PLANTS: Adapting to a Changing World

July 7–10, 2024
Winnipeg, MB

PLANT CANADA

PROGRAM

Welcome to the 2024 Meeting

Federation of Canadian Plant Science Societies

Canadian Botanical Association (CBA)

Canadian Society of Plant Biologists (CSPB)

Canadian Phytopathological Society (CPS)

Canadian Weed Science Society (CWSS)

Canadian Society of Agronomy (CSA)

Canadian Society for Horticultural Science (CSHS)

Canadian Association of Plant Biotechnology (CAPB)

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Federation of Canadian Plant Science Societies
Fédération des sociétés canadiennes des sciences végétales

Plant Canada President's Message

Plants: Adapting to a Changing World is the eighth meeting of the Plant Canada-affiliated Societies and Associations since our first gathering in London Ontario in 2000. The idea behind Plant Canada, to periodically bring together the specialized disciplines represented by its current seven Canadian member organizations, remains as relevant as it was back then.

This is an important and rewarding time to be a plant scientist. There is no question that our knowledge and expertise will increasingly contribute to tackling current global challenges associated with climate change and overpopulation, which extend to social injustice and political instability. We have the capacity, for example, to harness and enhance the carbon capturing capabilities of plants, mitigate losses from abiotic and biotic stress, and generate new crops and cultivars that will produce more nutritious food, bio-products and medicines.

As scientists, we also need to adapt to a stunning array of technological advances that are changing the way we conduct research, enabling us to uncover at unprecedented rates the intricate mechanisms plants employ to optimize their success. At our disposal are continually evolving genomic, transcriptomic, proteomic and metabolomic tools and databases. Who would have thought the relative ease at which it is currently possible to edit genomes, visualize dynamic processes in living plant cells, or to model protein structures with generative AI?

And yet, despite the obvious and urgent need for plant science to move to the forefront of human endeavours, there are barriers. Increasingly, evidence-based scientific information is taking a back seat to agendas of opinion, misinformation and conspiracy theories, resulting in lackluster and often disturbing political outcomes. Climate change denial, anti-vaccination debates and anti-GMO campaigns are obvious examples of the loss of trust in science by large swathes of society. In Canada, plant scientists continue to receive only a tiny fraction of the overall research budget, and there is little political motivation for this to shift. How can we change this?

As individuals, we have little clout. The collective voice of scientific societies, presenting the informed opinion of many, is the way forward to engaging with policy makers, and informing public opinion. Working together to champion our collective success and foster a supportive network in which researchers can thrive throughout their careers is another objective. Plant Canada was founded for these purposes.

Plant Canada is a founding member of the Global Plant Council, which since 2009, has been "a single, strong voice in the policy and decision-making arena, promoting plant science research and teaching around the world". Our Past President, Deena Errampalli, has been the Treasurer of GPC since 2017, and for the past year, I have had observer status on the Board of Directors.

This year's meeting at the RBC Convention Centre in Winnipeg has been organized by the Canadian Phytopathological Society (CPS), and there are many people to thank for their hard efforts and ideas that have brought the meeting to fruition. I am especially grateful to the meeting **co-chairs Dilantha Fernando (CPS)** and **Tom Fetch (CPS)**, and meeting coordinator **Brenda Trask** (SeCan) for overseeing the development of this conference. Special thanks also go to **Gary Peng** (CPS) for kick starting this meeting and the early stages of its planning. I would also of course acknowledge the hard work and involvement of the Scientific Organizing, Fund-Raising, and Local Arrangements Committees, and Board Members of Plant Canada who have contributed to making this event happen, whose names and affiliations are listed below. Importantly, the meeting would not happen without the generous support and involvement of our sponsors.

Science Committee
Lord Abbey (CSHS); Guillaume Bilodeau (CPS); Bourlaye Fofana (CSHS); John Markham (CBA); Andrew McKenzie-Gopsill (CWSS); Harpinder Randhawa (CSA); Marcus Samuel (CSPB); Barry Saville (CPS); Stacy Singer (CAPB); Stephen Strelkov (CPS)

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Plant Canada Board of Directors and Executive (current members):
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Plant Canada Board of Directors and Executive (prior to 2023):
Lone Buchwaldt (CPS); Andrew Burt (CSA); Robin Cameron (CSPB); Mumtaz Cheema (CSA); David Clements (CWSS); Diane Edwards (Secretary; CSHS); Daphne Goring (CSPB); Sheau-Fang Hwang (CPS); Gayle Jesperson (PC Treasurer, until 2023); Gary Peng (CPS); Jaswinder Singh (CSA); Sheri Strydhorst (CSA); Youbin Zheng (CSHS)

I will take this opportunity to thank members of the Plant Canada Executive who have been a delight to work with during my time as President. They are Vice President Valérie Gravel (McGill), Secretary Rima Menassa, Treasurers Gayle Jesperson (2015-2023) and Teagen Quilichini (since 2023), and Immediate Past-President Deena Errampalli. Special thanks to Past-President Shahrokh Khanizadeh for continuing to serve as Plant Canada Webmaster.

Finally, after five long and challenging years since our 2019 Plant Canada meeting in Guelph, it is a pleasure to welcome you to our 2024 Plant Canada meeting. Whether you are returning or attending your first Plant Canada meeting, presenting your latest research findings, or here to be inspired by Canada's best plant research, I hope that the experience will be rewarding.

Geoffrey Wasteneys
President, Plant Canada

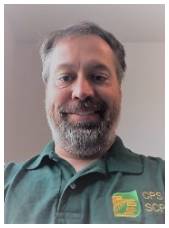
For further information about Plant Canada:
Website: http://www.plantcanada.ca/
Facebook: https://www.facebook.com/PlantCanada/
Twitter: https://twitter.com/plantcanada


Lord Abbey (CSHS)


Mark Belmonte (CSPB)


Dilshan Benaagama (CWSS)


Pankaj Bhowmik (CAPB)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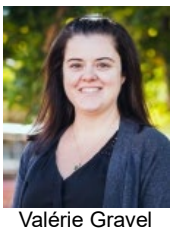
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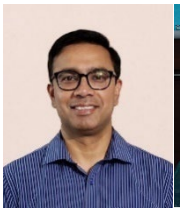
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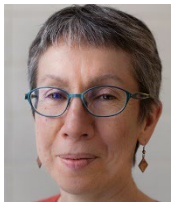
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Mario Tenuta (CSA)


Brenda Trask (SeCan)


Champa Wijikoon (CSHS)


Hugo Zheng (CSPB)

Welcome from Conference Co-Chairs

With great pleasure, we welcome you to Winnipeg and to the Plant Canada conference.

We have been working to bring you the best in science, food, and attractions so you will remember this Plant Canada conference for a long time.

Plant Canada is the largest Canadian Agriculture Network, comprising seven scientific societies: Canadian Phytopathological Society, Canadian Society of Horticultural Science, Canadian Society of Plant Biologists, Canadian Society of Agronomy, Canadian Botanical Association, Canadian Association of Plant Biologists, and Canadian Weed Science Society. This scientific conference is held every five years and provides distinguished lecturers, networking opportunities, and innovative scientific discoveries to be reported in oral and poster sessions, technical workshops, and tours. This conference allows students and professionals working in plant sciences to hear about the latest research, meet and learn from their peers, expand their knowledge base, and use networking opportunities to enhance their careers.

The theme of our meeting, 'Plants: Adapting to a Changing World ', is not just a topic, but a crucial aspect of our current global scenario. The meeting will be held at the Winnipeg RBC Convention Centre in downtown Winnipeg, a perfect setting for such a significant event.

We hope you have a great time in Winnipeg, a vibrant multicultural city of 849,000 people, also known as the Gateway to the West.

For more information about the conference, visit the CPS website: https://phytopath.ca/meetings/plant-canada-2024/. If you have any questions, don't hesitate to contact us.

We eagerly await your arrival in Winnipeg, ready to provide you with a memorable and enriching experience at the Plant Canada conference.

Dilantha Fernando, PhD
Co-Chair Plant Canada
University of Manitoba

Tom Fetch, PhD
Co-Chair Plant Canada
AAFC (Retired)

Welcome from Conference Scientific Committee

On behalf of the Scientific Program Organizing Committee, I am honored and delighted to welcome you to this Plant Canada 2024 Conference. With all seven Plant Canada Societies and Associations members we have prepared this event and happy to see you on July 7th to 11th 2024 in Winnipeg, MB. This meeting will bring together researchers in plant science research reflecting our diverse interests with a thematic on “Plants: Adapting to a Changing World”.

There will be scientific workshops, tours, special sessions, keynote and plenary sessions organized by our different societies. Moreover, multiple concurrent sessions, posters, networking and social events activities that will offer opportunities for professionals working in plant sciences to discuss the latest research, learn from peers, and expand their knowledge and students to develop their career. Our program features talks from our Keynote speaker Dr. Sylvain Charlebois known as the “Food Professor” followed by four Plenary sessions responding to our conference theme: 1) Plant Biotechnology for a Changing World; 2) Emerging Technologies to Enhance Production in a Changing Environment; 3) Emerging Technologies in Plant Health; 4) Emerging Concepts in Plant Biology.

A huge team effort has gone into organizing the scientific program and coordinating the events of this meeting, thanks to the committee for the seven organizations. The event would be impossible without huge efforts from the Local Arrangements Committee (LAC) led by Tom Fetch, Dilantha Fernando, Brenda Trask and the CPS, and the financial support of our many sponsors helping to support our event – the efforts of the fundraising committee is much appreciated.

To the participants, we could not have a successful conference without you. Thanks so much for your participation in this meeting. We received over 350 abstracts and have a program we hope you will love, with the opportunity to everyone to present with talks and posters. Your participation makes this event a success, thank you! I wish you a great week in this 2024 Plant Canada meeting in Winnipeg. Very happy to see you in person. Have a good meeting!

Dr. Guillaume J. Bilodeau
Chair, Scientific Program Organizing Committee for Plant Canada

THANK YOU to our **INDUSTRY SPONSORS** for making Plant Canada 2024 possible!

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- Elementar, Booth #1
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- Department of Soil Science, U of M
- Manitoba Association of Plant Biologists Booth #2
- Manitoba Hydro
- New England BioLabs, Booth #3
- Performance Plants
- PhytoAB, Booth #4
- Qubit Systems
- The Royal Society Publishing Booth #5


CropLife
CANADA
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CropLife Canada represents a solutions oriented industry that supports sustainability, food security and economic growth.
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WELCOME TO WINNIPEG!

Winnipeg extends a warm welcome to **Plant Canada 2024!**

Now that you are here, you'll see why Vogue magazine calls Winnipeg "an absolute must-visit destination."

During your spare time experience the joy of polar bears swimming and playing over your head at Assiniboine Park Zoo's Journey to Churchill, then and take an interactive journey through humanity's struggles and triumphs at the Canadian Museum for Human Rights. The Exchange District beckons with its handsome architecture, hip restaurants, and fashionable shops, while The Forks has it all—from Canada's most unique public market, to scenic trips along the city's rivers.

Visit **tourismwinnipeg.com** to immerse yourself in all things Winnipeg.

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THE ROYAL SOCIETY PUBLISHING

Individual Reports
from the Member Societies of Plant Canada

Plant Canada 2024 is a joint meeting of the following seven scientific societies from Canada:

Canadian Botanical Association (CBA)

Canadian Society of Plant Biologists (CSPB)

Canadian Phytopathological Society (CPS)

Canadian Weed Science Society (CWSS)

Canadian Society of Agronomy (CSA)

Canadian Society for Horticultural Science (CSHS)

Canadian Association of Plant Biotechnology (CAPB)

Canadian Association for Plant Biotechnology

The Canadian Association for Plant Biotechnology (CAPB) was founded in 1970-1971 as the International Association for Plant Biotechnology Canada (IAPB Canada). The association has undergone several name changes, in 1998 and 2006, before adopting its current name in 2015. Our goals are to promote interaction among Plant Biotechnology researchers in Canada, liaise with the International Association of Plant Biotechnology, advocate for Plant Biotechnology research, bridge the gap between academia/basic research and industry, and serve as a contact point for Plant Biotechnology-related information in Canada. CAPB provides a forum for communication among its members to further the development of Plant Biotechnology in Canada. It also offers excellent opportunities for new collaborations among industry leaders and researchers, helping to connect people involved in plant biotechnology research. The association holds biennial meetings in Canada. More information about the association can be found at www.canadianplantbiotech.ca.

CAPB Executives (2022-2024)

- President, National Correspondent and Gov't Liaison • Dr. Dominique Michaud, Université Laval
- Vice-President, Deputy National Correspondent • Dr. Pankaj Kumar Bhowmik, NRC–Saskatoon
- Immediate Past President as Observer • Dr. Rima Menassa, AAFC–London
- Secretary • Dr. Stacy Singer, AAFC–Lethbridge
- Treasurer • Dr. Sangeeta Dhaubhadel, AAFC–London
- Director of Communication • Dr. Dinesh Adhikari, University of Alberta
- Membership Director • Dr. Susanne Kohalmi, Western Ontario
- Seminar Coordinator • Dr. Allyson MacLean, University of Ottawa
- Industry Liaison • Dr. Pooja Saxena, BlueRock Therapeutics
- Regulatory Affairs • Jennifer Hubert, CropLife Canada
- Postdoc and Student Affairs • Justin Boissinot, Université Laval
- Webmasters • Jordan VanderBurgt and Carly Charron, Western University

More information on Executive Committee can be found at

https://www.canadianplantbiotech.ca/iapb-canada-executive-committe/

CAPB at Plant Canada 2024
Winnipeg, MB

PLENARY 1 • PLANT BIOTECHNOLOGY FOR A CHANGING WORLD

Monday July 8, Hall C East, 8:30–11:00

- **Dr. Louis-Philippe Hamel, Medicago inc.**

Understanding plant molecular responses to the production of enveloped VLPs leads to the improvement of a molecular farming expression platform

- **Dr. Dan Voytas, University of Minnesota**

Overcoming Bottlenecks in Plant Gene Editing

- **Dr. Nicola Patron, University of Cambridge**

Synthetic biology for metabolic pathway engineering in photosynthetic organisms

WORKSHOP – A BRIEF OVERVIEW OF THE GENE EDITING LANDSCAPE IN CANADA

Tuesday July 9, 11:15–13:00, Presentation Theatre

- Moderator: Dominique Michaud (Université Laval)
- Panelists: Stacy Singer (AAFC), Hannah Clouthier (CFIA), Jennifer Hubert (CropLife Canada), Steve Webb (GIFS), Pankaj Bhowmik (NRC)

CAPB / PLANT CANADA BUSINESS MEETINGS

- CAPB Executive Outgoing Board meeting – Sunday July 7, 15:30–17:00, President's Boardroom
- CAPB Annual General Meeting – Monday July 8, 11:15–13:00, Room 2G
- CAPB Award Deliberations – Wednesday July 10, 11:30–12:30, York 2-3
- CAPB Student Presentation Awards – Wednesday July 10, 12:30–13-30, York 2-3
- Plant Canada Outgoing Board, Sunday July 7, 13:00–15:00, Meeting Room 16
- Plant Canada Incoming Board, Wednesday July 10, 17:30–18:30, President's Boardroom

Canadian Botanical Association
L'Association Botanique

Canadian Botanical Association
L'Association Botanique du Canada

Canadian Botanical Association/ L' Association Botanique du Canada was founded in 1964, became a corporation in 1979, and in 2014, in its 50th anniversary year, was continued as a not-for-profit corporation under the Canada Not for Profit Corporations Act, and adopted the Institut de recherche en biologie végétale (IRBV) in Montréal as its permanent address. The Canadian Botanical Association (CBA/ABC) serves as the national organization for botanists in Canada, including professional botanists at universities, colleges, schools, government and industry as well as students, technicians and amateurs. The Association represents Canadian Botany and botanists in matters of local, national and international importance. The preservation of botanically significant natural areas and herbarium collections is of special interest. The governance is provided by a Board of Directors currently consisting of 15 members, and the various activities are conducted within five Sections: Ecology and Conservation; Mycology; Systematics, Evolution and Biodiversity; Plant Development: Molecules, Cells, and Systems; and Teaching.



