozeb, if you spray Gavel, you are using one of your mancozeb applications,” says Gibson.

Since premium early blight products generally do not protect against late blight, and premium late blight products do not protect against early blight, growers will need more products to protect against both diseases. “We may be able to alternate conventional fungicides with biofungicides such as Double Nickel or Serenade Max in the future if we lose mancozeb but again, this represents more cost.” The potato sector anticipates a phase-in of any new rules but this isn’t guaranteed. “We can cobble together a program but it will be at higher costs,” concludes Gibson.

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**Fungicide resistance: How can it be managed?**

**KATIE GOLDENHAR**

Plant diseases such as late blight of potato and tomato and downy mildew in cucurbits can cause significant yield loss in many crops. Use of fungicide quality can also be significantly impacted by diseases, such as scab on apples or black scurf on potatoes, which may not always limit yield but affect marketability.

Disease management requires multiple strategies that include physical, cultural, biological and chemical control measures. When integrating management options, fungicides can play a big role in maintaining crop yield and quality, especially in fruit and vegetable crops. With the recent changes of multi-site fungicide use for many horticulture growers, single-site fungicides will likely become more common in disease management programs. In order to maintain the use of these fungicide products in the disease management tool kit, growers need to reduce the selection of resistance by considering these best management practices.

Where possible, use fungicides with different modes of action. Modes of action are designated by the fungicide resistance action committee (FRAC), and active ingredients in fungicides are divided into groups based on the way they work on a pathogen. Knowing what products belong to the same fungicide or FRAC group, the greater the probability of selecting for resistance to that group of fungicides in the pathogen population.

The application of fungicides should be done prior to an infection period, known as preventative. Many pathogens favour wet and cool weather, and when the pathogen lands on a susceptible crop, this weather will allow the pathogen to infect and cause disease. Knowing what pathogen likes what conditions (temperature, leaf wetness duration, humidity, etc.) can be key to targeting a fungicide application. Due to unpredictability of weather, growers sometimes may not be able to spray their crops preventatively and may have to use products after an infection takes place. While some fungicides may have some curative activity post-infection, by applying after infection has occurred there is potential for an increased level of selection for any active ingredients that do not have post-infection activity. The fungicide is also often less effective when applied after pathogen establishment and may lead to pathogen survival.

Always follow the labelled rate of fungicides. A fungicide rate or rate range is developed based on efficacy on the disease through multiple trials. Using the rate on the label is especially important for a fungicide with a single mode of action. While it may seem beneficial in the short term by applying a lower, off label rate, there may be populations that are exposed to the fungicide but survive. These surviving populations may develop resistance quicker.

Several diseases that occur in Ontario that are classified as high risk for developing resistance include cucurbit downy mildew, apple scab, and strawberry anthracnose. These diseases have known resistance to certain fungicides and groups of fungicides so when making fungicide applications on these diseases, consult resources to ensure you are applying an effective product. While resistance may be a reason why a fungicide application fails, there are other factors that can influence its efficacy. Factors could include spray volume, nozzle type, calibration issues, wind, temperature, poor product formulation, misidentified pathogen/disease, or improper timing of the application. One of these factors may be enough to have a disease outbreak in certain areas of the crop.

The United Nations has declared 2020 as the International Year of Plant Health. Plant pests including diseases cause an estimated 40 per cent crop loss worldwide each year (FAO, 2019). Fungicides can play an important role in managing diseases that threaten food supply and properly managing resistance risk can keep these tools in the toolkit for crops to come.

For more information, managemicroscope.ca contains resources on weed, disease and insect resistance management.

Katie Goldenhar is pathologist – horticulture for the Ontario Ministry of Agriculture, Food and Rural Affairs.
KAREN DAVIDSON

Agassiz British Columbia was ground zero in July 2019 for testing a drone that delivered insecticide to control thrips in a field of leeks. Science fiction? Maybe not, if safety and efficacy can be proven to regulatory authorities.

“It’s very early days for regulators of this tech,” explains Markus Clodius, principal investigator in minor use pesticides for Agriculture and Agri-Food Canada’s Agassiz Research Centre. “It was our first trial, and when we’re all done, the question of whether drones will be economic for growers will still be open.”

Clodius presented his work to the Pacific Agriculture Show in Abbotsford, BC in late January 2020. Currently, spraying pesticides with a drone in Canada is illegal. The long-term goal is to provide information for a formal risk assessment by the Pest Management Regulatory Agency (PMRA).

