ONTARIO
PEST MANAGEMENT
CONFERENCE

23rd Annual Conference

The Next IPM Toolbox: Finding Tomorrow's Solutions

November 3, 2026
Victoria Park East Golf Club, Guelph

www.ontariopmc.ca

OPMC ORGANIZING COMMITTEE

Kristy Grigg-McGuffin (Chair) – Ontario Ministry of Agriculture, Food and Agribusiness

Cesar Cappa – Ontario Ministry of Agriculture, Food and Agribusiness

Chris Duyvelshoff – Ontario Fruit & Vegetable Growers Association

Melanie Filotas – Ontario Ministry of Agriculture, Food and Agribusiness

Justin Renkema – Agriculture & Agri-Food Canada

Rachel Riddle – University of Guelph

Julie Schipper – Valent Canada

Amy Shi – Ontario Ginseng Growers Association

Jocelyn Smith – University of Guelph

Sean Westerveld – Ontario Ministry of Agriculture, Food and Agribusiness

LAND ACKNOWLEDGEMENT

We acknowledge that we are gathered today in Guelph, on lands that have long been cared for by Indigenous Peoples, including the Attiwonderonk and the Haudenosaunee. This land is held as treaty territory with the Mississaugas of the Credit First Nation, lies adjacent to the Haldimand Tract, and forms part of a long-established traditional hunting ground for the Six Nations of the Grand River. We also recognize the many First Nations, Inuit, and Métis peoples who call Guelph home today.

In pest management, we often speak of stewardship, balance, and working within complex ecosystems. As we begin this conference, may we take a moment to reflect on the generations of knowledge and care that have shaped this landscape, and on our own responsibility to leave it healthy and productive for those who follow.

CONFERENCE SPONSORS

The OPMC would also like to gratefully acknowledge additional support from the Ontario Ministry of Agriculture, Food and Agribusiness.

POST CONFERENCE FEEDBACK SURVEY

Thank you for attending the 2026 OPMC. Please take a few minutes to complete a post-event survey. Your feedback is important in organizing future events. To complete the survey, visit https://forms.gle/ocbgHZ54nJM3Wt7i6 or scan the QR code below.

SCAN HERE • OPMC SURVEY • SCAN HERE • OPMC SURVEY •

AGENDA

MORNING SESSION – Moderator: Jason Lemay, Ontario Ministry of Agriculture, Food and Agribusiness

8:30 am **Registration, Poster setup**

9:00 am **Welcome and opening remarks: Kristy Grigg-McGuffin**, Chair, OPMC

9:05 am **PLENARY PRESENTATION 1: From dusts to data: The evolution of pesticides in Canada. Josh Mosiondz**, Provincial Minor Use Coordinator, Ontario Ministry of Agriculture, Food and Agribusiness

9:30 am Transmission of grapevine red blotch virus by *Stictocephala bisonia*. **Peggy Mantel**, Agriculture and Agri-Food Canada (Student–GO1)

9:45 am **PLENARY PRESENTATION 2: Novel digital approaches to accelerate the discovery and development of crop protection innovations. Ravi Ramachandran**, Head of Research & Development, Crop Protection, Syngenta Canada

10:30 am **Refreshments and Poster Viewing**

11:00 am Do larval density-based thresholds predict economic risk from true armyworm in modern wheat varieties? **Natasha Weppler**, University of Guelph-Ridgetown (Student–GO2)

11:15 am Functional characterization of BnWRKY40 in canola defence against *Verticillium longisporum*. **Tetiana Borysenko**, Wilfrid Laurier University (Student–GO3)

11:30 am CAPS and RPA-based approaches for differentiating *Neopestalotiopsis* species affecting strawberry production. **Alia Voss**, University of Guelph (Student–GO4)

11:45 am Entomopathogenic nematodes and fungi as biological control agents for plum curculio (*Conotrachelus nenuphar*). **Sydney Rack**, Agriculture and Agri-Food Canada (Student–GO5)

12:00 pm **LUNCH**

AFTERNOON SESSION – Moderator: Brian Aukema, University of Guelph

1:00 pm Integrated weed management: Where are we coming from and where are we going now? **François Tardif**, University of Guelph (Regular–RO1)

1:15 pm **PLENARY PRESENTATION 3: Development over discovery: Protecting crops with a shrinking active ingredient toolbox. Doug Baumann**, Chief Technology Officer, Vive Crop Protection Inc.

2:00 pm Migiwa 20SC - A novel fungicide for Canadian pome fruit growers. Current successes and future opportunities. **Wesley Cook**, Belchim Canada (Regular–RO2)

2:15 pm Heliothine nudiviruses in public sequence databases: A survey. **Emrah Ozel** (Regular–RO3)

2:30 pm **Refreshment Break and Poster Viewing**

3:00 pm **PLENARY PRESENTATION 4: RNAi technology: Experience and opportunities for crop protection in agriculture. Wayne Barton,** Development & Tech Services Consultant, GreenLight Biosciences Inc.