Examples of Activities in 2023-2024

The IDEA (Inclusion, Diversity, Equity and Accessibility) Committee (established in 2021) focused on (a) guidance for conference local organizing committees on including local First Nations and other underrepresented groups and reducing barriers to participation, (b) developing and improving a best practices code for conferences and meetings to ensure safe and welcoming environments, (c) a survey of member diversity, (d) a workshop together with CSEE during the annual conference in Winnipeg about open science funding as avenues for improving accessibility and equity in science. The committee meets regularly.

The Association published three issues of the Bulletin [56 (2, 3), 57 (1)], which documented and profiled the awards and winners from the 2023 conference, detailed the activities of members and committees, as well as included book reviews, researcher or student profiles, and a wide diversity of articles on different botanical themes. The website was updated to include a page that gathered a comprehensive collection of ca. 150 articles previously published in the Bulletin: "Portraits of native, alien/invasive, and ornamental plants in Canada".

In the past year, CBA/ABC has strongly supported the preservation of the Kew herbarium at its current location and advocated against the decision to close DUKE herbarium. Resolutions were adopted by the Board of Directors and lobbying was conducted with the administrations of these institutions and other governing bodies.

ANNUAL AWARDS PRESENTED BY CBA-ABC

Each year, the Canadian Botanical Association/L'Association Botanique du Canada provides awards to botanists studying in Canada and/or to Canadian botanists studying abroad. CBA- ABC offers a number of awards to support students investigating botanical topics.

STUDENT AWARDS:

- for best papers published within the past year ($500-1000): **Porsild-Consaul Award** for the best paper in systematics and phytogeography. **Stan Rowe Award** for the best paper in plant ecology. **Taylor A. Steeves Award** for the best paper in plant development or structure. **Luella Weresub Award** for the best paper in mycology or lichenology.

- for best presentations at the Annual Meeting (Proposal and Results stages $500 and $250) **Lionel Cinq-Mars Award** for the best oral presentation and **Iain and Sylvia Taylor Award** for the best poster presentation.

- for travel to participate at the Annual Meeting ($150-500) **John Macoun Travel Bursary** for graduate students and **Travel Award** for undergraduate students.

- for undergraduate research, **Undergraduate Awards** ($100), best poster and best presentation at undergraduate conferences/meetings taking place in all the major regions of Canada: Atlantic region, Québec, Ontario, Prairies and Territories, and British Columbia.

- for research in Canada's north, **Laurie Consaul Northern Research Scholarship** ($1,500).
  In 2023-2024, the total value of student awards was ca. $15,000.

MAJOR AWARDS:

George Lawson Medal for excellence in contributions to Canadian botany.

Mary Elliott Service Award for meritorious service to CBA-ABC.

Magister Award for excellence in teaching plant science within Canada.

For further information about CBA-ABC activities and awards,
please visit **www.cba-abc.ca**

CBA-ABC Board of Directors for 2023-2024

President	Mihai Costea, Wilfrid Laurier University
Past-President	Nicole Fenton, Université du Québec en Abitibi-Témiscamingue
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CBA-ABC Section Chairs for 2023-2024

PLANT DEVELOPMENT: MOLECULES, CELLS, AND SYSTEMS
Co-Chairs: Elizabeth Schultz, University of Lethbridge
Shelley Hepworth, Carleton University

ECOLOGY AND CONSERVATION
Chair: Jenny McCune, University of Lethbridge

MYCOLOGY
Chair: Allison Walker, Acadia University

SYSTEMATICS EVOLUTION AND BIODIVERSITY
Co-Chairs: Julissa Roncal, Memorial University of Newfoundland
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TEACHING
Chair: Laura Super, University of British Columbia

Canadian Phytopathological Society

La Société Canadienne de Phytopathologie

The Canadian Phytopathological Society (CPS) will reach its centennial year in 2029; its main objective is to promote research, education and Knowledge dissemination on the nature, cause and control of plant diseases. The society has more than 350 members in Canada and abroad, including graduate students, postdoctoral fellows/research associates, technical assistants, extension plant pathologists, research scientists and university professors with expertise ranging from fundamental/molecular plant-pathogen interactions to field research on crop disease management. Additionally, several grower organizations and private companies are sustaining members. The society's operations are guided a Board of Directors and several committees. For 2024-2025, the CPS Board consists of:

President: **Gary Peng**
Past-President: **Sheau-Fang Hwang**
President Elected: **Guillaume Bilodeau**
Vice-President: **Maria-Antonia Henriquez**
Secretary: **Tom Fetch**
Treasurer: **Michelle Hubbard**
Membership Secretary: **Sara Stricker**
Senior Director: **Wen Chen**
Junior Director: **Gurcharn Brar**
CJPP Editor-in-Chief: **Linda Jewell**
CPS Website Editor: **Michael Holtz**

The CPS publishes the Canadian Journal of Plant Pathology (CJPP) and the Canadian Plant Disease Survey (CPDS), both of which have transitioned to online-only publication. CJPP has adopted a hybrid publication model, allowing authors to choose between immediate open access for a fee or conventional publication with only a page charge. However, all issue will become open access one year after its initial publication. The editorial board of CJPP, led by Editor-in-Chief Dr. Linda Jewell, remains pivotal in maintaining the journal's high standards. The CPS also publishes a quarterly newsletter. This year, the CPS has been diligently working to publish the fourth edition of "Diseases of Field Crops in Canada," which includes significant updates from the previous 2003 edition. A sample book is planned for display at the Plant Canada 2024 Conference, and preorders will be available at a discounted price...

The society presents several awards, including the prestigious Award for Outstanding Research, the Outstanding Young Scientist Award, and several awards for graduate students. Dr. Tom Hsiang, a professor from the University of Guelph, received the 2023 Award for Outstanding Research. Equally deserving of recognition, Dr. Gurcharn Brar, an assistant professor at UBC (now at the University of Alberta), received the 2023 Outstanding Young Scientist Award. The 2023 CPS John Yorston Graduate Student Scholarship Awards went to Sarah Drury, Vinuri Weerasinghe, and Yishan Zhang, while the 2023 CPS Graduate Student Travel Awards were given to Razan Malla, Rasha Salih, and Emilee Storfie. The achievements of these young scientists are a testament to the bright future of plant pathology in Canada.

CPS was the hosting society for the 2023 Tri-society Joint Conference in Ottawa, involving CPS, the Canadian Society of Agronomy (CSA), and the Canadian Society for Horticultural Science (CSHS). This meeting brought together researchers under the theme “Agroecosystem Resiliency Under a Changing Climate,” including two symposiums, 14 sessions of talks, and two sessions of posters, covering a wide range of topics on agronomy, disease, and horticultural crops. The Local Arrangements Committee (LAC) was led by Dr. Guillaume Bilodeau, and the conference was a huge success. CPS also sponsored the Glenn Anderson Lectureship, awarded to Dr. Bram Govaerts, the current Director General of the International Maize and Wheat Improvement Center (CIMMYT) in Mexico, during the 12th International Congress of Plant Pathology held in Lyon, France (Aug 20-25, 2023). Dr. Lone Buchwaldt introduced Dr. Govaerts on behalf of the CPS. Additionally, CPS invited and sponsored Dr. Fiona Doohan from University College Dublin, Ireland, to give a talk in the same session.

CPS will again be the hosting society for the Plant Canada Conference, to be held in Winnipeg from July 7-10, 2024. The LAC, led by Drs. Tom Fetch, Barry Saville, and Dilantha Fernando, with participation from all Plant Canada societies, has been working tirelessly to put together an incredible program for the conference. This year, CPS will celebrate its 95th anniversary during the Plant Canada meeting. We will have an awards banquet on Tuesday evening (July 9th), where our 2024 major award winners will be recognized. CPS will be organizing the following workshops/symposia/activities during the conference:

1. Sun, July 7: Workshop: Metabarcoding for Phytopathogens (2:30 - 4:30pm)
2. Mon, July 8: ALL SOCIETY Student Social (8:30 – 10:30pm)
3. Tues, July 9: CropLife Symposia: Resistance Management (11:15am - 1:00pm)
4. Tues, July 9: CPS 95th Anniversary and Awards Banquet -York 2-3 (7:00 - 11:00pm)
5. Wed, July 10: CPS Plenary Session 3 - Emerging Technologies in Plant Health Hall C (East) with three invited speakers: Drs. Jan Leach, Colorado State University, Martina Stromvik, McGill University and Brent McCallum, AAFC Morden Research and Development Center (8:30 -11:00am).

We look forward to meeting colleagues and students from all Plant Canada societies at the conference in Winnipeg. For more information on the CPS, including membership, publications, awards and committees, please visit our website at https://phytopath.ca/.

Canadian Society of Agronomy
La Société Canadienne d'Agronomie

Canadian Society of Agronomy Annual Report 2023-2024

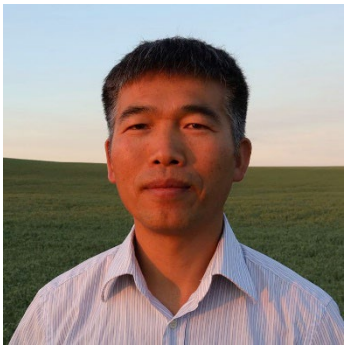
agronomycanada.com | @agronomycanada

The Canadian Society of Agronomy (CSA) is a non-profit, educational and scientific society affiliated with the Agricultural Institute of Canada. The CSA was formed in 1954, building on the historic Western Canadian Society of Agronomy (established 1919) and the Eastern Canadian Society of Agronomy (established 1949). The CSA is dedicated to enhancing cooperation and coordination among agronomists, to recognizing significant achievements in agronomy and to providing the opportunity to report and evaluate information pertinent to agronomy in Canada. Our goals are to provide opportunities for interaction among members and to act as a conduit for interacting with members of other professional organizations, to provide our members with a united voice for making agronomic concerns known to the public and to other organizations, and to provide opportunities for members to communicate news and scientific findings to the scientific community. More information can be found at agronomycanada.com.

2023-2024 CSA Executive Committee

Harpinder Singh Randhawa
President

Jamie Larsen
Past-President



Kui Liu
President-Elect

Kathleen Glover
Secretary/Treasurer

Hiroshi Kubota
Western Director

Linda Gorim
Western Director

Laura Van Eerd
Eastern Director

Joshua Nasielski
Eastern Director

Jagroop Gill Kahlon
Industry Representative

Ben Thomas
CJPS Representative

Alexa Peterson
Student Representative

CSA Activities

The CSA executive met five times over the last year. Key highlights of this year include: The “Green Bagger” virtual lunch session started in October 2020 running once each month to May. An initiative brought to the CSA by Amy Mangin, Laurel Thompson and Sheri Strydhorst with the goal of building the CSA student community and helping to prepare students for live oral presentations. The four students who presented in these sessions are well-represented among our student award winners. This initiative will continue in 2023-2024.

Our annual conference, the CPS-CSA-CSHS tri-society conference was held June 17-20, 2023 and was a major success. There were over 250 registrants, about 20% of whom were CSA members. There were 14 technical sessions composed of 106 oral presentations, and 3 invited keynote speakers. A total of 101 posters were presented. The Canadian Society of Agronomy also hosted a workshop on “Practical Carbon Capture GHG Emission Measurements: Methods, Implementation and Uses” which also linked with a field tour of environmental science research at the CFIA-Fallowfield station and plant breeding and environmental science research at the Ottawa Research and Development Centre. There was a panel discussion on Equality, Diversity, and Inclusion which was well attended by the participants. CSA also finalized and singed the MOU with Canadian Science Publication. With the sincere efforts of Kathleen Glover, multiple crop specific graduate student awards were build which will be awarded at the annual meeting of 2024.

CSA members Jamie Larsen Mumtaz Cheema, Harpinder Randhawa, Kathleen Glover, Gurcharn Singh Brar, Leonardo Galindo, André Lévesque, Jagroop Gill Kahlon, Hiroshi Kubota, Nate Ort, Jaswinder Singh, Andrew Burt, Simon Lackey, Kui Liu Kui, Milad Eskandari and

Marcie Wilson have all made large donations of their time and effort to get everything from the scientific program, session moderators, to sponsorships, to awards, and to student events organized.

CSA Membership

The Canadian Society of Agronomy provides its members with a variety of benefits:

- Editorial functions of world class scientific journal.
- Meeting and interacting with other agronomists across Canada
- Recognition by peers through awards program.
- Presentation of scientific results at annual meeting.
- Forum for making scientific information available to the public.
- Competitive awards for graduate students.
- Participation in international projects.
- Enhanced career opportunities.
- Deep discounts on the CJPS journal. CSA members pay $50.00 for the electronic version (regular rate $526.00) and $125.00 for the print and electronic versions (regular rate $634.00).
- Representation on various national Expert Committees

The Canadian Society of Agronomy currently has about 160 members.

CSA Awards 2023

CSA Professional Awards

The CSA professional awards are an important peer recognition benefit. Professional Awards include:

- **Early Career Agronomist** is intended for individuals actively engaged in research, teaching, extension or administration within 10 years of starting their career or earning their last degree.
- **CSA Fellow** is intended for individuals actively engaged in research, teaching, extension or administration for at least 10 but less than 20 years of their career.
- **Distinguished Agronomist** is intended for individuals actively engaged in research, teaching, extension or administration for more than 20 years of their career.

Nominations for the above awards can be made by any active member of CSA who has had continuous active membership in CSA for at least five years.