The question is how does spraying with a drone change the risk profile of pesticide use. In the 2019 experiment, Clodius explains that insecticide applications for controlling thrips in leeks were compared using a drone and a handheld boom sprayer. The registered insecticides were applied at rates suitable for the crop and pest. Identical product rates were used for both sprayers, but with different spray volumes. The leeks were planted in small 2m x 6m plots, 160 plants/plot, with large (10m) buffer zones around them.

The drone was a battery-powered six-rotor unit, outfitted with a 15-litre spray tank and a symmetrical six-nozzle horizontal spray boom, and flown by Precision Crop Tech of Abbotsford, BC. The products tested were Malathion 85E and Delegate WG. Each drone-applied product required a different flight pattern, and since they were pre-programmed flights, accuracy in mapping the plots was critical.

The lessons learned were straightforward. “Small plots are a big problem for drones,” says Clodius. “The less starting and stopping in flying, the better. Also, really watch the wind.” There was no difference in results between the ground boom and drone in terms of thrips suppression, crop damage or yield.

A formal comparison of spray drift is still in progress.

PMRA is not the only agency with authority over drone-based sprays, Clodius points out. Transport Canada regulates drones and pilots, and the B.C. Ministry of Environment regulates pesticide applicators, including aerial applicators. If and when they are approved, the actual adoption of drone-based sprays will still depend on each grower’s needs and circumstances.

The lessons from 2019 will now be applied to two AAFC insecticide residue trials with aerial drones: one for thrips on leeks in 2020, and a trial with cherry fruit fly sprays in 2021. These results will be submitted to PMRA, as part of a formal request to add drone-based sprays to the product label.

Photo right: Drone testing in leeks, Agassiz, BC.
What is causing fruit tree decline?

JONATHAN GRIFFITHS, JESSICA PROSSER AND OUALID ELLOUZ

In recent years, fruit trees including apples and stone fruits have been affected by mysterious disorders that are causing significant tree death. Some apple growers have reported up to 40 per cent tree mortality for new (two to eight-year) plantings. In 2019, a two-year-old plot of nectarines lost 42 trees (25 per cent) with another 118 (69 per cent) showing obvious symptoms of decline. The loss of orchards represents serious economic losses for growers, and a serious problem for researchers trying to understand the cause. Apple decline has been reported across Canada, from Nova Scotia to British Columbia, while stone fruit decline seems to be isolated to Ontario for now. It has not been determined if apple and stone fruit decline represent the same disorder. The two diseases (apple decline and stone fruit decline) are very similar with similar symptoms including rapid and unexplained death of young (two-eight-year) trees and necrosis that begins at the graft union and proceeds up the trunk of the tree. With such a widespread disorder affecting so many trees, why has it been so difficult to find a cause for these diseases?
To determine the cause of a disease, scientists use an approach known as Koch’s postulates. These postulates are designed to establish a causative relationship between a microbe and a disease. An important aspect of this approach is that if a microorganism is causing a disease, it should be present in every case of this disease. This brings us to the major difficulty in diagnosing these problems: variability. In two neighbouring orchards, one might be observing severe tree losses while the other has perfectly healthy trees. In an orchard some neighbouring trees might lose 42 trees (25 per cent) with another 118 (69 per cent) showing obvious symptoms of decline. The loss of orchards represents serious economic losses for growers, and a serious problem for researchers trying to understand the cause. Apple decline has been reported across Canada, from Nova Scotia to British Columbia, while stone fruit decline seems to be isolated to Ontario for now. It has not been determined if apple and stone fruit decline represent the same disorder. The two diseases (apple decline and stone fruit decline) are very similar with similar symptoms including rapid and unexplained death of young (two-eight-year) trees and necrosis that begins at the graft union and proceeds up the trunk of the tree. With such a widespread disorder affecting so many trees, why has it been so difficult to find a cause for these diseases?

Our current thinking, which we believe can incorporate all pieces of evidence, is that erratic climatic conditions, potentially rapid and severe temperature fluctuations in sensitive months such as November or April, severely weaken the trees.