3:45 pm **Presentation of Student Competition Award Winners –** Crop Life Canada and OPMC

3:55 pm **Closing Remarks and Adjourn - Kristy Grigg-McGuffin**, OPMC Chair

POSTER PRESENTATIONS

-Graduate Student Poster Competition-

GP1 Detection of *Cryphonectria* hypoviruses and novel hypoviruses in *Cryphonectria parasitica*, the causal agent of chestnut blight in American chestnuts. **Nicole Tabujara**, University of Guelph/Agriculture and Food Laboratory

GP2 Mixture of cover crops to manage plant-parasitic nematodes in Ontario carrot production. **Syed Naqvi**, Brock University

GP3 Scents and sensibilities: Assessing the attraction of *Coleomegilla maculata* to Solanaceae plant volatiles for conservation biological control. **Chloe El Hani**, University of Guelph

GP4 Evaluation of synthetic plant semiochemicals for Colorado potato beetle (*Leptinotarsa decemlineata*) management. **Natalie Savoia**, University of Guelph

GP5 Evaluation of imazamox for weed control in white beans and crop tolerance across four dry bean market classes. **Natalie Medland**, University of Guelph

-Undergraduate Student Poster Competition-

UP1 A winsome strategy: surveying the abundance and distribution of the winsome fly, *Istocheta aldrichi*, in southern Ontario. **Grace Varrasso**, Ontario Ministry of Agriculture, Food and Agribusiness

UP2 A blooming nightmare: Managing thrips (Thysanoptera) in Ontario nectarine orchards. **Olivia Brain**, Agriculture and Agri-Food Canada

UP3 Evaluation of nematicides for management of beech leaf disease in nursery-grown European beech (*Fagus sylvatica*). **Raylene Colautti**, University of Guelph/OMAFA

-Regular Posters-

RP1 Do cover crops suppress plant-parasitic nematodes in potato? A metabarcoding-based IPM assessment. **Syed Naqvi**, Brock University

RP2 Efficacy of a native entomopathogenic nematode (*Steinernema* sp.) isolated from an Ontario orchard against an insect pest. **Ana Borrego-Benjumea**, Agriculture and Agri-Food Canada

RP3 Optimized Na-Mg-chlorophyllin-based formulation enhances photodynamic control of anthracnose and reduces phytotoxicity. **Karthika Sriskantharajah**, University of Guelph

STUDENT COMPETITION JUDGING PANEL

The OPMC wishes to thank the members of the judging panel for generously volunteering their time to help make this competition happen.

Oral

Katie Goldenhar, Ontario Ministry of Agriculture, Food & Agribusiness

John Purdy, Abacus Consulting Services

Lynn Van Maanen, University of Guelph

Tasha Wright, BASF Agricultural Solutions Canada

Poster

Travis Cranmer, Ontario Ministry of Agriculture, Food & Agribusiness

Cheryl Trueman, Syngenta Canada

Sophie Krolikowski, Agriculture & Agri-Food Canada

Amanda Tracey, Ontario Ministry of Agriculture, Food & Agribusiness

PLENARY SPEAKERS

-Plenary 1-

From Dusts to Data: The Evolution of Pesticides in Canada

J. Mosiondz
Ontario Ministry of Agriculture, Food and Agribusiness
Guelph, Ontario Canada

This talk will examine a brief history of pesticide use in Canada in the last 75-100 years in Canada, looking at trends, new technologies, loss of technologies, present status, and now, future directions.

Biography

Josh Mosiondz is the Provincial Minor Use Coordinator for the Province of Ontario. In collaboration with growers, industry, and the Federal Government, he seeks new pesticide registrations for horticultural growers in Canada through the National Minor Use Program.

-Plenary 2-

Novel Digital Approaches to Accelerate the Discovery and Development of Crop Protection Innovations

R. Ramachandran
Syngenta Canada
Guelph, Ontario Canada

The growing complexity of agricultural challenges demands innovative crop protection solutions and more efficient R&D approaches. Artificial intelligence (AI), advanced data analytics and digital technologies are transforming how we discover and develop crop protection chemistry and biologicals. This presentation explores how integrating these capabilities across the R&D process can enhance scientific discovery, optimize experimentation, improve decision-making and accelerate development. Through digital and data-driven insights, we will demonstrate opportunities to complement scientific expertise and translate innovation into effective, sustainable crop protection solutions that address growers' needs and contribute to global food security.

Biography

Dr. Ravi Ramachandran is Head of Research and Development for Crop Protection at Syngenta Canada and a recognized leader at the intersection of science, agriculture, sustainability, and public engagement. He holds a BSc and MSc in Chemistry from Bangalore University, India, and a PhD in Chemistry from Western University in London, Ontario. With nearly 30 years of R&D and commercial leadership experience across Canada and the United States, he leads a multidisciplinary team of chemistry, engineering and biological science experts advancing crop-protection solutions for Canadian agriculture. Dr. Ramachandran has contributed to numerous commercial agricultural technologies and holds 15 U.S., Canadian, and international patent publications and has coauthored over 30 research publications in peer reviewed international science journals. His contribution to Agriculture innovation has focused on creating value on the farm through fit-for-purpose product design that delivers precise, effective, and sustainable crop protection.

Ramachandran's leadership spans industry, scientific, and international organizations. He has served on the Responsible Care® Leadership Group of the Chemical Industry Association of Canada; as Chair of the Toronto Local Section of the Chemical Institute of Canada; as Director of Local Sections for the Canadian Society for Chemistry and as Chair of the Society of Chemical Industry (SCI) Canada Awards Nominations committee. He currently serves as Chair of the Canada International Group of the Society of Chemical Industry, headquartered in London, UK. A frequent speaker at various national and international conferences, Ramachandran advocates for the value of science in society, with particular emphasis on the essential role of agricultural innovation in strengthening global food security.