Below are the Professional Award winners for 2023

2023 Distinguished Agronomist

- Dr. Pierre Hucl

2023 Fellow Award

- Dr. Laura Van Eerd

2023 Early Career Agronomist Award

- Dr. Gurcharn Brar

CSA Graduate Student Awards
The Canadian Society of Agronomy Graduate Student Awards include:

- **Ali Navabi Grad Student Travel Awards** were established in 2013 to encourage student attendance at the CSA Annual Meetings and is available to any graduate student CSA member. The Student Travel Award is $500 with a maximum of 5 awarded annually.
- **Pest Management Award** includes an award of $500 available to a graduate student enrolled at a Canadian University with research programs relevant to pest management. The award is accompanied by a grant to cover registration at the CSA Virtual Annual General Meeting and present on his/her research project.
- **Student Presentation and Poster Awards -** A number of awards are awarded at the CSA Annual General Meeting for the best oral and poster presentations given by graduate student members. The awards are presented after an assessment conducted by a panel of judges. Up to $2,000.00 total is awarded for graduate student oral and poster presentations.

Graduate students must be a member of CSA to apply for the above awards.

Below are the Graduate Student Award Winners for 2023.

2023 Ali Navabi Student Travel Awards
- Natalie LaForest
- Yutong Jiang
- Mohammed Antar
- Sharandeep Singh
- Syed Jahanzaib Rasool Bukhari

2023 Pest Management Award
- Vincent Fetterley

2023 Student Presentation and Poster Awards:

Oral Awards
1st - $700, Yutong Jiang: Water-conducting roots responsible for nitrogen uptake in maize (Zea mays)
2nd - Natalie LaForest: Investigating the role of Pterostichus melanarius in agricultural pest predation in wheat (Triticum aestivum) and hemp (Cannabis sativa L.) in Alberta
3rd - Riley McConachie: Winter wheat genotype-Fusarium graminearum isolate interactions using the detached wheat head bioassay method

Poster Awards
1st, Syed Jahanzaib Rasool Bukhari: Agronomic performance of inter-seeded legume-cereal Cover crops mixtures in silage corn in boreal climate
2nd, Fernando Guerrero Zurita: Identifying superior photosynthetic traits in canola Brassica napus gene pool
3rd - Farzana Yasmin: Integrating bio-strip tillage into overwintering cover crop mixtures prior to grain corn (Zea mays L.)

The CSA would like to recognize 2023 Outstanding Reviewers for the Canadian Journal of Plant Science

Shaun Sharpe
Dilshan Benaragama
Linda Y. Gorim

The CSA would like to recognize the 2023 Outstanding Associate Editor for the Canadian Journal of Plant Science

Malinda Thilakarathna

2023 Photo Contest (sponsored by BASF)

Crops & Biological Interactions

1st - Morgan McNeil
2nd - Jujhar Gill
3rd - Gurcharn Brar

Agronomy in Action

1st - Alexa Peterson
2nd - Sumedha Nallanthighal
3rd - Naveen Kumar

Landscapes & Fieldscapes

1st - Zhanghan Zhanghan
2nd - Jujhar Gill
3rd - Nate Ort

Acknowledgements
Bayer Canada provides financial support for the Pest Management Award. The CSA is grateful to Bayer for their support.

The 2023 CSA awards committee members were: Jamie Larsen, Mumtaz Cheema, Kui Liu.

Contact Information
For more information on CSA Membership or our awards program contact Marcie Wilson 204-228-8508, CSAgronomy@gmail.com or visit our website at agronomycanada.com and follow us on X (formerly Twitter) @agronomycanada, Facebook and LinkedIn.

Canadian Society of Agronomy
La Société Canadienne d'Agronomie

The Canadian Society of Agronomy would like to thank the sponsors of our 2024 Student Awards

Gold Sponsors

Manitoba Pulse Soybean Growers

Nutrien Feeding the Future™

Sask Wheat Development Commission

Bronze Sponsors

Alberta Canola

BCRC Beef Cattle Research Council

CDC Crop Development Centre USASK

Manitoba Canola Growers

Canadian Society for Horticultural Science Société Canadienne de Science Horticole

Founded in 1956, the Canadian Society for Horticultural Science – Société Canadienne de Science Horticole (CSHS-SCSH) is a professional society devoted to fostering, promoting and encouraging research and education in all branches of horticultural science in Canada. With a countrywide representation, our members are from a variety of horizons: scientists, educators, students, extension agents and industry personnel involved in research, teaching, information and technology related to all fields of horticulture.

Current Executive Board (2023-2025)

Due to the diversity of horticulture production in Canada, one of the priorities of the CSHS is to have a pan-Canadian representation on its board of directors. The current Secretary is covering the roles of Secretary and Northern representing regions of Canada. Therefore, the CSHS Executive board is looking for a Northern Representative to cover the Northern regions of Canada.

President
Bourlaye Fofana, PE
Agriculture and Agi-Food Canada

Past-President
Youbin Zheng, ON
University of Guelph

Vice-President
Lord Abbey, NS
Dalhousie University

Treasurer
Beatrice Amyotte, NS
Agriculture and Agi-Food Canada

Secretary
Julie Lajeunesse
Agriculture and Agi-Food Canada

Western Representative
Simone Castellarin, BC
University of British Columbia

Prairie Representative
Jazeem Wahab, SK
Agriculture and Agi-Food Canada

Communication Officer
Qinglu Ying, ON
Vineland Research and Innovation Centre

Student Representative
Sarah Drury, QC
Université de Sherbrooke

Quebec Representative & Web-master, QC
Shahrokh Khanizadeh
ELM Consulting

Ontario Representative
Melanie Kalischuk, ON
University of Guelph

Atlantic Representative
Vasantha Rupasinghe, NS
Dalhousie University

Northern Representative
TBD

While we practice a progression within the board based on need, our members are encouraged to submit their candidacy to any currently position available. **In fact, CSHS will renew its board members in summer 2025, and we are currently recruiting for a representative for the Northern region.** Terms are for 2 years with the possibility of 2 consecutive terms in the same position. Please contact the CSHS secretary (Julie.lajeunesse@agr.gc.ca) if you are interested in the Northern Representative position or any upcoming vacant positions in 2025.

CSHS Annual Conferences

The CSHS also prioritizes travelling around the country for its annual meetings. Due to the Covid19 pandemic, the CSHS held a virtual student conference on August 27, 2020 and a virtual Joint tri-societies (CPS-CSA-CSHS) conference on July 5-9, 2021. These meetings were followed by a first post-pandemic in-person conference in Halifax on August 18-20, 2022, chaired by Dr. Fofana and was a real success. This past year, the CSHS held its conference in Ottawa, Ontario, as part of the Tri-Society Conference with the Canadian Phytopathological Society and the Canadian Society of Agronomy, from June 17-21, 2023. The conference covered the topic “Agroecosystem resiliency under changing climate”,and was chaired by Dr Guillaume Bilodeau. CSHS organized and chaired a symposium on controlled environment agriculture, a concurrent session on disease management of horticultural crops, and its members presented at and chaired many other sessions. Dr. Fofana actively contributed to the Scientific Paper Worshop organized by the Canadian Journal of Plant Science for students.

CSHS – Halifax 2022

Tri-Society (CSHS-CPS-CSA) – Ottawa 2023

The CSHS is proud to be part of the **2024 Plant Canada Conference in Winnipeg, MB**. The CSHS will organize 5 concurrent sessions targeting topics including a Cannabis symposium (sessions 1 & 2), Root Crops (session 3), Fruits (session 4) and Vegetables (session 5) sessions.

In 2025, our annual meeting will be held in the west coast region, with Dr. Beatrice Amyotte and Dr. Simone Castellarin as the chairs. **If you are interested in participating in the organization of the conference, please contact the CSHS secretary** (Julie.laleunesse@agr.gc.ca).

CSHS Student Committee
Students are an integral part of the CSHS and their involvement in the Society is important and valued. A Student board was implemented in 2016 within the Society to support students' initiatives and the Student Committee has so far been very busy.

Sarah Drury (Current CSHS Student Representative and Student Committee Chair) and past student committee chairs have organized and will organize the student social event for CSHS and all of the societies attending the Plant Canada Conferences. **We are encouraging all students to participate in this fun event, which will include motivational talks, time to network with other students and plant science trivia!**




Other events are planned for the upcoming year so follow their activities on the CSHS on-line platforms, including the CSHS website, Facebook page and Instagram account!

We invite CSHS student members to become involved in the Committee. If you are interested, contact the Student Committee Chair, Sarah Drury (sarah.drury@usherbrooke.ca).

Becoming a member of the CSHS offers numerous benefits including:
• Significantly reduced registration fees at CSHS and Plant Canada conferences
• Reduced page charges to publish in the Canadian Journal of Plant Science
• Timely direct mail alerts to jobs, grant opportunities, etc.
• Eligibility for the CJPS Best Paper Award for horticulture, which comes with an invitation to be a conference speaker

In addition, for students, benefits also include:
• Eligibility for Presentation Awards for the best oral and poster presentations
• Eligibility for Travel Awards to annual conferences
• Community & Extension Funding, which supports student activities in their communities
• Networking opportunities between members, and sharing the experience of study and research

For more information and to become a member: www.CSHS.ca

The Canadian Society of Plant Biologists
La Société Canadienne de Biologie Végétale

The Canadian Society of Plant Biologists/ La Société Canadienne de Biologie Végétale
Report submitted by Marcus Samuel: CSPB/SCBV President, Jun 2024

About the CSPB-SCBV

The Canadian Society of Plant Biologists/ La Société Canadienne de Biologie Végétale (CSPB-SCBV) was founded in 1958 as the Canadian Society of Plant Physiologists. In 2012, the Society adopted its present name to include the various facets of Plant Biology research. CSPB-SCBV Inc. is a not-for-profit corporation and a registered charity. It is a founding member of both **Plant Canada** and the **Global Plant Council** and a member of the **Partnership Group for Science and Engineering**. Our membership is close to 600 with over 300 student members and more than 60 PDFs along with research associates, professional scientists, scientists from government organizations, and a few corporate members. We are close partners with the American Society of Plant Biologists and host joint meetings every four years. We consistently strive toward improving our organization to be a welcoming, inclusive, and resourceful one.

Upcoming CSPB/SCBV Annual General Meetings:
2025 Annual General Meeting: Halifax, Nova Scotia
2026 Plant Biology 2026 (Joint ASPB/CSPB-SCBV), TBD

Awards provided by the CSPB-SCBV
CSPB-SCBV Gold Medal: for outstanding contributions or service to plant biology
David Gifford Award: for outstanding and original contributions in tree biology
C.D. Nelson Award: for outstanding research contributions to plant biology
Mary E. Spencer Award: for outstanding research in plant biology and active public service engagement by a mid-career researcher
Gleb Krotkov Award: for outstanding service to the Society
Ragai Ibrahim Award: to recognize excellence in publication by graduate students
Carl Douglas Prize: for outstanding contributions to plant biology by a postdoctoral fellow, including originality, productivity and leadership
Ann Oaks Doctoral Scholarship: equivalent to an NSERC PGS-D award
George H. Duff Travel Bursaries: Over 10k per year is given to students and postdoctoral fellows to support travel to the annual summer meeting.

Becoming a member of the CSPB-SCBV
CSPB-SCBV is a diverse, welcoming, and highly inclusive organization. If you are interested in joining our dynamic community, please feel free to contact either myself (president@cspb-scbv.ca) or our Senior Director, Mehran Dastmalchi (seniordirector@cspb-scbv.ca). We are always looking for new members to get involved with the society and for volunteers to engage in the various CSPB/SCBV committees. Benefits of membership include reduced registration fees at our conferences and meetings; access to the education, student/pdf funding links, ECR resources and employment pages of our website; and eligibility for the various awards, scholarships and bursaries listed.

CSPB Inside

CSPB / SCBV Executive Committee Membership 2024

TOP **President:** Marcus Samuel, **Vice-President:** Hugo Zheng, **Secretary:** David Bird, **Treasurer:** Rongmin Zhao, **Communications Director:** Lauren Erland, **Western Regional Director:** Barbara Hawkins BOTTOM **Eastern Regional Director:** Sophia Stone, **Senior Director:** Mehran Dastmalchi, **Science Policy Director:** Gopal Subramaniam, **Education Director:** Miranda Meents, **PDF Representative:** Mark Minow, **Student Representative:** Sean Ritter, **Past President:** Robin Cameron

At Plant Canada 2024

Our student and post-doctoral representatives, Dr. Mark Minow and Sean Ritter, have organized a workshop on "Survival in the jungle of scholarly publishing: Building authorship and peer review skills" to demystify the world of scholarly publishing. It is scheduled on July 7th, 2024, from 12:00-2:00 PM in Meeting Room 17. Our CSPB-SCBV executive committee members Drs. Miranda Meents, David Bird, Lauren Erland, along with Drs. Robin Young and Solmaz Irani, are organizing a workshop on **"**Developing a Community of Practice for Plant Biology Teaching,**"** scheduled for July 8th, 2024, from 11:15 AM-1:00 PM. The workshop will help build an online community to provide new ideas for teaching and lay the foundation to develop new resources and connections that make your creative ideas a reality. CSPB-SCBV is also organizing 14 concurrent sessions with several of them as joint sessions with other societies on various themes, providing the opportunity for a highly diverse group of exceptional researchers to showcase their work.

The CSPB-SCBV Annual Business Meeting will be held on Wednesday, July 10th at 11:15 AM, during which we will announce our Presidents Awards and all our 2024 major award winners. Our Society Social event will be held from 7-9 PM on Monday in the Pan Am room; we will also be joining the other participating societies and associations in the multi-society social event on Monday evening. Two of our 2023-24 Awardees feature in the plenary talks: our 2023 C.D. Nelson Award winner Gavin Chen and our 2024 Carl Douglas Prize winner Dr. Mark Minow will deliver their seminars as the two final plenary speakers on Wednesday, July 10th. For more information, please visit http://cspb-scbv.ca/

CSPB-SCBV Report for 2023

Our 2023 Annual General Meeting (AGM) was held at Laval University, Quebec City, from June 18th to 21st, organized by Dominque Michaud, Edel Pérez Lopez and Marie-Claire Goulet. Laval University was certainly a great venue for the conference. The conference was well attended as it was the first Canadian CSPB-SCBV conference after the COVID interruption. The organizing committee chose a diverse and excellent group of inspiring plenary speakers. Our 2023 Carl Douglas Post-doctoral award winner, Dr. Devang Mehta, delivered an engaging seminar that included an EDI section in addition to his research highlights. The banquet at the Musée National des Beaux-Arts du Québec was delightful and entertaining.

During the AGM at Laval University, the 2023 CSPB-SCBV awards were given to several exceptional people. Dr. Guanqun Gavin Chen was awarded the C.D. Nelson award for outstanding research contributions to plant biology. Dr. Peter Moffet was awarded the Mary Spencer award for outstanding research in plant biology and active public service to the plant biology community by a mid-career researcher. The Carl Douglas post-doctoral award for outstanding contributions to plant biology based on originality of research, productivity and leadership was awarded to Dr. Devang Mehta. The Ragai Ibrahim Award for excellence in publication by a graduate student was awarded to Mendel Perkins for his paper, “Monolignol export by diffusion down a polymerization-induced concentration gradient,” in Plant Cell (2022). The Student Presentation Competition included over 90 student presentations for which several awards were given for oral and poster presentations.