Jonathan Griffiths Research Scientist, Plant Viruslogist Agriculture and Agri-Food Canada. Contact: Jonathan.griffiths@canada.ca

This project is funded by Agriculture and Agri-Food Canada. Contact: Jonathan Griffiths Research Scientist, Plant Viruslogist Agriculture and Agri-Food Canada Jonathan.griffiths@canada.ca
As growers and stakeholders head to Gatineau, Quebec for the annual Minor Use Priority Setting Workshop on March 24-26, it’s worthwhile to look at the current status of projects. At the start of 2020, approximately 500 active minor use submissions are in the federal regulatory system says Jim Chaput, minor use coordinator, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). Many have efficacy, tolerance and residue data requirements. A few have occupational exposure or other data requirements to fulfill. Here are useful statistics for a national perspective.

- Approx. 18% of projects are joint with the U.S. IR-4 program
- Approx. 14% are minor uses for field crops
- Approx. 29% are minor uses for greenhouse vegetables
- Approx. 12% are minor uses for for fruit crops
- Approx. 11% are minor uses for ornamental and turf
- Approx. 13% are minor uses for miscellaneous crops (ie. ginseng, hemp, mushrooms, hops, etc)
- 75% are minor use projects submitted by AAFC-PMC
- 19% are minor use projects submitted by Ontario (some co-sponsored with PMC)
- 7% are minor use projects submitted by British Columbia
- 8% are minor use projects submitted by the Prairies
- less than 1% of minor use projects are submitted by the Maritimes
- 75% are minor use projects submitted by AAFC-PMC
- 19% are minor use projects submitted by Ontario (some co-sponsored with PMC)
- 7% are minor use projects submitted by Quebec (some co-sponsored with PMC)
- 4% are minor use projects submitted by British Columbia
- 8% are minor use projects submitted by the Prairies
- less than 1% of minor use projects are submitted by the Maritimes

At the most recent US IR-4 Minor Use Priority-setting meeting where top U.S. priorities were established for 2020 projects, a number of key projects of interest to Canadian producers were selected to go forward as minor use joint AAFC-PMC/IR-4 projects. The final list of new selected joint projects for 2020 pertinent to fruit, vegetable and specialty crops is as follows:

- Florylpicoxamid (XDE-659) – Alternaria on broccoli
- Florylpicoxamid (XDE-659) – Botrytis on greenhouse basil, GH strawberries
- Florylpicoxamid (XDE-659) – Leaf spot on red (garden) beets
- Florylpicoxamid (XDE-659) – Leaf blight on carrots
- Florylpicoxamid (XDE-659) – Leaf spot on radishes
- Florylpicoxamid (XDE-659) – Leaf blight on dry bulb onions
- Florylpicoxamid (XDE-659) – Leaf blight on green onions
- Florylpicoxamid (XDE-659) – Powdery mildew on greenhouse lettuce, tomatoes, peppers, cucs
- Florylpicoxamid (XDE-659) – Mummyberry on highbush blueberries
- Florylpicoxamid (XDE-659) – Powdery mildew on hops
- Florylpicoxamid (XDE-659) – Powdery mildew on greenhouse lettuce, tomatoes, peppers, cucs
- Florylpicoxamid (XDE-659) – Powdery mildew on hops
- Florylpicoxamid (XDE-659) – Powdery mildew on greenhouse lettuce, tomatoes, peppers, cucs
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- Florylpicoxamid (XDE-659) – Powdery mildew on greenhouse lettuce, tomatoes, peppers, cucs
- Florylpicoxamid (XDE-659) – Powdery mildew on hops

Current and ongoing minor use issues:

- Impact of products under re-evaluation i.e. neonicotinoids, linuron, EBDC’s, pyrethroids, chlorothalonil, chlorpyrifos, etc.
- Resistance management issues especially multiple group resistance amongst Canada fleabane, Amaranthus species, ragweed, lambsquarters, crabgrass, etc.
- New invasive species
- Increased fees for emergency and minor use submissions.
- Pollinator and aquatic habitat protection
- Major changes to the national minor use and biopesticide priority-setting process, pilot 2019; amendments in 2020.
- Cost of new products and product development

For more information on Ontario’s minor use program visit: www.omafra.gov.on.ca/english/crops/minoruse/about-minoruse.html

Jim Chaput is minor use coordinator, OMAFRA.