-Plenary 3-

Development Over Discovery: Protecting Crops with a Shrinking Active Ingredient Toolbox

M.D. Baumann
Vive Crop Protection Inc,
Mississauga, Ontario Canada

Growers in 2026 are asked to manage complex pest, disease, and resistance pressures with fewer tools. Use restrictions and obsolescence have steadily shrunk the universe of available synthetic active ingredients, while the cost of commercializing a new AI now exceeds $300 million and 13 years — economics that force new molecules toward mass markets rather than targeted agronomic needs. Biologicals promise new modes of action, but as young technologies they remain unoptimized and often demand accommodation on the farm.

This talk presents an alternative innovation model: development over discovery. Rather than inventing new active ingredients, Vive Crop Protection applies advanced formulation and delivery technologies to

existing actives, designing differentiated products with performance that the molecules alone cannot deliver. Vive uses nanotechnology to alter how AI's move in soil, penetrate leaf tissue, and interact with other actives to increase spectrum. The approach is modular and fast, moving from ideation to market in roughly four years at a fraction of discovery costs.

A central focus for Vive is hybrid products, ie synthetic-biological premixes, which are rare globally and only number 13 among thousands of US EPA-registered pesticides. Hybrids treat biologicals as a strategic opportunity to pair novel modes of action with the reliability, economics, and familiarity of proven chemistries, easing resistance pressure without sacrificing performance. We will discuss the technical challenges of hybrid formulation, field validation, and what a development-led pipeline means for keeping growers' toolboxes full.

Biography

Dr. M. Douglas Baumann is Chief Technology Officer at Vive Crop Protection, where he leads R&D, regulatory, and manufacturing of nanotechnology-enabled crop protection. Vive is one of North America's fastest growing companies, one of Canada's fastest growing clean tech companies and one of Canada's top employers. Doug joined Vive in 2022 as VP, Product Development following a decade at Syngenta leading multidisciplinary teams across formulation, field development, and technical services. His research career spans agriculture, polymer science, biomedical and biochemical engineering, all connected by a passion for nanotechnology.

-Plenary 4-

RNAi Technology: Experience and Opportunities for Crop Protection in Agriculture

W. Barton, S. Whipple, and B. Manley
GreenLight Biosciences Inc.
Durham, North Carolina USA

RNA interference (RNAi), enabled through the targeted delivery of double-stranded RNA (dsRNA), is emerging as a new approach to crop protection. This presentation will review where RNAi/dsRNA is being used today and explore its broader technical potential. Its sequence specificity, very short environmental half-life and potential for minimal effects on beneficial organisms, non-targets, applicators and bystanders create a novel and potentially favourable regulatory and environmental profile.

These same characteristics, however, present challenges for achieving reliable, economical field performance. The presentation will examine what is required to expand RNAi beyond the current product scope—including target selection, dsRNA production, formulation and delivery, uptake and

persistence, field consistency and regulatory science—and consider whether these advances can enable RNAi to evolve from a small number of novel products into a broader, flexible crop-protection platform.

Biography

Wayne is a graduate of the University of Guelph, completing his BSc (Agr) and MSc in plant pathology. His career in the crop protection industry includes consulting in the areas of crop residue, soil dissipation, and efficacy; and 26 years with BASF Canada where he worked in crop protection field research, marketing, and R&D leadership. He is currently consulting to GreenLight BioSciences Inc. focused on the development of their dsRNA crop protection pipeline. For additional fun, Wayne is rediscovering endurance sport on a bike, and beekeeping.

ABSTRACTS

-Graduate Oral Presentations-

RO1: Integrated weed management: Where are we coming from and where are we going?

F. Tardif
University of Guelph, Guelph Ontario Canada

Integrated weed management (IWM) has evolved over several decades in response to concerns about herbicide dependence and the development of herbicide resistance. Although many definitions have been proposed, most emphasize the rational and judicious integration of multiple weed management tools. Despite a substantial scientific literature and a growing range of available practices, the adoption of IWM remains uneven. This raises an important question: if the scientific basis for IWM is well established, why has its implementation proved so challenging? This presentation will briefly review the history of IWM, examine how its definitions have evolved, and explore trends in scientific publications and public interest in the concept. A key issue may be that IWM is often perceived as more complex and demanding, requiring additional knowledge, planning, labour, and investment. While society benefits from reduced pesticide use, much of the cost and risk falls on farmers. Although further technological advances will be valuable and useful, they are unlikely to be sufficient on their own. Greater uptake may also require policies and incentives that help share the costs of more sustainable weed management. Ultimately, the challenge is not just developing effective practices, but to create conditions in which their adoption is practical and economically viable.

RO2: Migiwa 20SC - A novel fungicide for Canadian pome fruit growers: Current successes and future opportunities

W. Cook
Belchim Canada, Guelph, Ontario Canada

Migiwa 20SC fungicide offers Canadian pome fruit growers a new addition to their disease management program. Its active ingredient, ipflufenoquin, introduces a new unique mode of action in FRAC group 52 that has no cross resistance to existing fungicides. Migiwa 20SC provides both preventative and systemic / translaminar disease control, making it an essential tool for managing tough early-season diseases such as scab and powdery mildew in apples and pears. In addition to the pome fruit registration, there are ongoing Minor-Use projects, to expand the Migiwa 20SC label to include grapes, stone fruit, highbush blueberries and cane berries. Expanding the Migiwa 20SC label into these crop segments, will give Canadian growers access to an excellent rotational fungicide to insert into their existing spray program.