The Western Regional Meeting was held at the University of Victoria on May 1-2, 2023, in conjunction with the UVic Centre for Forest Biology Research Symposium. Our Western Regional Director, Dr. Barabara Hawkins, organized the event along with other volunteers. Over 100 people attended from BC and Alberta universities, provincial ministries, and federal forestry and agriculture research institutions. With 31 talks and a score of posters, many interesting findings were presented and discussed; several awards were given out for oral and poster presentations.

The 2023 Eastern Regional Meeting was held at Concordia University on December 1-2. The organizing committee chaired by Dr. Jin Suk Lee, with colleagues Drs. Patrick Gulick, Selvadurai Dayanandan, and William Zerges, who put together an exciting meeting agenda under the guidance of our Eastern Regional Director Dr. Sophia Stone. Highlights included plenary sessions by Dr. Mehran Dastmalchi (McGill University), Dr. Thomas DeFalco (University of Western Ontario), and Dr. Shelley Hepworth (Carleton University). Over 140 attendees participated in six concurrent sessions on various topics including abiotic stress, agriculture and biotechnology, and plant-pathogen interactions. Student trainees delivered exceptional oral and poster presentations. The 2024 Eastern Regional Meeting will be held later this year virtually, it is being organized by Dr. Yang Qu at the University of New Brunswick.

We have re-vitalized our education and communication committees under the leadership of Dr. Miranda Meents and Dr. Lauren Erland. Several new initiatives have been implemented and we are in the process of constantly coming up with new ideas to be a resourceful organization to all the students and ECRs. Our presence on social media platforms has significantly improved. In April, an online workshop was organized for grad students, post docs, and other ECRs exploring Teaching Careers in Higher Education. Dr. Meents and Dr. Solmaz Irani organized and moderated this event. The group explored the diversity of teaching and teaching-related careers available, tips for building teaching experience, and tools and resources to help get the job.

As a society, we continue to strongly promote Equity, Diversity and Inclusion. Some of our recent accomplishments that have been implemented are,

Enhanced diversity of CSPB-SCBV Executive: Compared to the composition of our executive committee in 2021 (42% women and 0% members of a visible minority), our current Executive (50% women) is quite diverse and is made up of a mix of BIPOC (33%) and Caucasian (67%) members. We have changed from 0% representation of visible minorities to 33%. Our aim was to achieve 22% representation from members of visible minorities by 2030, and we have been able to exceed the 22% target in less than one year. Representation of BIPOC in the 12 committees of CSPB-SCBV has also increased from 17% to 28%, exceeding our proposed 22% target by 2030.

French versions of the CSPB-SCBV bulletin, emails and conference communications: Through the Executive's efforts, new opportunities for graduate students and post-doc involvement in CSPB-SCBV were created by introducing a column dedicated to their voices in the bi-annual bulletin, offered in both official languages. The bulletin is in both French and English and we are also striving to send out emails and conference communications in both languages as well.

New EDI-informed conference handbook that includes a collection of guidelines and resources to promote more inclusive conference planning. This handbook will be posted on the CSPB-SCBV webpage and will also be provided to the conference organizers during the planning stages.

New inclusive guidelines for judging posters and oral presentations at both national and regional conferences to reduce any potential bias while judging. These guidelines were implemented in the 2021 ERM, WRM meetings, 2022 joint ASPB/CSPB-SCBV PB22 meeting, the 2023 CSPB-SCBV AGM at Laval University, WRM 2023 and ERM 2023 meetings.

Reformed nomination process for several society awards, so that candidates are also able to self-nominate without a need for seeking their nomination by another member of the society.

First ever EDI plenary session at Plant Biology 22: At PB22, CSPB-SCBV actively participated in the first ever Joint CSPB-SCBV- ASPB EDI Plenary session entitled, *Science Without Borders.* Our CSPB-SCBV speakers, Edel Pérez-López (Laval) and Allison MacDonald (Laurier) certainly made us proud with their exceptional EDI-focussed seminars. CSPB-SCBV EDI committee chair, Marcus Samuel, chaired the plenary session which also included other science-based talks from ASPB members on species migration, domestication, and culture.

Canadian Weed Science Society
Société canadienne de malherbologie

The Canadian Weed Science Society-Société canadienne de malherbologie (CWSS-SCM) is a non-profit professional society for scientists, agronomists, economists, and students interested in weed science. The society is widely recognized in Canada and beyond for its national leadership in bringing together research and information on science and management related to plants potentially impacting the environment, economy, and society. The three major goals of the CWSS-SCM are to: (1) be the Canadian scientific authority representing professionals working in weed science, 2) expand the CWSS-SCM network of members and partners, 3) ensure good governance.

Current Board of Directors of the CWSS-SCM is as follow:

Board membership is open to all CWSS-SCM members in good standing and is by election. Term length varies by position but is generally three years with an option for renewal. If you are interested in submitting your name for nomination to a board position, please reach out to a member at large.

Annual Meetings

Following two years of on-line only meetings, the CWSS-SCM co-hosted its 76th annual meeting jointly with the Canadian Society of Agronomy-Société canadienne d'agronomie (CSA-SCA) in Halifax Nova Scotia in November 2022. An exciting plenary session on precision agriculture technologies featured Drs. Arnold Schumann, Louis Longchamps, Athyna Cambouris, Aitazaz Farooque, Steven Fennimore, and Travis Esau. In addition, we hosted two workshops, one on statistical analysis of non-normal data and another from Canadian Science Publishing. This first conference post-COVID was a great success and co-chaired by Drs. Scott White and Andrew McKenzie-Gopsill (CWSS-SCM), as well as Drs. Kathleen Glover, Andrew Burt, and Mumtaz Cheema (CSA-SCA).

The 77th annual meeting of the CWSS-SCM was hosted in Winnipeg, MB in November 2023. This meeting co-chaired by Dr Rob Gulden and Kim Brown-Livingston hosted an exciting plenary session on next generation weed management from genomics to seedbank

management and featured Drs. Eric Patterson, Martin Laforest, Michael Flessner, and Breanne Tidemann. Dr. Patterson hosted a workshop on getting started with analyzing weed genomics data which was incredibly well received and attended.

The CWSS-SCM will host its next AGM virtually in November 2024 followed by an international joint meeting with the Weed Science Society of America in Vancouver, BC in February 2025. The CWSS-SCM will meet again in November 2025 in Ottawa ON. For more information, please contact the CWSS-SCM secretary at sara.martin@agr.gc.ca

Graduate Students

Graduate students are a highlight of the CWSS-SCM and its annual meetings. Over the past several years the graduate students have organized networking and social events at each meeting. In addition, in collaboration with the Weed Science Society of America, the graduate students have hosted several workshops throughout the past year on a wide range of topics such as the transition from graduate school to industry or academia.

The CWSS-SCM supports graduate students through various scholarships, travel enrichment awards, and provides oral presentation awards at each meeting. We would like to congratulate all of our graduate students and recent scholarship and award winners. For more information and a list of past winners please see, https://weedscience.ca/student-awards/.

Other activities

Herbicide-resistant weeds are a challenging problem for farmers globally, and Canada is no exception. Recent estimates for the prairie region alone suggest that herbicide-resistant weeds cost farmers an estimated CAD $530 million annually in decreased crop yields and quality and increased weed control expenses. There is an immediate need to forge new paths to mitigate and manage herbicide-resistant weeds in Canada. The CWSS-SCM recently published a special collection in the *Canadian Journal of Plant Science* on “Forging New Paths to Manage Herbicide-Resistant Weeds”. This issue contains five articles on managing herbicide resistant weeds in Canadian production systems.

Nearly three-quarters of wild oat populations across the Canadian prairies are herbicide resistant. In response to this increasing challenge, the CWSS-SCM formed the Resistant Wild Oat Action Committee to provide information on testing and management advice to producers and researchers. A variety of excellent resources have been and continue to be produced and are available at https://weedscience.ca/wild-oat-action-committee/

Become a member of the CWSS-SCM today!

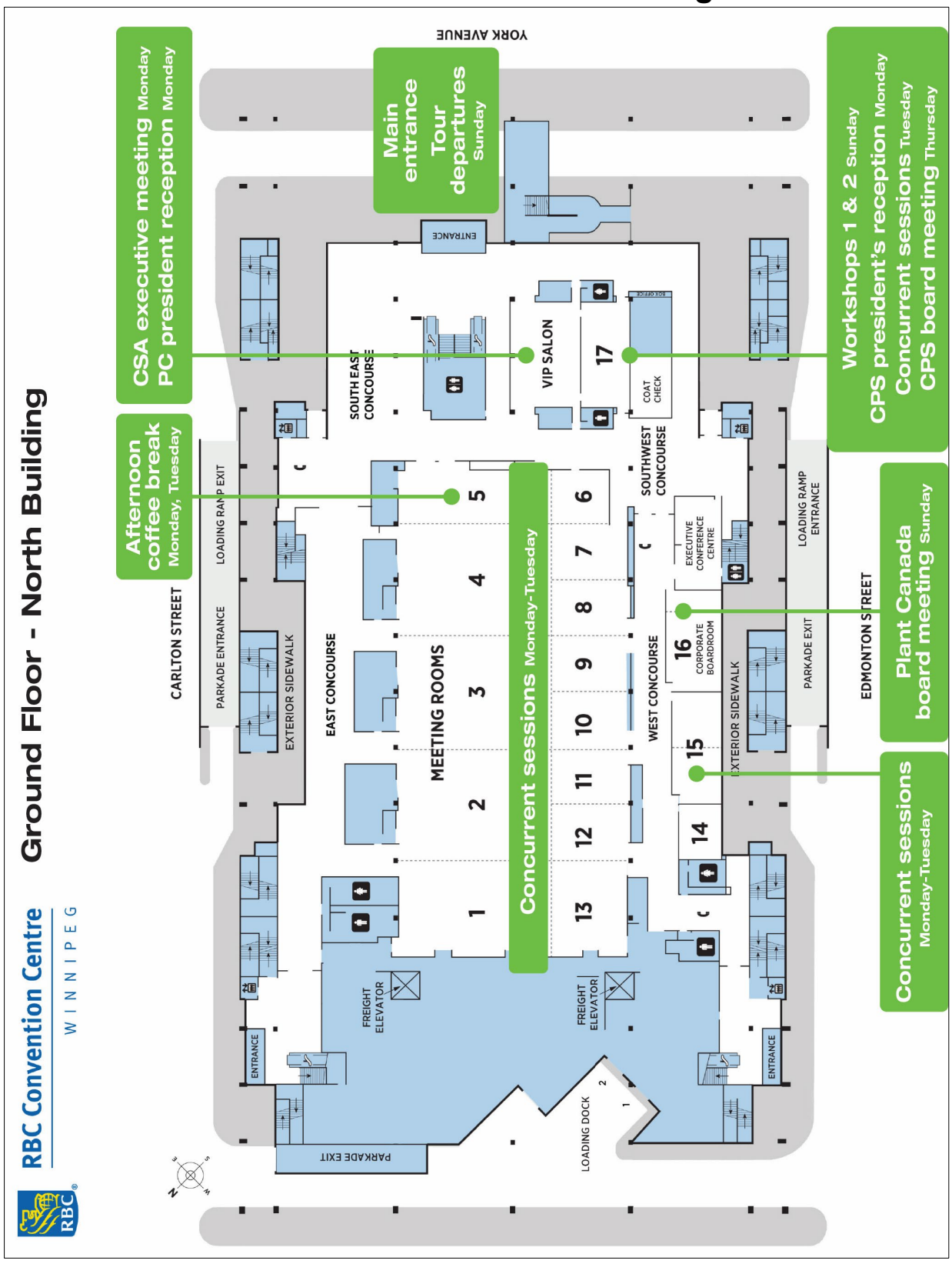
- Reduced registration fees for CWSS-SCM annual meetings
- Reduced page charges to publish in the Canadian Journal of Plant Science
- Subscription access to the Canadian Journal of Plant Science
- Eligibility for the CJPS Best Paper Award – Weed Science

For students membership includes:

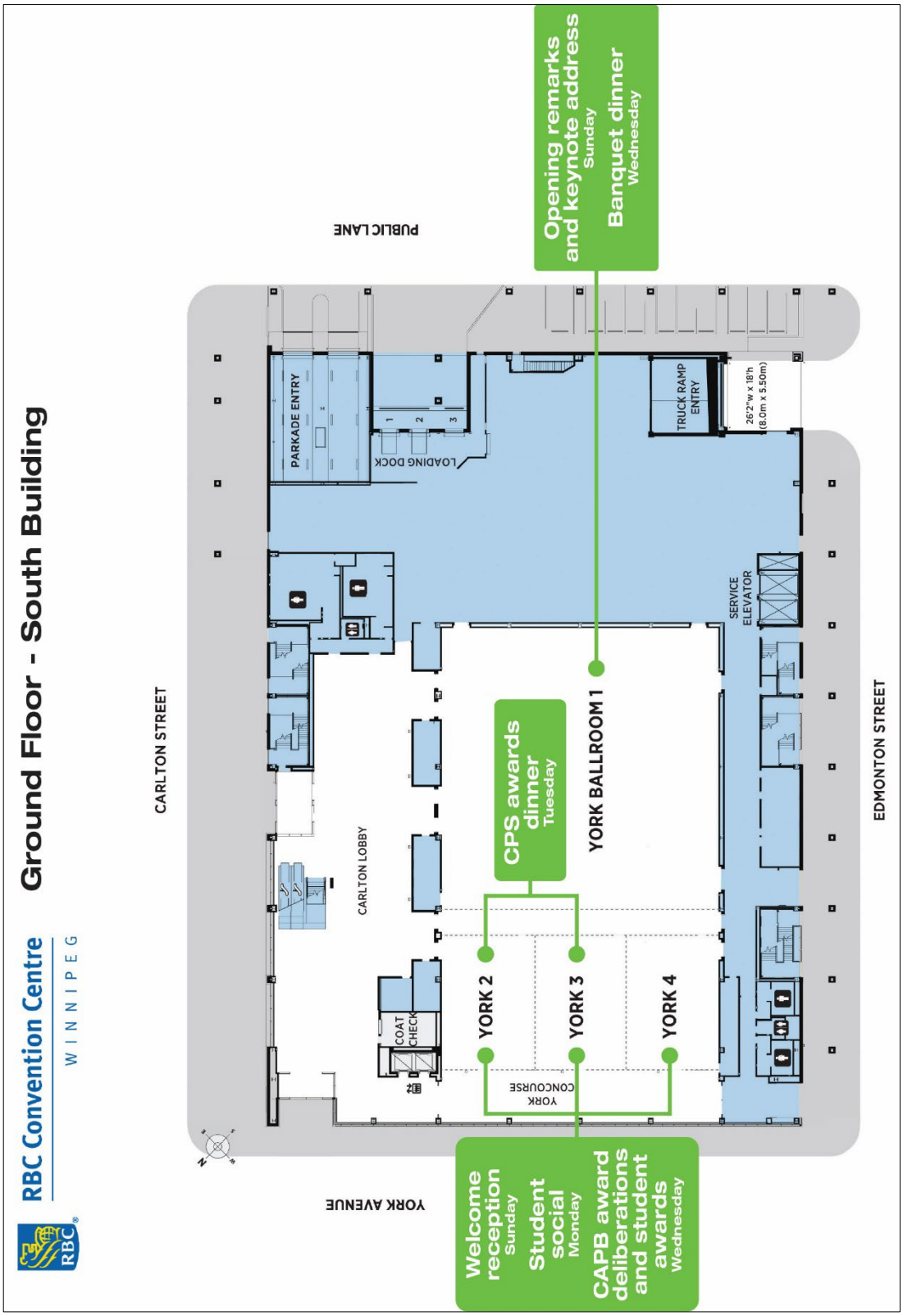
- Eligibility for oral presentation awards
- Eligibility for scholarships & the travel enrichment award
- Networking opportunities

See www.weedscience.ca for more information and to become a member.