Photo by Glenn Lowson

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CROP PROTECTION

Waterhemp: a spreading invasive weed in Ontario and Canada

Waterhemp (Amaranthus tuberculatus var. rudis) is a relatively new weed in Canadian agriculture cropping systems. It has been suggested that it was introduced via a combine from the southern United States between the late 1990s and early 2000s in Ontario and similarly in Quebec in 2017.

Waterhemp is a small seeded, summer annual, broadleaf weed with many traits which make it particularly troublesome in agriculture:

1. Waterhemp can emerge throughout the entire growing season (in Ontario).
2. One female plant can produce up to 4.8 million seeds in a non-competitive environment.
3. Waterhemp is dioecious (male and female plants), which results in vast genetic diversity due to obligate outcrossing.
4. Waterhemp has the potential to become one of the most problematic weeds in Canada, as it is in the United States corn belt. It is easily spread to new areas as a contaminant of seed or hay, as a hitchhiker on vehicles or equipment and through contaminated soil.

Waterhemp (green pigweed, redroot pigweed, palmer amaranth, smooth pigweed, tumble pigweed and waterhemp) has now been confirmed in vegetable fields in Ontario’s Elgin and Norfolk (Groups 2, 9 & 14) counties.

Waterhemp has the potential to become one of the most problematic weeds in Canada, as it is in the United States corn belt. It is easily spread to new areas as a contaminant of seed or hay, as a hitchhiker on vehicles or equipment and through natural dispersal by water and wildlife. Once established, waterhemp will thrive in many agricultural production areas due to its prolific seed production, extended emergence pattern, high genetic diversity and its current documented herbicide resistance to Groups 2, 5, 9 and 14 (Ontario and Quebec) and Groups 2 and 9 (Manitoba).

References


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A berm alive with pollinators exists side by side with intensive horticulture

DILLON B. MULDOON

While driving up highway 400 for that cottage getaway in the Muskokas, you’ll pass by a little slice of Ontario agriculture on some of the darkest soil you’ve ever seen. But be careful. If you blink, you might miss this beautiful place known as the Holland Marsh. Located 50 km north of Toronto, the Holland Marsh is known for its intensive production of carrots, onions, and more than 60 other horticultural crops. The Marsh contributes more than one billion dollars to the Ontario economy through the production, processing and shipment of vegetables.

For my Masters of Science project, I’m looking at ways to enhance ecosystem services in the Holland Marsh. Benefits can include water and air purification, carbon sequestration, agricultural pest management and crop pollination. My research specifically focuses on enhancing non-crop areas so that they can provide better habitat for pollinators and natural enemies of crop pests.

Studies show that the enhancement of “natural areas” in crop fields (e.g., hedgerows, field margins, riparian areas, mowed grass) with vegetative and floral plantings can help support the abundance and diversity of beneficial insects within an intensive agricultural system. The habitat can offer benefits such as pollination of crops to assisting with crop pest control.

Until recently, the Holland Marsh had almost no non-crop areas. In 2010 the Holland Marsh Drainage System Canal Improvement Project was initiated, and at its completion in July 2016, 19 km of canals had been relocated and dredged, and 10 km of berms (dikes) had been expanded to improve safety and efficiency. This expansion of the berms increased the amount of non-crop habitat in the Holland Marsh. My study investigates how different vegetative enhancements on the canal berms might affect beneficial insect complexes and agricultural pest populations at the Holland Marsh. I’m using both active and passive trapping to assess the abundance and diversity of natural enemies, pollinators, and insect pest populations in two different vegetative enhancements throughout the growing season.

Although vegetative enhancements can be beneficial, stakeholders were concerned about the possibility that the enhancements could provide a refuge for pests (e.g., insects, weeds, nematodes) and that they may not be aesthetically pleasing. To address these concerns, I organized a public and grower outreach day (Berm Day) on July 5, 2019 with help from funding by the Entomological Society of Ontario. The goal was to connect with the public and growers about the importance of enhancing non-crop habitat to support beneficial insects in intensive agricultural systems.

My study has shown that vegetative enhancements support a greater abundance of natural enemies than the natural berm vegetation and increase floral resources for pollinators. The enhancements have not provided a refuge for primary insect pests of the crops grown at the Holland Marsh.

Overall, I connected with local growers, members of the public, master gardeners, conservation authorities, and members of the Ontario Ministry of Agriculture, Food, and Rural Affairs. We opened a dialogue about the project and shared ideas for future research, including management approaches and new seed mixes to improve the aesthetics appeal of the plantings. Everyone who attended left with a package of Ontario Native Seed Mix to plant at home, which was generously provided by Syngenta’s Operation Pollinator Multifunctional Landscapes.