RO3: Heliothine nudiviruses in public sequence databases: A survey

E. Ozel (1,2) and B. Webb (1,3)
(1) University of Kentucky, Kentucky USA
(2) Currently unaffiliated
(3) Lepidext LLC

Helicoverpa zea nudivirus-2 (HzNV-2) is a sexually transmitted DNA virus that infects corn earworm (*Helicoverpa zea*) populations. HzNV-2 infection causes reproductive sterility in the corn earworm, a polyphagous pest species that causes significant damage to a wide range of crops while rapidly evolving pesticide resistance. The prevalence and genetic diversity of HzNV-2 remain understudied with the only available genome was identified from a USDA laboratory in the southern United States. In this study, we employed data mining approaches and standardized workflows to investigate nudivirus-like sequences in lepidopteran datasets submitted to NCBI's public SRA database. By using the HzNV-2 genome as a reference, individual short-reads were identified in these datasets. Our results contradict the prevailing assumption that the HzNV-2 distribution is largely limited to the United States, instead suggesting widespread circulation of this virus across diverse locations (Brazil, China, Australia, Paraguay, Puerto Rico) and in two other Lepidoptera species (*Helicoverpa armigera* and *Bombyx mori*). Furthermore, we identified 42 genomic variants of the HzNV-2 found in *Helicoverpa zea* biosamples collected from Paraguay, Puerto Rico and the USA. This study has important implications for understanding nudivirus distribution and their potential role in controlling heliothine pest populations.

-Graduate Oral Presentations-

GO1: CAPS and RPA-based approaches for differentiating *Neopestalotiopsis* species affecting strawberry production

A. Voss and M. Kalischuck
Department of Plant Agriculture, University of Guelph, Guelph, Ontario Canada

Neopestalotiopsis species are emerging fungal pathogens that are causing increasing losses in strawberry production. Closely related species from this genus can be morphologically similar and isolates have been found to vary in their pathogenicity. Accurate species identification is essential for disease management; however, current methods rely on DNA sequencing, which is time-consuming, costly, and laboratory dependent. Species distinction within *Neopestalotiopsis* requires characterization of regions within the β-tubulin (btub) and translation elongation factor (tef1) genes. This study evaluated two molecular approaches for rapid species identification. An amplified polymorphic sequences (CAPS) assay was developed to use restriction enzymes HindIII and BsaWI, and BsrBI and Cac8I to cleave btub and tef1 respectively. The CAPS assay was performed on 10 additional *Neopestalotiopsis* isolates and the results matched DNA sequencing data. These results generated from CAPS support the presence of a new putative species or strain found in Ontario. Recombinase polymerase amplification (RPA) is an isothermal assay that selectively amplifies DNA of a target species and is faster than CAPS and can be deployed as an in-field diagnostic. Seven btub and six tef1 primer pairs were screened, resulting in one btub primer pair and two tef1 primer pairs that selectively amplified the target species. These results demonstrate the utility of CAPS for rapid species differentiation and identify promising RPA primer sets for the development of portable diagnostic tools. Together, these approaches support

faster and more accessible detection of *Neopestalotiopsis* species, improving disease surveillance and management in strawberry production systems.

GO2: Functional characterization of BnWRKY40 in canola defence against *Verticillium longisporum*

T. Borysenko and Z. Zou
Wilfrid Laurier University, Waterloo, Ontario Canada

Brassica napus (canola) is a globally important oilseed crop and a cornerstone of Canadian agriculture. However, fungal diseases pose a major threat to canola production, causing substantial yield losses. Among these, *Verticillium longisporum*, the causal agent of Verticillium stripe, is an emerging disease in Canada that remains relatively understudied despite its increasing economic importance. In this study, we investigated the functional role of BnWRKY40 in canola defense against *V. longisporum*. Disease progression was evaluated in two independent BnWRKY40 overexpression lines and compared with wild-type plants. Quantification of *V. longisporum* genomic DNA in infected tissues demonstrated that BnWRKY40 overexpression enhanced resistance during the early stages of infection and was associated with improved seedling performance. ROS staining of infected leaves revealed greater ROS accumulation in wild-type plants, consistent with differences observed in SOD activity. Furthermore, qRT-PCR analysis of defense-related genes showed significantly higher expression in BnWRKY40 overexpression lines than in wild-type plants in both leaves and roots, including genes associated with jasmonic acid (JA)- and ethylene (ET)-mediated defense pathways. These results further support a role for BnWRKY40 in regulating defense responses during early *V. longisporum* infection. These findings provide new insights into the role of BnWRKY40 in regulating immunity in canola and highlight its potential as a target for improving resistance to fungal pathogens.

GO3: Do larval density-based thresholds predict economic risk from true armyworm in modern wheat varieties?

N. Weppler (1), Y. Farhan (2), D. Hooker (1) and J. Smith (2)
(1) Department of Plant Agriculture, University of Guelph, Ridgetown, Ontario Canada
(2) School of Environmental Sciences, University of Guelph, Ridgetown, Ontario Canada