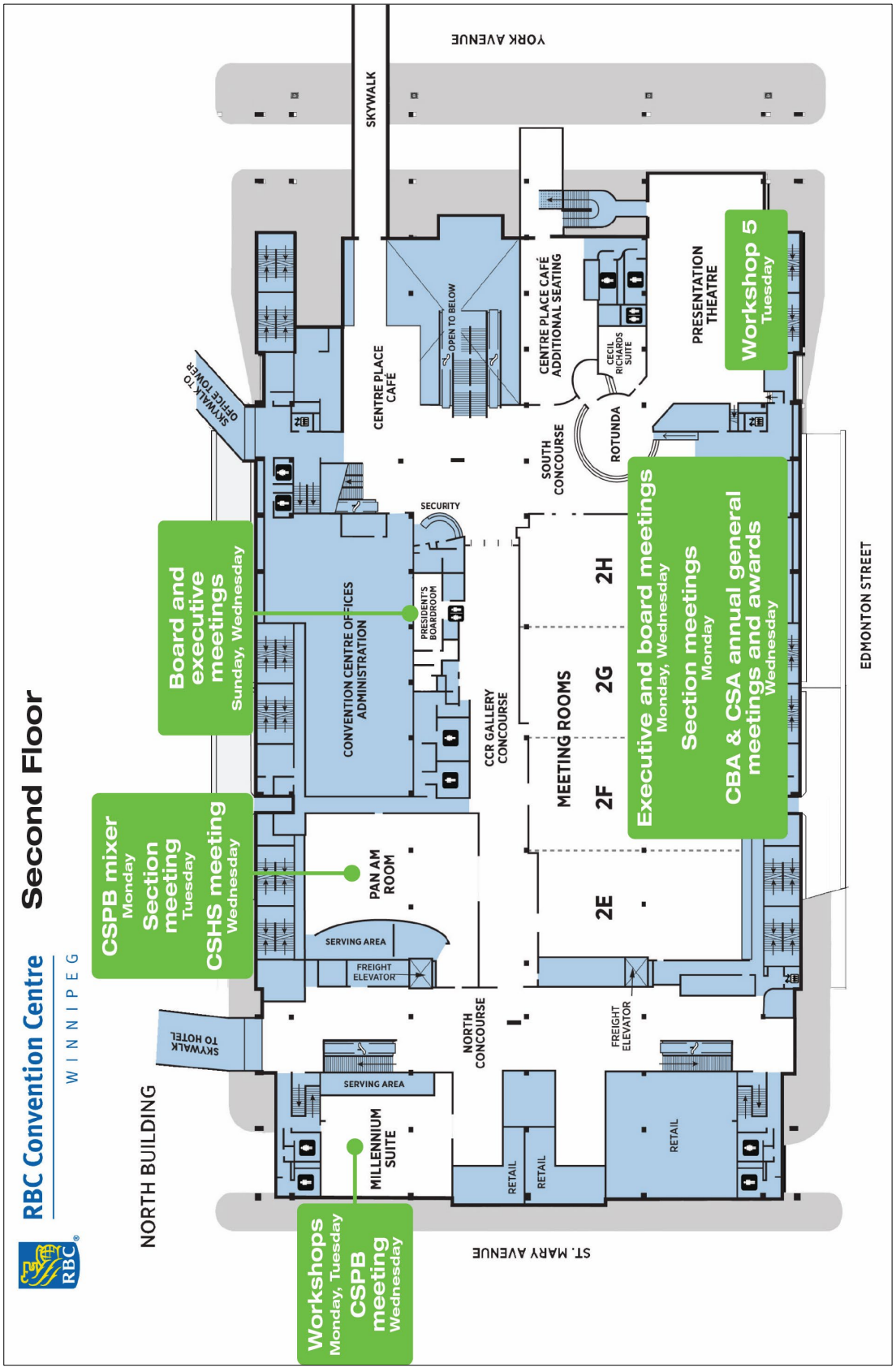
Ground Floor – North Building



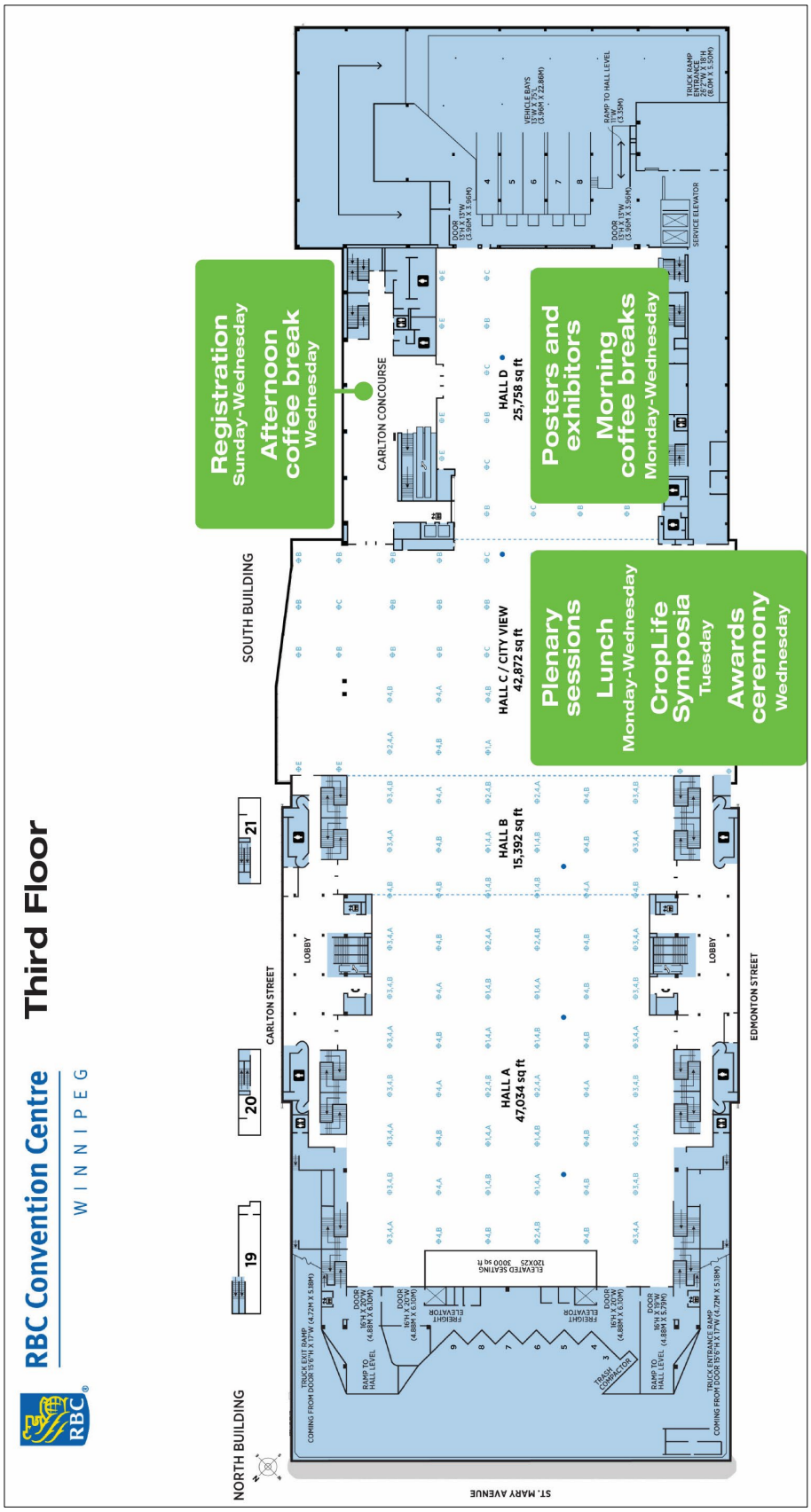
Ground Floor – South Building



Second Floor

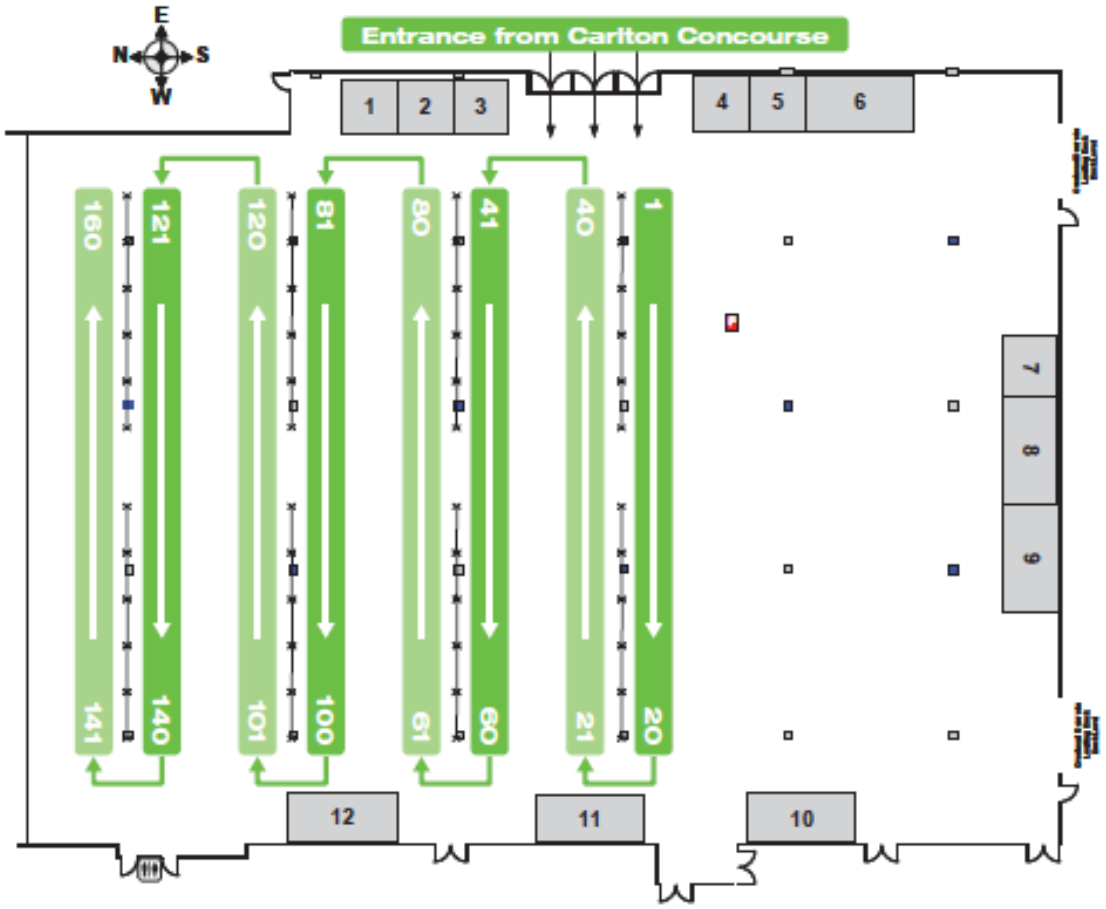


Third Floor


RBC Convention Centre
WINNIPEG
Third Floor
Registration
Sunday-Wednesday
Afternoon coffee break
Wednesday
Posters and exhibitors
Morning coffee breaks
Monday-Wednesday
Plenary sessions
Lunch
Monday-Wednesday
CropLife Symposia
Tuesday
Awards ceremony
Wednesday
HALL A
47,034 sq ft
HALL B
15,392 sq ft
HALL C / CITY VIEW
42,872 sq ft
HALL D
25,758 sq ft
CARLTON CONCOURSE
CARLTON STREET
EDMONTON STREET
ST. MARY AVENUE
SOUTH BUILDING
NORTH BUILDING
LOBBY
SERVICE ELEVATOR
ELEVATED SEATING
120X25 3000 sq ft

Plant Canada 2024
Poster and Exhibitor Area

RBC Convention Centre – Hall D



Plant Canada 2024
Exhibitors

1 Elementar
2 MB Assoc. Plant Biologists
3 New England Biolabs
4 PhytoAB
5 Royal Society Publishing
6 Conviron
7 CropLife Canada
8 Hoskin/LiCor
9 ATS Scientific/Aralab
10 BioChambers
11 ThermoFisher
12 University of MB Departments

PROGRAM SCHEDULE OVERVIEW FOR SATURDAY JULY 6, 2024

EXHIBITOR SET-UP: Starting from noon until 6:00 pm **Hall D**

POSTER SET-UP: Early Poster Set-up available from 3:00 – 6:00 pm **Hall D**

PROGRAM SCHEDULE OVERVIEW FOR SUNDAY JULY 7, 2024

8:00 am – 9:00 pm Registration in the Carlton Concourse

	POSTER VIEWING and EXHIBITS in Hall D from 8:00 am – 7:00 pm	
Time	**TOURS DEPARTURE from RBC Convention Centre, York Avenue Main Entrance**	
9:00 am	**TOUR 1: The Leaf Tour and Conviron Plant Tour with Lunch**	
9:30 am	**TOUR 2: The Leaf Tour and Assiniboine Park Tour (on your own)**	
8:00 -2:00 pm	**CPS FAC and Outgoing Board Meeting**	**President's Boardroom**
12:00-2:00 pm	**Workshop 1 (CSPB) Survival in the jungle of scholarly publishing**	**Meeting Room 17**
1:00-3:00 pm	**Plant Canada Outgoing Board and Annual General Meetings**	**Meeting Room 16**
3:30-5:00 pm	**CAPB Outgoing General Meeting**	**President's Boardroom**
2:30-4:30 pm	**Workshop 2 (CPS) Metabarcoding for Phytopathogens**	**Meeting Room 17**
5:30-5:45 pm	**Opening Remarks** **York 1** • Plant Canada 2024 Co-Chairs Dr. Tom Fetch / Dr. Dilantha Fernando • Mr. Timi Ojo, Manitoba Agriculture, Government of Manitoba • Dr. Geoff Wasteneys, President Plant Canada • Dr. Guillaume Bilodeau, Chair Scientific Program Committee, Plant Canada 2024	
5:45-6:45 pm	**Keynote Address by Dr. Sylvain Charlebois** **York 1**	
6:45-7:30 pm	**Major Society Awards** (presented by the Presidents of each Society)	
7:30-10:00 pm	***Plant Canada Welcome Reception** **York 2 – 4**	

*Hearty appetizers will be served.