Dillon B. Muldoon is a Masters of Science and a graduate research assistant in the Scott-Dupree Lab, University of Guelph, Ontario.

Photo top right: Dillon Muldoon

Photos by Glenn Lawson
At the North American Strawberry Growers’ Association Annual Meeting and Conference in January, strawberry nurseries and breeders introduced new June-bearing and day-neutral strawberry varieties:

**Keepsake**

Released by the US Department of Agriculture. Kim Lewers, geneticist with the USDA, introduced Keepsake from her program. It is a midseason, short-day strawberry with excellent post-harvest storage. Keepsake is anthracnose-resistant, produces good yields, and is rain-tolerant. These berries are very sweet and juicy with moderate acidity, are firm and tough for harvest, and have a pleasant texture when eaten. They are attractive berries with a good size, gloss, and large calyx.

In trials evaluating strawberry cultivars for post-harvest shelf life, Keepsake had fewer degraded and decayed berries after two weeks in cold storage compared to other cultivars.

**AAC Evelyn**

Beatrice Amyotte, Small Fruit Germplasm Development, AAFC, introduced a couple new varieties from her program, including AAC Evelyn. This June-bearing variety has a similar season to Mira, very good hardiness and high yields. The berries are very large, shiny, and elongated, and are very flavourful. AAC Evelyn also has good tolerance to foliar diseases.

**AAC Audrey**

Audrey is an early-season June-bearing variety, with harvest beginning just after Wendy. This variety has excellent sweetness and flavour, good hardiness, and very good productivity. The berries are bright red, firm, and are a good size.

**AAC Kate**

AAC Kate is a late season June-bearing variety with very good hardiness. The berries are very large, with a similar yield to Jewel, very firm, and are flavourful with a bit of a tang. The berries are bright red.

**AAC Dynamik**

Dynamik is a day-neutral strawberry bred by Shahrokh Khanizadeh. This variety has good hardiness and good productivity; Dynamik has higher yields than Seascape. The fruit has a good flavour, and is a good size with an appealing bright, red colour. AAC Dynamik also has good tolerance to foliar diseases.

**Upcoming berry events**

**Strawberry Production 1.0**

Tuesday March 10, 2020, 8:30 am-4:00 pm
Springfield Golf & Country Club, 2054 Gordon St, Guelph

Speakers: Marvin Pritts (Cornell), Pam Fisher (Fisher Berry Crop Consulting), Kevin Schooley (BGO), Kristen Obreid, Rebecca Shott, Erica Pate (OMAFRA)

Cost: $75 for Berry Growers of Ontario members
Contact Berry Growers of Ontario at info@ontariobERRies.com or call 905-735-5379 to register.

These IPM workshops are free for those who will be scouting berry crops this year or looking to refresh their IPM knowledge.

**Strawberry & Raspberry IPM training (Durham)**

Thursday, April 30th, 8:00 am– 3:00 pm
W. Galen Weston Centre for Food, Durham College, Whitby Campus
1604 Champlain Ave, Whitby

Workshop leader: Erica Pate
Notes: Lunch on your own. Handouts provided.

**Strawberry & Raspberry IPM training (Norfolk)**

Thursday, May 7th, 9:30 am–3:30 pm
Simcoe OMAFRA Resource Centre 1283 BlueLine Rd.
Simcoe, Ontario

Workshop leader: Erica Pate
Notes: Lunch on your own. Handouts provided.

To register, please contact OMAFRA’s Agricultural Information Contact Centre at 1-877-424-1300 or email ag.info.omafra@ontario.ca.
Development of a novel method for quantifying Spotted Wing Drosophila

WENDY McFADDEN-SMITH AND ERICA PATE

At the Ontario Fruit and Vegetable Convention in Niagara Falls, we introduced a project investigating a new spotted wing drosophila (SWD) monitoring tool that we have been developing for the past couple of years. The objective of this project was to develop a PCR (polymerase chain reaction) test to identify SWD in liquid samples. The goal of this test is to provide a tool for growers to be able to monitor SWD themselves, without having to sort through liquid traps full of tiny insects. This is our current monitoring system, which is a time-consuming and labour-intensive task.