True armyworm, *Mythimna unipuncta* (Haworth) (Lepidoptera: Noctuidae), is a sporadic pest of wheat, *Triticum aestivum* L., in Ontario, but existing action thresholds may not reflect modern cultivar tolerance, growth-stage-specific compensation, or current production costs. This study aimed to quantify relationships among larval density, foliar defoliation, yield response, insecticide performance, and economic return. Replicated field cage experiments were conducted from 2022 to 2025 in winter and spring wheat (*Triticum aestivum* L.) across Ontario. Cages were artificially infested with 0–32 third instar larvae per 30 cm2 at boot, flowering, or milk cereal growth stages and were treated 24 h post-infestation with chlorantraniliprole (83 mL/ha), chlorantraniliprole (83 mL/ha) and pydiflumetofen + propiconazole (1000 mL/ha) or left untreated. Defoliation incidence and severity were assessed visually over time, flag leaf defoliation was evaluated using image-based analysis, and harvest measures were taken. Data were used to model yield loss and net return. Larval density increased foliar defoliation, and chlorantraniliprole-based treatments reduced defoliation; however, relationships among density,

defoliation, and yield loss were weak and inconsistent. Linear, quadratic, and exponential regression models failed to identify a stable damage function or yield-loss breakpoint. Economic models incorporating grain value and treatment costs showed that insecticide applications did not consistently improve profitability relative to the untreated control across observed densities. These findings suggest current action thresholds for TAW may overestimate economic risk, and modern thresholds should integrate crop stage, modern cultivar tolerance, and economic return to optimize insecticide use, conserve natural enemies, and strengthen integrated pest management strategies.

GO4: Entomopathogenic nematodes and fungi as biological control agents for plum curculio (*Conotrachelus nenuphar*)

Sydney Rack (1,2), Nigel Raine (2), Jamie Piñero (3), and Justin Renkema (1)
(1) Agriculture and Agri-Food Canada, Vineland, Ontario Canada
(2) University of Guelph, Guelph, Ontario Canada
(3) University of Massachusetts, Amherst, Massachusetts USA

Plum curculio (*Conotrachelus nenuphar*) is a pest of stone and pome fruit native to eastern North America. Larvae feed on unripe fruit and then pupate in the soil. Our objective was to determine the efficacy of soil-applied entomopathogenic nematodes and fungi against plum curculio larvae using adult emergence as an indicator of efficacy. In a 2025 greenhouse experiment, split-rate applications of *Steinernema feltiae* and *Beauveria bassiana* reduced adult emergence by 76% and 31%, respectively, when compared to the control. In 2026, single applications of *S. feltiae* and *Steinernema carpocapsae* at the start of the experiment reduced emergence by 57% and 52%, respectively, but applications a week later were ineffective. In field plots, *B. bassiana* reduced adult emergence by 27% in split-rate applications and 19% in a single application; however, in a later field experiment *S. feltiae* and *B. bassiana* did not reduce emergence. Entomopathogenic nematodes are promising tools to reduce summer emergence of plum curculio adults and could be used to steer management away from reliance on chemical insecticides.

GO5: Transmission of grapevine red blotch virus by *Stictocephala bisonia*

M. Mantel (1,2), J. Renkema (1), J. Griffiths (1), L. Vasseur (2), and D. Inglis (2)
(1) Agriculture and Agri-Food Canada, Vineland, Ontario Canada
(2) Department of Biological Sciences, Brock University, St. Catharines, Ontario Canada

Grapevine Red Blotch Virus (GRBV) is a single stranded DNA Grablovirus in the family *Geminiviridae*, which affects wine quality by causing uneven ripening, yield reductions, reduced sugar content, and altered acidity to grapes. Buffalo treehoppers (*Stictocephala* spp.) have tested positive for GRBV, but it is not clear if they can transmit GRBV between grape plants. The objective for this study was to determine if *Stictocephala bisonia* is a competent vector of GRBV between grapes. *Stictocephala bisonia* were collected from edge habitats around vineyards in Niagara, Ontario. They were placed in groups of 6-8 insects for a 14-day GRBV acquisition period on a GRBV+ grapevine, a 2-day gut clearing period on alfalfa or fava bean, and a 4-day inoculation period on a GRBV- grapevine. Grapevine Red Blotch Virus was detected in 75% of GRBV- grapevines at 8 months post-inoculation in 2024, but not in any GRBV- grapevines in 2025. Grapevine Red Blotch Virus was observed in *S.*

bisonia salivary glands in 0/20 insects in 2024 and 4/20 insects in 2025. Virus titer is often at its peak during autumn harvest, thus GRBV was likely not found in 2025 grapevines due to early spring DNA sampling. Post-transmission assay grapevine DNA will continue to be sampled to verify GRBV presence or absence. Salivary glands containing GRBV is indicative of viral transfer from grapevine to *S. bisonia* in a circulative, non-propagative mode. Together, these findings document *S. bisonia* as a novel insect vector of GRBV in Niagara, Ontario.

-Graduate Poster Presentations-

GP1: Detection of *Cryphonectria* hypoviruses and novel hypoviruses in *Cryphonectria parasitica*, the causal agent of chestnut blight in American chestnuts.

N. Tabujara, X. Shan, and M. Melzer
Agriculture and Food Laboratory, University of Guelph, Guelph, Ontario Canada

Cryphonectria parasitica is a parasitic fungus that causes chestnut blight, which decimated the American Chestnut (*Castanea dentata*) population in North America by the early 1950s. Efforts to manage chestnut blight include the use of biological controls such as hypoviruses that reduce the virulence of the fungus. In this study, we used next generation sequencing method RNA-Seq and bioinformatic analyses to search for the four known *Cryphonectria* hypoviruses (CHV) in two *C. parasitica* isolates. CHV-3 was detected in one of the two isolates. Reverse transcription polymerase chain reaction (RT-PCR) assays specific for CHV-1, CHV-2, CHV-3, and CHV-4 were developed and used to test six *C. parasitica* isolates. Four of the six isolates were positive for CHV-3. These findings confirm the active presence of CHV-3 in Ontario and highlight the utility of molecular methods and bioinformatics to discover known and novel mycoviruses that may mediate fungal pathogen suppression and evaluating their biocontrol potential for the restoration of American chestnuts in North America.