PROGRAM SCHEDULE OVERVIEW FOR MONDAY JULY 8, 2024

8:00 am – 4:00 pm Registration in the Carlton Concourse

Time	POSTER VIEWING and EXHIBITS in Hall D from 8:00 am – 7:00 pm								
8:00 – 8:30	**Coffee Break in Hall D** sponsored by **DL Seeds**								
Loading talks at 8	**Plenary Session 1-Plant Biotechnology for a Changing World (CAPB) Hall C East** *Chair: Dominique Michaud (Laval University, president of CAPB)*								
8:30 – 9:20 **PS1**	**Dr. Louis-Philippe Hamel, Medicago Inc.** ***Understanding plant molecular responses to the production of enveloped VLPs leads to the improvement of a molecular farming expression platform***								
9:20 – 10:10 **PS2**	**Dr. Dan Voytas, University of Minnesota** ***Overcoming Bottlenecks in Plant Gene Editing***								
10:10 – 11:00 **PS3**	**Dr. Nicola Patron, University of Cambridge** ***Synthetic biology for metabolic pathway engineering in photosynthetic organisms***								
11:00 – 1:00	**LUNCH in Hall C West** sponsored by **ThermoFisher Scientific**								
11:15 – 1:00	**Workshop 3 (CAPB) Developing a community for plant biology teaching Millennium Suite**								
11:15 – 1:00	**CPS Annual Business Meeting Room 2H**								
11:15 – 1:00	**CAPB Annual General Meeting Room 2G**								
11:15 – 1:00	**CBA Section Meetings: Ecology, Systematics, Development Room 2F**								
11:30 – 1:00	**CSA Executive Meeting VIP Salon**								
Rooms→	MR 1	MR 15	MR 3	MR 4	MR 7+8	MR 9+10	MR 11+12	MR 13	MR 2
Loading talks will be inside corresponding rooms at 1:00-1:15 pm for CS1 and at 3:00-3:15 pm for CS2									
Concurrent Session 1	**CSPB-I**	**CSA-I**	**CAPB/ CSPB-II**	**CSPB-III**	**CSHS-I/ CPS-J1**	**CBA-I**	**CPS-I**	**CPS-II**	**CPS-III**
1:15 - 1:30	O1	O7	O13	O18	O23	O29	O34	O40	O46
1:30 - 1:45	O2	O8	O14	O19	O24	O30	O35	O41	O47
1:45 - 2:00	O3	O9	O15	O20	O25	O31	O36	O42	O48
2:00 - 2:15	O4	O10	O16	O21	O26	O32	O37	O43	O49
2:15 - 2:30	O5		O17	O22	O27	O33	O38	O44	O50
2:30 - 2:45	O6				O28			O45	
2:45 - 3:15	**Coffee Break in Meeting Room 5** sponsored by **FMC**								
Concurrent Session 2	**CSA-II**	**CSA-III**	**CSPB-IV**	**CBA/ CSPB-V**	**CSHS-II/ CPS-J2**	**CSA-IV**	**CPS-IV**	**CPS-V**	**CPS-VI**
3:15 - 3:30	O51	O57	O62	O67	O72	O77	O81	O88	O94
3:30 - 3:45	O52	O58	O63	O68	O73	O78	O82	O89	O95
3:45 - 4:00	O53	O59	O64	O69	O74	O79	O83	O90	O96
4:00 - 4:15	O54	O60	O65	O70	O75	O80	O84	O91	O97
4:15 - 4:30	O55	O61	O66	O71	O76		O85	O92	O98
4:30 - 4:45	O56						O86	O93	O99
4:45 – 5:00							O87		
5:00 – 7:00	**POSTER SESSION 1 (odd #s) in Hall D** sponsored by **Manitoba Crop Alliance**								
5:30 – 7:30	PC President's Reception in VIP Salon (invitation only)								
7:00 – 9:00	CPS President's Reception in MR 17				CSPB Mixer in Pan Am Room (members only)				
8:30 – 10:30	**ALL SOCIETY Student Social York 2-4**								

PROGRAM SCHEDULE OVERVIEW FOR TUESDAY JULY 9, 2024

8:00 am – 4:00 pm Registration in the Carlton Concourse

Time	POSTER VIEWING and EXHIBITS in Hall D from 8:00 am – 7:00 pm									
8:00 – 8:30	**Coffee Break in Hall D** sponsored by **Saskatchewan Pulse Growers**									
Loading talks at 8am	**Plenary Session 2-Emerging Technologies to Enhance Production in a Changing Environment** *Chairs: Harpinder Randhawa and Andrew McKenzie-Gopsill* **Hall C East**									
8:30 – 9:20 **PS4**	**Dr. Matthew Reynolds, CIMMYT, Mexico** ***Crop Physiology, Genomics, and Cropping Systems***									
9:20 – 10:10 **PS5**	**Dr. Eric Patterson, Michigan State** ***Building weed genomic resources through international collaboration and exciting new discoveries from the genomics frontier***									
10:10-11:00 **PS6**	**Dr. Sara Martin, AAFC, Ottawa** ***Changing Environment, Changing Genes: Insights from Weed Genetics and Genomics***									
11:00-1:00	**LUNCH in Hall C West** sponsored by **CropLife Canada**									
11:15 – 1:00	**Workshop 4 (CSPB) Bioinformatics 101: First steps into 'omics' data**							**Millennium Suite**		
11:15 – 1:00	**Workshop 5 (CAPB) Brief overview of gene editing landscape in Canada**							**Presentation Theatre**		
11:15 – 1:00	**CBA Meeting – Teaching Section**							**Pan Am Room**		
11:45 – 1:00	**CropLife Symposia: Resistance Management**							**Hall C East**		
Rooms→	MR 1	MR 2	MR 3	MR 4	MR 7+8	MR 17	MR 11+12	MR 13	MR 15	MR 9+10
Loading talks will be inside corresponding rooms at 1:00-1:15 pm for CS3 and at 3:00-3:15 pm for CS4										
Concurrent Session 3	**CAPB/ CSPB-VI**	**CAPB/ CSPB-VII**	**CSPB-VIII**	**CPS-J4/ CAPB/ CSPB-IX**	**CSHS-III/CPS-J3**	**CBA-II**	**CSPB-X**	**CPS-VII**	**CSA-V**	**CPS-VIII**
1:15 - 1:30	O100	O105	O110	O114	O120	O126	O130	O134	O140	O145
1:30 - 1:45	O101	O106	O111	O115	O121	O127	O131	O135	O141	O146
1:45 - 2:00	O102	O107	O112	O116	O122	O128	O132	O136	O142	O147
2:00 - 2:15	O103	O108	O113	O117	O123	O129a	O133a	O137	O143	O148
2:15 - 2:30	O104	O109		O118	O124	O129b	0133b	O138	O144	O149
2:30 - 2:45				O119	O125	O129c		O139		
2:45 - 3:15	**Coffee Break in Meeting Room 5** sponsored by **AgQuest**									
Concurrent Session 4	**CSPB-XI**	**CSHS-IV**	**CSHS-V**	**CAPB/ CSPB-XII**	**CSA-VI**	**CPS-IX**	**CPS-X**	**CSPB-XIII**	**OPEN**	**CSPB-XIV Gene Editing**
3:15 - 3:30	O150	O154	O160	O166	O173	O177	O185	O189		O195
3:30 - 3:45	O151	O155	O161	O167	O174	O178	O186	O190		O196
3:45 - 4:00	O152	O156	O162	O168	O175	O179	O187	O191		O197
4:00 - 4:15	O153	O157	O165a	O169	O176a	O180	O188	O192		O198
4:15 - 4:30		O158	O165b	O170	O176b	O182		O193		O199
4:30 - 4:45		O159		O171		O183		O194		
5:00 – 7:00	**POSTER SESSION 2 (even #s) In Hall D** sponsored by **Hoskin Scientific/LI-COR**									
7:00 – 11:00	**CPS Awards Dinner in York 2-3**									

PROGRAM SCHEDULE OVERVIEW FOR WEDNESDAY JULY 10, 2024

8:00 am until 1:00pm Registration in the Carlton Concourse

Time	POSTER VIEWING and EXHIBITS in Hall D from 8:00 am – 11:00 am
8:00 – 8:30	**Coffee Break in Hall D** sponsored by **Alberta Grains**
Loading talks at 8am	**Plenary Session 3-Emerging Technologies in Plant Health** **Hall C East** *Chairs: Bourlaye Fofana (AAFC, Charlettetown)*
8:30 – 9:20 **PS7**	**Dr. Jan Leach, University Distinguished Professor, Colorado State University** ***Intergenic spaces: A new frontier to improving plant health***
9:20 – 10:10 **PS8**	**Dr. Martina Stromvik, McGill University** ***The Petota super-pangenome and potato wild relatives***
10:10 – 11:00 **PS9**	**Dr. Brent McCallum, AAFC Morden, MB** ***Combating a Dynamic Wheat Rust Population in Canada***
11:00 - 1:00	**LUNCH in Hall C West** / loading talks 1:00-1:30pm
1:00-4:00	Please take down Posters and Exhibits in Hall D
11:15 – 1:15	**CSHS Annual Business Meeting** **Pan Am Room**
11:15 – 1:30	**CSPB Annual Business Meeting** **Millennium Suite**
11:30 – 1:30	**CBA Annual General Meeting and Awards** **Room 2G**
11:30 – 1:00	**CSA Annual General Meeting and Awards** **Room 2F**
11:30 – 12:30	**CAPB Award Deliberations** **York 2-3**
12:30 – 1:30	**CAPB Student Presentation Awards** **York 2-3**
Loading talks at 1pm	**Plenary Session 4- Understanding and exploiting cell wall biosynthesis and signaling to promote sustainability** **Hall C East** *Chairs: Marcus Samuel and Hugo Zheng*
1:30- 2:20 **PS10**	**Dr. Lacey Samuels, University of British Columbia** ***Building plant biomass: secondary cell wall biosynthesis***
2:20 – 3:10 **PS11**	**Dr. Heather McFarlane, University of Toronto** ***Modifying the plant cell wall from the inside out***
3:10 – 3:40	**Coffee Break in Carlton Concourse** sponsored by **Dept of Biology, Univ of Winnipeg**
3:40 – 4:15 **PS12**	**C.D. Nelson Award talk - Dr. Guanqun Chen, University of Alberta** ***Producing Specialty Oil with Unusual Fatty Acids for Sustainable Growth in Agriculture and Fermentation***
4:15 - 4:45 **PS13**	**Carl Douglas Award talk - Dr. Mark Minow** ***The heritability of chromatin accessibility in Zea mays***
4:45 – 5:15	**AWARDS CEREMONY and CLOSING REMARKS** **Hall C East**
5:30 – 6:30	**Plant Canada Incoming Board** **President's Boardroom**
6:00 – 11:00	**ALL SOCIETY FINAL COCKTAIL RECEPTION & BANQUET - FEATURING CHRIS FUNK York 1**

PROGRAM SCHEDULE OVERVIEW FOR THURSDAY JULY 11, 2024

8:30 – 11:00 **CPS Incoming Board meeting in MR 17**

Dr. Sylvain Charlebois

Keynote Speaker

"Cultivating Tomorrow: Agri-Food Trends in Canada"

Sunday, July 7 @ 5:45 pm
York 1

Join **Dr. Sylvain Charlebois, Director of the Agri-Food Analytics Lab at Dalhousie University**, as he delves into the dynamic landscape of the Canadian food industry. From farmgate innovations to dining tables across the nation, Dr. Charlebois will address the most significant challenges faced by food sector players in their quest to feed the world.

This thought-provoking keynote will explore sustainability not just as a buzzword, but through concrete case studies that highlight its practical applications. Dr. Charlebois will also discuss the intricacies of the supply chain, providing participants with a deeper understanding of current opportunities and challenges in the food sector. Topics will include the state of GM crops, vertical agriculture, climate change, and more. This engaging session promises valuable insights for anyone involved in or interested in the future of food.

Bio: *Dr. Sylvain Charlebois is a professor in food distribution and policy in the Faculty of Management at Dalhousie University in Halifax. He is also the Senior Director of the Agri-food Analytics Lab, also located at Dalhousie University. Known as "The Food Professor", his current research interest lies in the broad area of food distribution, security and safety. He is one of the world's most cited scholars in food supply chain management, food value chains and traceability. He co-hosts The Food Professor podcast, discussing issues in the food, foodservice, grocery and restaurant industries and which is the most listened Canadian management podcast in Canada. Every year since 2012, he has published the now highly anticipated Canadian Food Price Report, which provides an overview of food price trends for the coming year. Furthermore, his research has been featured in several newspapers and media groups, nationally as well as internationally. He has testified on several occasions before parliamentary committees on food policy-related issues as an expert witness. He has been asked to act as an advisor on food and agricultural policies in many Canadian provinces and other countries.*

SCHEDULE OF PLENARY SPEAKERS

Time	Monday July 8th	Tuesday July 9th	Wednesday July 10th
Place	**Hall C East**	**Hall C East**	**Hall C East**
8:00 am	Coffee break in Hall D	Coffee break in Hall D	Coffee break in Hall D
Session	**#1 Plant Biotechnology for a Changing World**	**#2 Emerging Technologies to Enhance Production in a Changing Environment**	**#3 Emerging Technologies in Plant Health**
Chair(s)	Dr. Dominique Michaud	Dr. Harpinder Randhawa and Dr. Andrew McKenzie-Gopsill	Dr. Bourlaye Fofana
8:30 am	**Dr. Louis-Philippe Hamel** Medicago Inc. *Understanding plant molecular responses to the production of enveloped VLPs leads to the improvement of a molecular farming expression platform*	**Dr. Matthew Reynolds** CIMMYT, Mexico *Crop Physiology, Genomics and Cropping Systems*	**Dr. Jan Leach** University of Alberta, AB *Intergenic spaces: A new frontier to improving plant health*
9:20 am	**Dr. Dan Voytas** University of Minnesota, MN *Overcoming Bottlenecks in Plant Gene Editing*	**Dr. Eric Patterson** Michigan State University, MI *Building weed genomics resources through international collaboration and exciting new discoveries from the genomics frontier*	**Dr. Martina Strömvik** McGill University, QC *The Petota super-pangenome and potato wild relatives*
10:10 am	**Dr. Nicola Patron** University of Cambridge, UK *Synthetic biology for metabolic pathway engineering in photosynthetic organisms*	**Dr. Sara Martin** AAFC Ottawa, ON *Changing Environment, Changing Genes: Insights from Weed Genetics and Genomics*	**Dr. Brent McCallum** AAFC Morden, MB *Combating a Dynamic Wheat Rust Population in Canada*
11 am	Lunch in Hall C West	Lunch in Hall C West	Lunch in Hall C West
Session			**#4 Understanding and Exploiting Cell Wall Biosynthesis**
Chair(s)			Dr. Marcus Samuel and Dr. Hugo Zheng
1:30 pm			**Dr. Lacey Samuels** University of British Columbia, BC *Building plant biomass: secondary cell wall biosynthesis*
2:20 pm			**Dr. Heather McFarlane** University of Toronto, ON *Modifying the plant cell wall from the inside out*
3:10 pm			Coffee break in Carlton Concourse
3:40 pm			**Dr. Guanqun (Gavin) Chen** University of Alberta ***C.D. Nelson Award talk**:* *Producing Specialty Oil with Unusual Fatty Acids for Sustainable Growth in Agriculture and Fermentation*
4:15 pm			**Dr. Mark Minow** University of Georgia, GA ***Carl Douglas Award talk:*** *The heritability of chromatin accessibility in Zea mays*