SWD is a challenging pest to control, and it is important for growers to know when SWD is active to effectively control this pest. Insecticide applications are not needed unless there is ripe fruit present and SWD has been identified in the area. As the emergence of this fruit fly is different every year and is challenging to predict, monitoring is an important practice every season. Our hope with this project is that growers will be able to easily monitor SWD themselves to be able to make timely, informed decisions, and protect their crops.

Spotted wing drosophila (SWD) was monitored throughout the 2018 and 2019 growing season in different areas in Ontario, with traps initially placed in berry crops and then gradually shifted into stone fruit and then grapes. SWD counts were made using a microscope weekly, and after counting, samples were sent to Ag Food Lab Services, University of Guelph for PCR quantification.

The quantitative PCR (qPCR) methodology was developed by the group of Dr. Shu Chen, University of Guelph, Agriculture and Food Laboratory. This methodology was confirmed to be specific and sensitive and allows for the quantification of SWD in liquid traps. A calibration curve was established and applied to test the field samples that were collected and counted during the growing season. The PCR results matched the physical counts with respect to high vs low counts. However, the correlation between physical SWD counts and PCR estimates were not as accurate as we would like. The formula used to calculate SWD in the PCR test is being refined to relate physical counts to PCR results more precisely.

Another challenge we experienced was the degradation of insect samples during the hottest part of the summer. In November 2019 a trial was started to test liquids other than water in the traps, including mouthwash and ethanol, to see if the quality of the samples improved. This trial is ongoing. Stay tuned for results on the best liquid to use for this test.

Once this test has been refined and is available, growers will be able to send liquid samples to the Agriculture and Food Lab once a week, to determine if SWD is active on their farms. Once SWD has been identified growers will need to begin applying insecticides, if there is ripe fruit present. Once SWD is active it is present for the rest of the season, so growers will not need to continue to monitor, unless there is interest in monitoring population trends.

This tool will provide a monitoring option to berry and tender fruit growers that will reduce the labour and time needed to sort through liquid traps, and contribute to effective SWD control and a healthy crop.

Thank you to the private consultants, OMAFRA staff, and summer students who collected and counted the many samples, the growers for hosting these traps, Justin Renkema’s lab (AAFC), and Shu Chen’s lab.

This project was funded in part through the Canadian Agricultural Partnership, a federal-provincial-territorial initiative, as well as the Niagara Peninsula Fruit and Vegetable Growers’ Association, Ontario Tender Fruit Growers’ Association, Ontario Grape and Wine Research Inc., and the Eastern Ontario Berry Growers’ Association.

Wendy McFadden-Smith is Horticulture IPM specialist. Erica Pate is fruit crop specialist. Both work for the Ontario Ministry of Agriculture, Food and Rural Affairs.
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RESERVED CLEARING VEGETABLE FARM
CROP PROTECTION

New IPM strategies needed in crop protection

Despite the number of registered active ingredients and end use products climbing in Canada over the past decades, crop protection tool-boxes seem to be shrinking for some crops. Re-evaluation decisions by the Pest Management Regulatory Agency (PMRA), resistance development among target pests, and the reliability of product efficacy all contribute to the realistic crop protection picture. The options list is truly short for some crops. For others, although options appear abundant – at least on paper – real world scenarios indicate otherwise. We do have more registrations than ever before. As of March 31, 2019, the PMRA notes that there are 665 active ingredients in 7707 end use products registered in Canada. This is up from 550 total active ingredients registered in 2004. Not all of these active ingredients and end use products would have agricultural uses. However, agriculture still represents about three-quarters of all pest control product use in Canada by volume of active ingredient sold. Crop protection uses remain the primary market. A big shift in the registration activity of crop protection products has been the increasing number of biopesticide registrations. Biopesticides include active ingredients that contain or are derived from microorganisms such as bacteria, fungi and viruses. The term also applies to signaling molecules such as insect pheromones, and other non-conventional active ingredients such as garlic and mineral or essential oils.