GP2: Mixture of cover crops to manage plant-parasitic nematodes in Ontario carrot production

S.A.H. Naqvi (1,2), J. Akanwari (1,2), E. Aubry (1,2), and T. Sultana (1,2)
(1) Department of Biological Sciences, Brock University, St Catharines, Ontario Canada
(2) Agriculture and Agri-Food Canada, Vineland, Ontario Canada

Plant-parasitic nematodes (PPNs) represent a significant threat to carrot (*Daucus carota* L.) production in Ontario, Canada, causing direct root damage that compromises marketable yield and quality. With increasing restrictions on chemical nematicides, biologically based management strategies are urgently needed. This study evaluated the effects of legume (alfalfa; *Medicago sativa* L.), non-legume (sorghum-sudangrass; Sorghum bicolor × *S. sudanense*), and their mixture as cover crops on soil nematode community composition and carrot productivity under two nitrogen regimes using 18S rRNA gene metabarcoding across 48 soil samples collected at the cover crop stage and harvest. Bacterivores dominated nematode communities across all treatments (60.8%), while PPN abundance varied significantly among cover crop treatments and nitrogen regimes. Alfalfa suppressed PPNs most

effectively without nitrogen (6.4%), but nitrogen fertilization counteracted this benefit, increasing PPN abundance by 238% ($p = 0.027$). In contrast, the alfalfa–sorghum mixture maintained consistently low PPN abundance under nitrogen application (8.4%), the lowest among all nitrogen-treated plots while simultaneously producing the highest individual carrot weight (69.15 g; $p = 0.002$). Nematode community ecological indices revealed significant seasonal food web restructuring from cover crop stage to harvest across all treatments (MI, CI, SI; $p < 0.001$), with no significant cover crop treatment effects on community-level indices, indicating that restructuring occurred uniformly regardless of cover crop type. These findings demonstrate that functionally diverse legume–non-legume cover crop mixtures offer the most balanced and resilient strategy for simultaneously suppressing PPNs and sustaining carrot yield under nitrogen-fertilized Ontario production systems.

GP3: Scents and sensibilities: Assessing the attraction of *Coleomegilla maculata* to Solanaceae plant volatiles for conservation biological control

C. El Hani and R.H. Hallett
School of Environmental Sciences, University of Guelph, Guelph, Ontario Canada

The Colorado potato beetle (CPB) (*Leptinotarsa decemlineata*) is a major pest of solanaceous crops and has demonstrated an exceptional capacity to evolve resistance to insecticides, necessitating the need for alternative and sustainable management strategies. This study evaluates whether synthetic solanaceous plant volatiles and the CPB male aggregation pheromone (S-CPB I) can attract the predatory lady beetle, *Coleomegilla maculata*, a commonly occurring natural enemy of CPB. Adult lady beetles were tested individually in a four-arm olfactometer. Seven plant volatiles and S-CPB I were evaluated, with first choice responses analyzed using GLMMs and chi-square tests. Results showed that 2-phenylethanol, methyl salicylate, nonanal, hexanal and S-CPB I, but not linalool nor 2-(E)-hexenal, were attractive to *C. maculata* compared with controls. Trans-caryophyllene was attractive to only male *C. maculata*. These findings provide insight into semiochemical-mediated predator attraction and support development of lures to enhance biological control of CPB in potato and tomato agroecosystems.

GP4: Evaluation of synthetic plant semiochemicals for Colorado potato beetle (*Leptinotarsa decemlineata*) management

N. Savoia (1), A. Gradish (1), R. Gries (2), G. Gries (2) and R. Hallett (1)
(1) School of Environmental Sciences, University of Guelph, Guelph, Ontario Canada
(2) Department of Biological Sciences, Simon Fraser University, Burnaby, British Columbia Canada

The Colorado potato beetle (CPB), *Leptinotarsa decemlineata* (Say), is a major pest of solanaceous crops, with potato being its preferred host. Insecticides are the main CPB control tactic, but both the deregistration of insecticides and increasing insecticide resistance have limited control measures. Potato plant volatiles are known to attract CPB, but a synthetic plant volatile lure has not yet been developed. Headspace volatile extracts of intact potato plants and of plants during and after feeding by CPB adults and larvae were analyzed by gas chromatographic-electroantennographic detection (GC-EAD), revealing 17 volatiles that elicit antennal responses from males and females. These volatiles

were identified by GC-mass spectrometry, and synthetic volatiles were prepared for olfactometer bioassays, which are in progress. Ultimately, this work aims to identify an attractive semiochemical blend to use as a lure for mass-trapping CPB in solanaceous crops, with the potential to reduce insecticide use and improve crop yield.

GP5: Evaluation of imazamox for weed control in white beans and crop tolerance across four dry bean market classes

N. Medland (1), I. Aicklen (1), and F. Tardif (2)
(1) Department of Plant Agriculture, University of Guelph, Ridgetown, Ontario Canada
(2) Department of Plant Agriculture, University of Guelph, Guelph, Ontario Canada

Dry beans are an economically important, high-value crop in Ontario agriculture and Canada's agri-food sector. Weed management is a critical factor affecting dry bean production; however, limited herbicide options create increasing challenges in preventing weed interference. As concerns regarding herbicide resistance continue to grow, the need for effective weed management tools has become increasingly important. The recent registration of imazamox provides a new post-emergence option for Ontario dry beans. This research aims to evaluate the efficacy of imazamox for weed control in Ontario dry bean production and identify effective herbicide programs for managing important weed species. Additionally, the project will assess crop tolerance to imazamox across four dry bean market classes (white, pinto, kidney and adzuki) to evaluate crop safety. Small-plot field experiments are being conducted at University of Guelph research stations in Ridgetown and Exeter, Ontario. Data collection includes visual crop injury, weed control, crop growth, and yield, with assessments conducted throughout the growing season. Data will be analyzed using appropriate statistical methods to compare herbicide performance among treatments and dry bean market classes. This research will provide information on the efficacy and crop safety of imazamox in Ontario dry bean production. Results will support evidence-based herbicide recommendations, expand weed management options for growers, and contribute to improved management of problematic weeds.