PLENARY SPEAKERS

Dr. Guanqun (Gavin) Chen University of Alberta	PS12	Producing Specialty Oil with Unusual Fatty Acids for Sustainable Growth in Agriculture and Fermentation
Dr. Louis-Philippe Hamel Medicago Inc.	PS1	Understanding plant molecular responses to the production of enveloped VLPs leads to the improvement of a molecular farming expression platform
Dr. Jan Leach University of Alberta	PS7	Intergenic spaces: A new frontier to improving plant health
Dr. Sara Martin AAFC Ottawa	PS6	Changing Environment, Changing Genes: Insights from Weed Genetics and Genomics
Dr. Brent McCallum AAFC Morden	PS9	Combating a Dynamic Wheat Rust Population in Canada
Dr. Heather McFarlane University of Toronto	PS11	Modifying the plant cell wall from the inside out
Dr. Mark Minow University of Georgia	PS13	The heritability of chromatin accessibility in Zea mays
Dr. Nicola Patron University of Cambridge	PS3	Synthetic biology for metabolic pathway engineering in photosynthetic organisms
Dr. Eric Patterson Michigan State University	PS5	Building weed genomics resources through international collaboration and exciting new discoveries from the genomics frontier
Dr. Matthew Reynolds CIMMYT	PS4	Crop Physiology, genomics and cropping systems
Dr. Lacey Samuels University of British Columbia	PS10	Building plant biomass: secondary cell wall biosynthesis
Dr. Martina Strömvik McGill University	PS8	The Petota super-pangenome and potato wild relatives
Dr. Dan Voytas University of Minnesota	PS2	Overcoming Bottlenecks in Plant Gene Editing

Monday, July 8

Dr. Louis-Philippe Hamel

"Understanding plant molecular responses to the production of enveloped VLPs leads to the improvement of a molecular farming expression platform"

Abstract: In plants, the production of COVID-19 vaccines can be achieved via transient expression of the Spike (S) protein from Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). Relying on bacterial vector *Agrobacterium tumefaciens*, this process is favored by co-expression of silencing suppressor P19. During expression, the S protein is produced and matured through the secretory pathway of plant cells, before being trafficked to the plasma membrane where it induces formation of coronavirus-like particles (CoVLPs). Using time course sampling, we characterized molecular responses of *Nicotiana benthamiana* leaf cells expressing P19 only, or co-expressing P19 and a recombinant S protein. This revealed expression of the latter to trigger early but transient activation of the unfolded protein response, in addition to distinct waves of transcription factor genes involved in immunity. Accordingly, defense genes were induced with different kinetics, including those promoting oxidative stress and cell wall lignification. Crosstalk between stress hormone pathways was also denoted, including rapid repression of jasmonic acid biosynthesis genes after agroinfiltration, and later dampening of salicylic acid responses upon S protein accumulation. Further analysis of the data revealed CoVLP production to induce leaf senescence, as revealed by up-regulation of transcription factor and senescence-associated genes, accumulation of the senescence-specific protease SAG12, and concomitant down-regulation of genes involved in photosynthesis and nitrogen assimilation. In a molecular farming context, these combined responses were hypothesized to restrain foreign protein accumulation and strategies were thus developed to improve molecular farming efficacy. This includes the co-expression of helper proteins that reduce stress symptoms or that improve yields *in planta*.

Bio: *Dr. Louis-Philippe Hamel is an expert of the plant innate immune system with a unique expertise in the biopharmaceutical industry and in the field of plant molecular farming. Formerly employed by Medicago, his most recent work aims at understanding plant's responses to* Agrobacterium*-mediated expression of recombinant proteins in plants, including for the production of plant-made vaccines and antibodies. In addition to these fundamental aspects, his research focuses on the development of genetic and non-genetic approaches to improve plant molecular farming practices. During his Ph.D and as a postdoc fellow at the University of Sherbrooke and at Harvard University, Dr. Hamel worked on intracellular signaling pathways that lead to the activation of plant defense, including downstream of resistance proteins and mitogen-activated protein kinase cascades. His work highlighted several defense activation routes, including through the degradation of defense repressors that inhibit resistance mechanisms in the absence of stress.*

Monday, July 8

Dr. Nicola Patron

University of Cambridge

"Synthetic biology for metabolic pathway engineering in photosynthetic organisms"

Abstract: Over the past decade, synthetic biology has significantly advanced the reconstruction of biosynthetic pathways for high-value natural products in "chassis" organisms. In our lab, we integrate genomics, metabolomics, and bioactivity assays to identify the molecules responsible for the bioactivities of medicinal plants and to elucidate the genetic basis of these natural products. This comprehensive approach enables us to understand the mechanisms of metabolic diversification and to explore innovative methods for biomanufacturing. Additionally, we develop plants as photosynthetic biomanufacturing platforms, engineering synthetic circuits and tailoring plant genomes to optimize yield.

Bio: *Nicola Patron is an Associate Professor in Plant Synthetic at the University of Cambridge, UK. Nicola has a PhD in plant molecular biology and pursued postdoctoral research at The John Innes Centre and The University of British Columbia. In 2015, she was identified as an emerging leader in synthetic biology and awarded a SynBioLEAP fellowship. She started her research group at the Earlham Institute in 2016 to apply engineering approaches to plant biology. Her group relocated to Cambridge in February 2024 and is focused on understanding how phenotypes emerge from network functions and exploring and utilising metabolic diversity.*

Monday, July 8

Dr. Dan Voytas

University of Minnesota

"Overcoming Bottlenecks in Plant Gene Editing"

Abstract: Plant gene editing is usually carried out by delivering reagents such as Cas9 and sgRNAs to explants in culture. Edited cells are then induced to differentiate into whole plants by exposure to various hormones. Creating edited plants through tissue culture is often inefficient, requires considerable time, only works with limited species and genotypes and causes unintended changes to the genome and epigenome. We have been pursuing alternative approaches for plant gene editing that minimize or obviate the need for tissue culture. In one approach, we generate gene edited dicotyledonous plants through *de novo* meristem induction. Developmental regulators and gene editing reagents are delivered to somatic cells on whole plants. Meristems are induced that produce shoots with targeted DNA modifications, and gene edits are transmitted to the next generation. In a second approach, we use RNA viruses to deliver sgRNAs through infection to transgenic plants that express Cas9. The sgRNAs are augmented with sequences that promote cell-to-cell mobility and movement into the meristem. Gene edited shoots are thus generated that transmit gene edits to the next generation. Because both approaches minimize the need for tissue culture, they promise to help overcome this bottleneck in plant gene-editing.

Bio: *Dr. Dan Voytas is a Professor in the Department of Genetics, Cell Biology and Development and the Director of the Center for Precision Plant Genomics at the University of Minnesota. Dr. Voytas graduated from Harvard College in 1984 and received his Ph.D. from Harvard Medical School in 1990. He conducted postdoctoral research at Johns Hopkins University School of Medicine. Prior to joining the University of Minnesota in 2008, Dr. Voytas was a professor at Iowa State University. Dr. Voytas' research focuses on developing methods to edit plant genomes. Dr. Voytas' lab is currently optimizing methods for efficiently making targeted genome modifications in a variety of plant species to advance basic biology and develop new crop varieties. In addition to his position at the University of Minnesota, Dr. Voytas co-founded Calyxt, an agricultural biotechnology company that used gene editing for crop improvement. In 2019, Dr. Voytas was elected to the National Academy of Sciences.*

Tuesday, July 9

Dr. Matthew Reynolds

CIMMYT

"Crop Physiology, genomics and cropping systems"

Abstract: Spring wheat breeding at CIMMYT continues to underpin food security in the Global South, especially by avoiding disease epidemics while increasing profit margins through steady genetic gains ~1%p.a. Modern tools like genomic selection combined with speed breeding function best with restricted gene-pools. However, analysis of historical international nursery big-data sets show a significant trend for reduced wide-adaptation under warmer temperatures. This has two major implications: 1) Centralized breeding with restricted gene-pools, while highly cost-effective for relatively-simply inherited strategic traits (having global or regional impact), will boost yields at fewer sites due to restricted genetic backgrounds of advanced lines; 2) Breeding will require access to wider genetic diversity to cater for a more diverse set of target environments. This will require refining genetically complex-trait expression. To achieve this, the IWYP-HeDWIC translational research Hub at CIMMYT, identifies novel genetic variation for key performance traits, including from exotic material, like amphiploids encompassing entire genomes of wild relatives. (The latter have evolved through millions of years of environmental flux while our crops were isolated from those gene-pools upon domestication.) The Hubs test combinations of promising traits and alleles through crossing and evaluating best progeny internationally as physiological pre-breeding (PPB) nurseries. While on average PPB lines track yield gains of elite breeding lines globally, at the site and cluster level, specific PPB lines express outstanding yield over checks. This suggests that wide genetic variation within PPB nurseries may be providing a range of favorable trait/allele combinations that will help adapt to new and generally harsher environmental norms.

Bio: *Matthew Reynolds (m.reynolds@cgiar.org) leads Wheat Physiology at CIMMYT, developing breeding technologies for climate resilience and yield improvement. He has fostered global collaborations to tap expertise and emerging technologies in basic plant sciences for translation to breeding. Networks initiated include the International Wheat Yield Partnership https://iwyp.org/, and the Heat and Drought Wheat Improvement Consortium https://hedwic.org/- , whose products provide breeders globally with unique pre-breeding material with new combinations of complex physiological traits and their haplotypes. He has published widely in crop physiology, genomics and pre-breeding and since 2018 is listed among top 1% of world's researchers in plant & animal science (Web of Science). He was recently invited to compile as wheat textbook as editor, which was published open access in 2022 https://link.springer.com/book/10.1007/978-3-030-90673-3. He co-supervises PhD thesis projects through his links with universities worldwide and has developed physiological manuals for use by national programs which have been translated into several languages.*

Tuesday, July 9

Dr. Eric Patterson

Michigan State University

"Building weed genomics resources through international collaboration and exciting new discoveries from the genomics frontier"

Abstract: The classic dogma of herbicide resistance evolution stats that random genetic variation in wild weed populations contains initially rare resistance alleles that then increase in time with herbicide selection pressure. A fundamental question then becomes, where does genetic variation come from? One source of variation is random small polymorphisms that occur during DNA replication. Classic target site mechanisms from SNPs most likely start this way; however, thanks the advent of cheap, third generation sequencing and chromosome level genome assemblies, we are discovering that genomic rearrangements are also frequently sources of herbicide resistance traits. This phenomenon is most obvious in the case of glyphosate, where at least 8 species have developed some sort of target site copy number variation. Each species evolves glyphosate resistance independently and utilizes different rearrangement mechanisms, but the end result is the same. Recently, target site copy number variation was also cited as providing glufosinate resistance in Amaranthus palmeri and ACCase resistance in Digitaria sanguinalis. In separate, extraordinary case of genomic rearrangements, a transposable element inserted into an intron and changed splicing of a target site. These discoveries are only the beginning of the insights that weed genomes have to offer.

Bio: *Eric Patterson is an Assistant Professor in Weed Science in the Department of Plant, Soil, and Microbial Sciences at Michigan State University where he teaches weed science to Undergraduate and Graduates. His research focuses on more basic aspects of weed science including weed genomics, molecular biology of resistance mechanisms, rapid molecular weed diagnostics, and herbicide mode of action discovery. His lab is especially interested in how genome rearrangements (i.e. transposable elements and copy number variation) form and are utilized as novel sources of genetic variation for weed adaptation to abiotic stresses.*

Tuesday, July 9

Dr. Sara Martin

Agriculture and Agri-Food Canada

"Changing Environment, Changing Genes: Insights from Weed Genetics and Genomics"

Abstract: We are privileged to be living through this era of biology. Our ability to sequence genomes is tantamount to a superpower that allows us to reconstruct an organism's evolutionary history, and even to observe as it continues to evolve. This was very publicly illustrated during the COVID-19 pandemic when evolutionary questions such as "where did the virus originate? what do these mutations in a genomes mean?" were of intense public interest. Our ability to rapidly sequence genomes meant that scientists were able to answer the first question, and the massive amount of data collected will help us answer the second. The genomic data clearly showed the diversity of SARS-CoV-2 variant changing in response to inadvertent selection stemming from changes in human behavior, such as the rollout of vaccines and anti-viral treatments. What we see resulting from these kinds of treatments generally, however, is growing resistance to chemical control in bacteria, fungi, arthropods and plant species. Compared to the acute challenge of the SARS-CoV-2 virus, these are chronic challenges that receive less attention, but that are likely to be more costly in the long term. For example, estimates have suggested that a loss of chemical controls could halve agricultural production. While weed genomics doesn't yet have the epistemic foundation that virologists can rely on, we are building this foundation quickly. Sequencing genomes allows us to help address the chronic challenge of herbicide resistance by improving our ability to: detect target site mutations; determine the genetic basis of non-target site mutations; and predict future evolution by understanding past evolution and current connections among populations. These genomes will provide the foundational data for new tools that will allow us to understand the consequences of mutations and of key genetic pathways that could be disrupted by new chemical controls. Plant genome sequences are the key to making progress in the face of the chronic challenge of herbicide resistance, just as the sequencing of the SARS-CoV-2 genome was key to overcoming the pandemic.