Of the roughly 200 or so biopesticide active ingredients currently registered in Canada, many of them have been more recent introductions. Activity reports from the PMRA indicate that more than 130 biopesticides were registered after 2000. The share of biopesticides as a portion of new active ingredient registrations is also rising. From 2010-2019, biopesticides represented 54 per cent of all new active ingredients – 59 new conventional versus 79 new biopesticide registrations. This is from 2010 biopesticides representing 41 per cent of new active ingredients from 2000-2010. Based on recent activity from the crop protection industry, this trend doesn’t appear to be slowing. The annual Food Use Workshop of the United States IR-4 program – the counterpart to the Minor Use Pesticides Program in Canada – acts as a barometer to gauge development activity of new crop protection materials. Companies introducing new biopesticides comprised over half of the new product registrations again in 2019. Although registration requirements for biopesticides are more onerous in Canada than south of the border, you can roughly expect this ratio of biopesticide products to translate into new registrations here in Canada too.

Despite biopesticides now representing about 30 per cent of total active ingredients registered in Canada, their use is nowhere near 30 per cent of total crop protection applications. Despite biopesticides now representing about 30 per cent of total active ingredients registered in Canada, their use is nowhere near 30 per cent of total crop protection applications. Protected agriculture, such as greenhouse vegetable production, is an exception where biopesticide active ingredients cover much of their crop protection needs. However, field-based edible horticulture has not been able to successfully adopt biopesticides to a large degree, except when required in the organic sector.

To be fair, conventional field growers are trying and incorporating more biopesticides in their crop protection programs than ever before. One limitation is that biopesticides generally have a suppression label as opposed to control with many conventional products. Field growers are beginning to see value in biopesticides as tools in resistance management, in situations where pest pressure may not warrant a conventional application, to facilitate worker activities with low restricted-entry intervals (REI), and to help with residue mitigation at harvest due to low pre-harvest intervals (PHI). There are certainly merits in incorporating biopesticides into conventional crop protection programs . . . where it makes the most sense. That is the million dollar question most field growers would like to understand. Agriculture and Agri-Food Canada’s Pest Management Centre (AAFC-PMC) does coordinate some research activity into incorporating biopesticides with the Pesticide Risk Reduction Program (PRRP). Ongoing projects at the PRRP include work on onion maggot, cyclamen mite, carrot weevil, and Phytophthora management in horticulture crops. The need for such research work will only increase with greater availability of biopesticides compared to conventional products. The U.S. IR-4 program has recognized the need to understand the fit of biopesticides in conventional crop protection programs and the value of user prioritization. A new category of research priority was created in 2018 called integrated solutions. The objective of integrated solutions is to explore conventional and biological crop protection tools in combination for pest management needs. It is a reflection of the increasing role that biological products are having both in conventional and non-conventional production systems. Management of the striped cucumber beetle and cabbage maggot are two such projects that have been selected under integrated solutions so far.

There is a need to mirror this user-driven process here in Canada with our Minor Use program. Similar to the existing program, growers should be responsible for choosing which crops and pests have priority for research work that integrates both conventional and biopesticide solutions. The needs should consider available tools that are registered for the crop. If research work demonstrates an effective strategy, growers are much more likely to attempt it on their own operations. What we are really talking about – integrating multiple strategies for pest and disease management in crops – is integrated pest management (IPM). With a shrinking effective conventional toolbox in many horticulture crops, a greater role for IPM strategies will be required than ever before.
Rootshield biological fungicide registered for Asian water spinach

JIM CHAPUT

The Pest Management Regulatory Agency (PMRA) recently announced the approval of a minor use label expansion registration for Rootshield HC biological fungicide for suppression of Botrytis blight caused by Botrytis cinerea and root rot caused by Pythium spp., Rhizoctonia spp. and Fusarium spp. on Asian water spinach in Canada. This product was already labeled for use on a wide variety of crops in Canada for control of several diseases.

This is the first ever minor use on Asian water spinach (also known as tung choy, kankon, ra muong) in Canada and was submitted by Ontario as a result of a number 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 Rootshield HC biological fungicide.

Do not apply or allow drift of Rootshield HC biological fungicide to other crops or non-target areas. Do not contaminate off-target areas or aquatic habitats when spraying or when cleaning and rinsing spray equipment or containers. Follow all other precautions, restrictions and directions for use on the Rootshield HC biological 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.

Jim Chaput is minor use coordinator, Ontario Ministry of Agriculture, Food and Rural Affairs.

Ignite SN herbicide label expanded for strawberries in Canada

JIM CHAPUT

The Pest Management Regulatory Agency (PMRA) recently announced the approval of a minor use label expansion registration for Ignite SN herbicide for control of labeled weeds on strawberries in eastern Canada and British Columbia. Ignite SN herbicide was already labeled for use on a number of crops in Canada for control of several weeds.