-Undergraduate Poster Presentations-

UP1: A winsome strategy: Surveying the abundance and distribution of the winsome fly, *Istocheta aldrichi*, in southern Ontario

G. Varrasso and C. Russell
Ontario Ministry of Agriculture, Food and Agribusiness, Guelph, Ontario Canada

Japanese beetle (JB), *Popillia japonica*, is an invasive insect pest in Canada that feeds on numerous horticultural crops across Ontario. Management strategies for adult beetles are limited, relying primarily on chemical controls. In 2013, a host-specific parasitoid of JB, the winsome fly, *Istocheta aldrichi*, was detected in Ontario; however, there has been a lack of data on its abundance and distribution in the province since its initial detection. This pilot survey aimed to document the distribution, seasonal

occurrence, and parasitism rates of *I. aldrichi* in Southern Ontario. Nine sites across Southern Ontario were monitored using JB aggregation pheromone traps. Weekly JB captures were counted and assessed for signs of *I. aldrichi* parasitism from June to October 2026. The highest rates of parasitism were observed in Uxbridge, Ontario, with an average of 6% parasitism between the weeks of July 6 and July 27. The week of July 13 had the highest rate of parasitism, with 5 out of 9 sites being positive for *I. aldrichi*. Parasitism rates among JB collected in traps are still low and not sufficient to effectively control JB populations; however, its distribution throughout Southern Ontario has garnered renewed interest in the role *I. aldrichi* could play in long-term suppression of JB populations.

UP2: A blooming nightmare: Managing thrips (Thysanoptera) in Ontario nectarine orchards

O. Brain (1), W. McFadden-Smith (2), S. Pandurangan (1), and J. Renkema (1)
(1) Agriculture and Agri-Food Canada, Vineland, Ontario Canada
(2) Ontario Ministry of Agriculture, Food and Agribusiness, Vineland, Ontario Canada

Thrips (Thysanoptera) are pests of nectarines, injuring flowers and developing fruit. Little is known about the species composition and phenology of thrips in Ontario nectarines and control product efficacy. We recovered 13,000 thrips on sticky cards and 919 thrips (88% eastern flower thrips, *Frankliniella tritici*) from buds/flowers/green fruit in weekly collections (April 13 to June 24, 2026) at 6 Niagara-region nectarine orchards. There were thrips on sticky cards at all orchards starting mid-April, but the first thrips in flower buds occurred from late April to mid-May. Adult thrips numbers peaked in the first week of May during peak bloom at most orchards, followed by a peak in the number of larvae a week later. Crop oils (Buran, Captiva Prime, PureSpray Green) applied at bud swell and early-bloom to single-tree plots did not reduce thrips or fruit damage. The insecticide spinetoram (Delegate) applied with or without a crop oil at early bloom reduced thrips numbers and fruit damage.

UP3: Evaluation of nematicides for management of beech leaf disease in nursery-grown European beech (*Fagus sylvatica*) orchards

R. Colautti (1), C. Russell (2), L. Ritcey-Thorpe (2), K. Goldenhar (2)
(1) University of Guelph, Guelph, Ontario Canada
(2) Ontario Ministry of Agriculture, Food and Agribusiness, Guelph, Ontario Canada

Beech trees (*Fagus* spp.) are both ecologically and economically significant to North America. Currently, beech leaf disease (BLD) poses a great threat to beech trees, but limited research has been conducted on how to manage the disease in nursery plantings of European beech (*Fagus sylvatica*). Two trials were initiated in 2025: the first was to evaluate the efficacy of fluopyram (Luna Privilege®) and abamectin (Avid®) of managing BLD infection in transplanted beech stands; the second was to assess the effectiveness of multiple applications of fluopyram on BLD symptoms when the disease is present. Canopy and leaf ratings for BLD incidence and severity were recorded, and nematode bud extractions were conducted in 2026 to assess treatment performance. Temperature and precipitation data were also analyzed to provide insight into the potential role of climate in disease spread. Neither fluopyram nor abamectin were successful in preventing the establishment of BLD in transplanted beeches. In the second trial, both one and two applications of fluopyram reduced BLD symptoms. Precipitation during the 2025 growing season was significantly lower than historical average, which is

speculated to have reduced disease spread and incidence in 2026. Future research should increase sample sizes and perform multi-year trials to assess the efficacy of fluopyram over several growing seasons with varying weather conditions.