This minor use project was submitted by Agriculture & Agri-Food Canada (AFC-PMC) as a result of minor use priorities established by growers and extension personnel.

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

Ignite SN herbicide is toxic to aquatic organisms and non-target terrestrial plants. Do not apply this product or allow drift to other crops or non-target areas. Do not contaminate off-target areas or aquatic habitats when spraying or when cleaning and rinsing spray equipment or containers.

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

For a copy of the new minor use label contact your local crop specialist, regional supply outlet or visit the PMRA label site.

Jim Chaput is minor use coordinator, OMAFRA.

Study shows cost of spotted lanternfly

The spotted lanternfly is already costing the state of Pennsylvania $50 million each year in damages, according to a first-of-its-kind study. However, the researchers warn the cost could balloon further if the pest is not contained.

Scientists at Penn State say if the spotted lanternfly is able to escape the quarantine zone in southeastern Pennsylvania and spread across the state, the annual economic damage could reach $324 million with a loss of 2,800 jobs.

Under the worst-case scenario, the study found, losses could increase to $554 million, with a decline of nearly 5,000 jobs.

The lanternfly is native to Asia. It was first discovered in Berks County in 2014 and has since spread to 14 counties. Jayson Harper, director of the university’s Fruit Research and Extension Center in Biglerville, Adams County, said the fly poses a threat to grapes, tree fruits and hardwoods.

“It’s important for the legislature to understand the magnitude, the value of the crops that are under risk so we can have a vigorous response to managing the pest,” says Harper. Whyy.org reported how researchers estimate implementing best management practices in the quarantine zone would cost around $28 million.

Source: The Philadelphia Inquirer January 21, 2020

Ignite SN Herbicide solution, spray, drift or mist with strawberry plants as serious crop injury may result. Repeat treatments may be necessary to control new germination of annual weeds. Do not make more than 2 applications per year.

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MENTAL HEALTH


If you’ve read the above list of issues and have no experience with any of them, you’re likely not connected to farming and have picked this article up by mistake.

And the list is actually much longer than that. We’re referring to the list of things which are cause for concern to those who work in the agriculture industry.

The numbers bear this out. A recent University of Guelph study found that Canadian farmers dealt with:

- 45% high stress
- 58% anxiety
- 35% depression

“Sadly, there is an alarmingly high rate of mental health issues within the Ag community relating to anxiety, depression and even suicide.”

—Danielle Stewart, member of the WSPS Organizational Health Team and The Board of Directors for the Ontario Workplace Health Coalition.

Danielle adds, “along with being one of the greatest environments to live in and raise a family, managing the farm is hard work, with characteristics that can significantly impact mental health.”

Unfortunately, there is still stigma associated with mental health. Too often people keep it in the dark and don’t share what they’re going through, which only serves to make things worse.

There are things one can do to address mental health issues. See some examples to the right.

For free online resources relating to mental health, visit:

lp.wspsc.ca/agri-mental-health

Steps You Can Take

Do as much prep as you can now. Avoid the unexpected. Make sure equipment is in good working order. Can seed, fertilizer and fuel be ordered now? Assess tasks and time requirements. Are there ways to use your time more efficiently? Can you hire extra hands to take on some of the work?

- **Give yourself a break.** It can be a 24/7 role for a farmer, but no one can consistently run that long, that hard. Take breaks to give your body and mind a rest.

- **Accept that some things are beyond your control.** Bad weather is a good example. Stay calm and look at ways to minimize the impact.

- **Connect with others.** Isolation can fuel stress, anxiety and depression. Have contact with others every day. It’s especially important to spend time with family. Share how you are feeling with someone you trust — a spouse, a friend or a fellow farmer who understands the challenges.

- **Learn how to cope with stress.** Deep breathing, positive self-talk and meditation are effective ways to cope with stress.

Get support. If you feel overwhelmed, contact your family doctor to access professional help, or look for resources such as the Canadian Mental Health Association (www.cmha.ca), the Centre for Addiction and Mental Health (www.camh.ca) and thinkmentalthought.ca, a website offering free information and resources. WSPS offers e-courses, free downloads and more at www.wspsc.ca.

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Call Customer Care to speak with a consultant.
1 877 494 WSPS (9777) customercare@wspsc.ca

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