-Regular Poster Presentations-

RP1: Do cover crops suppress plant-parasitic nematodes in potato? A metabarcoding-based IPM assessment

S.A.H. Naqvi (1,2), J. Akanwari (1,2), and T. Sultana (1,2)
(1) Department of Biological Sciences, Brock University, St Catharines, Ontario Canada
(2) Agriculture and Agri-Food Canada, Vineland, Ontario Canada

Plant-parasitic nematodes (PPNs) cause substantial losses to Ontario potato production, reducing total yield by producing unmarketable potatoes. In recent dates, cover-crop rotation is a widely promoted as IPM tool among growers. However, PPN responses to different cover crops are typically assessed at the genus level using morphological methods, limiting species-level insight for growers making cover-crop selection decision. This study imply 18S rDNA metabarcoding to profile nematode communities in a southern Ontario potato agroecosystem under five contrasting cover-crop treatments (Barley, Buckwheat, Barley + Buckwheat mixture, Mustard, Sorghum-Sudan) sampled Pre-Potato (June) and Post-Harvest (September). We quantified total PPN relative abundance and the responses of four economically important PPN genera (*Pratylenchus*, *Meloidogyne*, *Ditylenchus* and *Tylenchorhynchus*). Sorghum-Sudan reduced total PPN by 87% and suppressed *Pratylenchus*, *Meloidogyne* and *Tylenchorhynchus* the most at post-harvest. Barley showed moderate suppression (−49%) while mustard was associated with a 390% total PPN increase, driven by a 10-fold *Ditylenchus* proliferation. Critically, *Ditylenchus* increases Pre-to-Post under all five cover crops, identifying a previously unappreciated risk. Soil micronutrients (Zn, Mn, Cu) were negatively associated with the Plant-Parasitic Index, suggesting an integration opportunity between soil fertility and cover-crop-based PPN management. Results from this metabarcoding study provides valuable information that identifies effective cover-crop choices and support integrated pest management towards sustainable agricultural practices.

RP2: Efficacy of a native entomopathogenic nematode (*Steinernema* sp.) isolated from an Ontario orchard against an insect pest

A. Borrego-Benjumea and T. Sultana
Agriculture and Agri-Food Canada, London, Ontario Canada

Entomopathogenic nematodes (EPNs) are promising biological control agents with potential for sustainable pest management. This study evaluated the pathogenicity of a native *Steinernema* sp. isolate recovered from orchard soil in the Niagara Region of Ontario. Infective juveniles (IJs) were produced in last-instar *Galleria mellonella* larvae and subsequently evaluated in bioassays. Larvae were exposed to four nematode doses (50, 100, 150, and 250 IJs per larva), with an untreated control, and mortality was monitored for 96 h. A commercially available *Steinernema* product was also

evaluated at different doses for positive comparison. Mortality increased rapidly following exposure to the native *Steinernema* isolate. At 24 h, cumulative mortality reached 66.7%, 83.3%, 58.3%, and 66.7% at 50, 100, 150, and 250 IJs/larva, respectively. By 48 h, mortality reached 100% at all doses, except that the 50-IJ treatment reached 100% by 72 h. Estimated LT_{50} (median lethal time) values for the native isolate were approximately 18, 14, 21, and 18 h for 50, 100, 150, and 250 IJs/larva, respectively. Overall, the native *Steinernema* isolate caused rapid and substantial mortality of *G. mellonella* larvae, with a mortality response comparable to that observed with the commercial formulation under the conditions tested. These findings support further evaluation of the native isolate as a potential biological control agent and warrant additional studies under controlled and field conditions.

RP3: Optimized Na-Mg-chlorophyllin-based formulation enhances photodynamic control of anthracnose and reduces phytotoxicity

K. Sriskantharajah (1), L. Steel (1), Y. Terazono (2,3), J. Breen (2,3), and K. Serlemitsos Jordan (1)
(1) Department of Plant Agriculture, University of Guelph, Guelph, Ontario Canada
(2) Nutrien Ag Solutions, Calgary, Alberta Canada
(3) Nutrien Ag Solutions and Loveland Products, Colorado, USA

Anthracnose caused by *Colletotrichum orbiculare* remains a significant constraint to sustainable crop production in several horticultural crops. Photodynamic Inactivation (PDI) using the natural photosensitizer (PS) sodium magnesium chlorophyllin (Na-Mg-chlorophyllin) is a promising environmentally compatible disease management strategy. Na-Mg-chlorophyllin, used in food and nutraceutical applications (E-140), generates singlet oxygen (1O2) under visible light and has shown effectiveness against several fungal and bacterial plant pathogens. However, formulation efficacy depends on selecting a suitable permeabilizer that enhances PS uptake while minimizing phytotoxicity. This study aimed to evaluate a suitable permeabilizer and its ratio to enhance PS efficacy. A water soluble permeabilizer LPI-6976) was tested and compared with a reference formulation containing Na2EDTA (SUN-D-06 (1:3); PS: Na2EDTA, 1:3) against *C. orbiculare*. A series of PS-to-LPI-6976 ratios were assessed alongside water and positive controls. Among the formulations tested, acidified PS-LPI-6976 (1:2) provided the greatest disease suppression, significantly reducing lesion development and diseased area compared with the water control, and outperforming SUN-D-06 (1:3). Greenhouse phytotoxicity evaluations on juvenile grape plants demonstrated excellent crop safety of PS-LPI-6976 (1:2), with no visible injury even at elevated application rates, whereas SUN-D-06 (1:3) caused moderate to severe phytotoxicity. These findings demonstrate that permeabilizer selection and ratio strongly influence PDI efficacy and crop safety, and identify PS-LPI-6976 (1:2) as an excellent formulation for managing anthracnose caused by *C. orbiculare*.

POST CONFERENCE FEEDBACK SURVEY

Thank you for attending the 2026 OPMC. Please take a few minutes to complete a post-event survey. Your feedback is important in organizing future events. To complete the survey, visit https://forms.gle/ocbgHZ54nJM3Wt7i6 or scan the QR code below.