Bio: *Dr. Sara L. Martin is a research scientist at Agriculture and Agri-Food Canada's Ottawa Research and Development Centre. She holds a B.Sc in Botany from the University of Toronto and a Ph.D. in Integrated Biology from the University of Guelph. Her research program's mandate is to develop our understanding of how gene flow between crop and wild species could lead to transgene escape, with a secondary focus on the evolution and spread of herbicide resistance in weeds. As a result, her work ranges from field work to document the current geographic range of species, to greenhouse work creating hybrids, to the assembly, analysis and use of plant genomes. Her work has investigated kochia, fleabane, ragweed, wild mustard, cleavers, and the wild relatives of Camelina.*

Wednesday, July 10

Dr. Jan Leach

Colorado State University

"Intergenic spaces: A new frontier to improving plant health"

Abstract: Adaptation of plants to both biotic and abiotic stresses involve changes in expression patterns of genes in diverse defense and tolerance pathways. These expression changes are controlled by short sequences in promoter regions known as cis-regulatory elements (CRE) or combinations of CRE organized as modules (called cis-regulatory modules or CRM). Conserved CRE/CRMs are shared among stress response genes, and genetic polymorphisms in CRE/CRMs significantly impact gene expression. We have shown the presence of shared sets of CRMs in promoters of genes conferring broad-spectrum disease resistance (BSDR) to multiple diseases in rice. In addition, conserved CRE and CRM are common to genes co-activated in plants with enhanced tolerance to different types of stresses, such as thermotolerance and disease. We propose a strategy to simultaneously increase heat and disease tolerance in crop plants through the development of breeding markers that are based on conserved CRE/CRMs associated with functional candidate genes. Our goal is to enable genome-wide selection of complex traits with a reduced number of markers, allowing for efficient, critical solutions to enhance sustainable food production for a growing global population.

Bio: *Jan Leach is a molecular plant pathologist who studies the basis of plant disease susceptibility and resistance and how these responses are influenced by interactions within the phytobiome. She is a University Distinguished Professor in the Department of Agricultural Biology at Colorado State University. Leach is the Immediate Past President of the International Society of Plant Pathology and is a Fellow and a past President of the American Phytopathological Society (APS). Leach was elected to the US National Academy of Sciences in 2021.*

Wednesday, July 10

Dr. Martina Strömvik

McGill University

"The Petota super-pangenome and potato wild relatives"

Abstract: Potato wild relatives are a source of genetic diversity for improving traits in modern cultivars to meet climate challenges. There are over 100 species the *Solanum* section *Petota*, with ploidy ranging from diploid to hexaploid. A *Petota* super pan-genome was constructed using 296 accessions including both diploid and polyploid cultivars, clones, landraces and wild relatives representing a total of 60 species. The phylogeny based on presence/absence variation within the super pan-genome shows clade-specific core genes, and the impact of transposable element in potato evolution. As a tool to help understand cold adapted potato species, an allotetraploid wild potato species was sequenced and compared with a common autotetraploid cultivar that is not cold climate adapted. The allotetraploid *Solanum acaule* Bitter has long been used to introgress cold tolerance into potato breeding germplasm. The present study includes the sequenced and phased subgenomes of *Solanum acaule* placed in a phylogenetic context with other potato wild relatives.

Bio: *Dr. Strömvik leads a bioinformatics research program focusing on complex polyploid genomes of plants (e.g. arctic and temperate* Oxytropis *sp., and potato wild relatives). She completed a Ph.D. in Crop Sciences (plant molecular genetics of soybean) at University of Illinois at Urbana-Champaign (USA), and a B.A. in Theoretical Philosophy as well as a M.Sc. in Biology (tissue culture and transformation in* Picea abies*) at Stockholm University (Sweden). She carried out postdoctoral studies in Bioinformatics and Computational Genomics at University of Minnesota, Minneapolis (USA) working on genomics projects in soybean,* Medicago truncatula *and loblolly pine. In 2003 she joined McGill's Department of Plant Science where she pioneered the development of university-wide graduate bioinformatics programs and courses. She serves on national and international grant panels, as Associate Editor for several journals, and as Chair of the Department of Plant Science since 2015.*

Wednesday, July 10

Dr. Brent McCallum

Agriculture and Agri-Food Canada

"Combating a dynamic wheat rust population in Canada"

Abstract: Wheat is the largest crop in Canada. Wheat leaf rust, caused by *Puccinia triticina* Eriks., is one of the most common and destructive diseases of wheat. The population of *P. triticina* primarily arrives each year from the United States, carried by wind currents. Due to the absence of the alternate host in North America, which eliminates sexual recombination, the *P. triticina* population is characterized by clonally reproducing groups that diversify through step-wise mutations. All members of each group have the same mating type alleles and are similar in their genomes and virulence spectra. Two clonal groups are dominant and comprise the majority of the population in Canada, while many other smaller groups contribute to diversity. Each growing area in Canada has different compositions of these groups, which changes annually. To combat this dynamic population genetic resistance has been effectively deployed in the wheat cultivars grown in Canada. The common resistance genes in Canadian wheat in order of frequency are *Lr2a*, *Lr34*, *Lr21*, *Lr16*, *Lr46*, and *Lr14a*. Since 2013 *Lr2a*, *Lr21* and *Lr34* were all deployed in over 50% of the seeded area for the largest wheat class Canadian Western Red Spring. Of these *Lr34* has had the biggest impact because of its ability to combine additively with other leaf rust resistance genes and its multi-pest resistance that contributes to resistance to other wheat diseases such as stem rust, stripe rust, and Fusarium head blight. *Lr34* also produces leaf tip necrosis, primarily on flag leaves at normal growing temperatures. This necrosis and leaf rust resistance can be observed on seedling plants when they are grown at cold temperatures (8ºC to 10ºC). Both *Lr46* and *Lr67* have also been shown to act similarly to *Lr34*, in conditioning multi-pest resistance and combining additively with other resistance genes. While *Lr46* is in some Canadian wheat cultivars, *Lr67* has not been deployed to date. Modern Canadian bread wheat cultivars often have combinations of many resistance genes, such as those found in Carberry (*Lr2a*, *Lr13*, *Lr16*, *Lr23*, *Lr34*, *Lr46*), which act together to impart the high levels of durable resistance that characterize these cultivars.

Bio: *Dr. Brent McCallum is a research scientist with Agriculture and Agri-Food Canada working at the Morden Research and Development Centre in Morden Manitoba. He received his Ph.D in Plant Pathology from the University of Minnesota in 1995 and started working at AAFC in 1996. His research focus is on wheat leaf rust disease in Canada. He conducts an annual national virulence survey in Canada to track changes in the pathogen population that could affect the wheat crop in Canada. He is involved in identifying and developing sources of resistance to use in future wheat cultivars and to understand the genetics of disease resistance. This includes mapping and marker development for genes of interest, host-parasite interactions, and understanding interactions between resistance genes. He is also involved in research projects on the causal rust,* Puccinia triticina*, to understand its pathogenesis, diversity and evolution.*

Wednesday, July 10

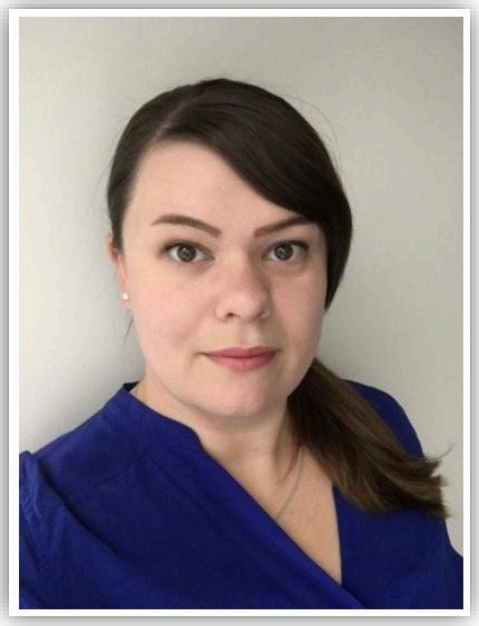
Dr. Lacey Samuels

University of British Columbia

"Building plant biomass: secondary cell wall biosynthesis"

Abstract: The bulk of the plant biomass is made up of secondary cell wall materials, including cellulose, hemicelluloses, and lignin. With our changing climate and requirement to reduced dependence on fossil fuels, renewable biopolymers of plant secondary cell walls represent a promising source of bioproducts and biofuels. Using a combination of molecular genetics and advanced biological imaging, we can manipulate the cellular and molecular machinery responsible for producing secondary cell wall components. Beyond considering each component individually, understanding how different components can influence each other's biosynthesis provides new insights into the coordination of secondary cell wall biosynthesis. For example, cellulose production is sensitive to changes in the surrounding hemicelluloses (glucuronoxylan). After polysaccharide deposition, the secondary cell wall is lignified when monolignol precursors are exported to the cell wall where laccases and peroxidases produce monolignol radicals that polymerize with radical coupling. Our understanding of the lignification process is changing from active transport of monolignols by unknown xylem cells, to a coordinated activity in which monolignols diffuse from defined cell populations during xylem development. Diffusion is driven down a concentration gradient, when monolignols are consumed by laccases and peroxidases in the cell wall. Within secondary cell walls, regions like cell corners and middle lamella have unique chemistries and functions, as well as distinct subsets of laccases and peroxidases. Knocking out these combinations of laccases and peroxidases changes lignification patterns. In addition to advancing basic biology, defining these cell populations and oxidative enzymes that contribute to lignification opens new opportunities for lignin manipulation.

Bio: *Professor Samuels has a B.Sc. in Neurobiology from McGill University in Montreal, and a Ph.D. in Botany, from the University of British Columbia in Vancouver, BC., Canada. She did post-doctoral studies at the University of Colorado, Boulder, USA and at UBC Vancouver, where she has been a faculty member since 2000. Professor Samuels initiated the UBC node of the graduate teaching training network called the Centre for the Integration of Research, Learning, and Teaching (CIRTL). She is Academic Director of the Bioimaging Facility, a campus-wide light and electron microscopy shared research facility, and a member of the UBC Bioproducts Institute. The goal of Samuels' research is to integrate plant cell biology and biochemistry to discover how plant cells produce valuable renewable resources.*



Wednesday, July 10

Dr. Heather McFarlane

University of Toronto

"Modifying the plant cell wall from the inside out"

Abstract: The plant cell wall is a polysaccharide-based extracellular matrix that surrounds and protects all plant cells. Since plants are constantly growing and developing within the confines of their cell walls, plant cells must be in constant communication with their cell walls. Furthermore, cell walls are a critical line of defense between plant cells and their environment; changes to the cell wall are often early warning signs of pathogen attack or abiotic stress, and plants fortify their cell walls in response to these stresses. This ongoing communication between the plant cells and their cell walls is collectively called "cell wall signaling". Attempts to modify plant cell walls for improved materials or biofuels have exposed a critical gap in our understanding: inadvertent activation of cell wall signaling typically cause yield penalties that render these cell wall "improvements" agriculturally/economically unviable. The McFarlane Lab at The University of Toronto studies the molecular mechanisms of cell wall signaling and responses, including cell wall secretion and remodeling. Using a combination of live cell imaging, high-resolution electron microscopy, genetics, proteomics, and biochemistry, we have recently uncovered new molecular components of cell wall signaling and provided insights into what types of modifications the plant cell wall can tolerate without triggering yield losses.

Bio: *Dr. Heather E. McFarlane is an Assistant Professor and Canada Research Chair in Plant Cell Biology in the Department of Cell & Systems Biology at the University of Toronto. She earned her PhD at the University of British Columbia (Canada) where she studied the transport of lipids that form the protective plant cuticle. After her PhD, she joined the Max Planck Institute for Molecular Plant Physiology (Germany) to study cell wall synthesis as an EMBO postdoctoral fellow. She then moved to University of Melbourne (Australia) where she was awarded an Australian Research Council Discovery Early Career Researcher Award to initiate her work on cell wall signaling. Heather joined the Department of Cell and Systems Biology at the University of Toronto July 2019. The McFarlane Lab studies cell wall synthesis, secretion, signaling, and remodeling with a view to improving plant biomass for food, materials, and energy.*

Wednesday, July 10

Dr. Guanqun (Gavin) Chen

University of Alberta

"Acids for sustainable growth in agriculture and fermentation"

Abstract: Some plant and microalgae species can produce high levels of unusual fatty acids (UFAs), which are valuable in the food, feed, and oleochemical industries. Understanding the mechanisms of their biosynthesis and regulation, as well as developing novel genetic engineering strategies to increase their production, is an exciting area of research in lipid biotechnology. This presentation will cover our work on the biochemical characterization of proteins associated with several UFAs in plants and their production through biotechnology. The UFAs we will discuss include long-chain n-3 polyunsaturated fatty acids, hydroxyl fatty acids, and conjugated fatty acids, with punicic acid as a representative example.

Punicic acid is primarily sourced from pomegranate seed oil, but its productivity is very low. Therefore, it is attractive to establish its production in engineered oilseed crops and yeasts. By expressing cDNAs encoding pomegranate fatty acid conjugase and Δ12 desaturase, we achieved the accumulation of 11% of total fatty acids as punicic acid in canola seeds. In *Saccharomyces cerevisiae*, we created recombinant libraries by directly shuffling candidate genes within its genome using Ty retrotransposon-targeted random gene integration. Subsequent library screening and bioprocess development identified a recombinant strain that accumulated 26.7% of total fatty acids as punicic acid. We also engineered an oleaginous yeast strain, *Rhodosporidium toruloides*, which accumulated 12% of its total fatty acids as punicic acid with glucose as the carbon source and 6.4% with wood hydrolysate as the feedstock.

The presentation will conclude with a general discussion of the challenges and future perspectives in this research field.

Bio: *Dr. Guanqun (Gavin) Chen is an Associate Professor and Canada Research Chair in Plant Lipid Biotechnology in the Department of Agricultural, Food, and Nutritional Science at the University of Alberta, Canada. His research interests include expanding our understanding of storage lipid biosynthesis and developing biotechnological approaches to enhance oil yield and quality in both plants and microorganisms. This knowledge platform will further enable him to redesign lipid biosynthesis in these organisms, producing unusual fatty acids for applications in food, nutraceuticals, and industrial settings.*

Wednesday, July 10

Dr. Mark Allan Alexander Minow

University of Georgia

"The heritability of chromatin accessibility in Zea mays"

Abstract: Transcription factors bind specific DNA sequences, known as cis-regulatory elements, to regulate the transcription of nearby genes. In eukaryotic genomes, the accessibility of these cis-regulatory elements is controlled by the chromatin environment, with accessible, nucleosome-free DNA needed for most transcription factor binding. Cis-regulatory element accessibility changes precede transcriptional ones, and differentially tune gene expression in diverse cell-types. Single-cell Assay for Transposase Accessible Chromatin sequencing (scATAC-seq) measures chromatin accessibility at a cell-type resolved level. Here, we applied scATAC-seq to 172 diverse maize inbred genotypes to discover how genetic diversity influences chromatin accessibility, and thus transcriptional regulation, in seedling cell types. Using this panel, we uncovered varying conservation of chromatin accessibility, while finding genetic variants that associate with altered local chromatin accessibility, revealing cell type level chromatin accessibility quantitative trait loci (caQTL). These caQTL encompass known and novel variants, and evidence suggests these variants modify transcription factor binding which then impacts local chromatin states. Bulk ATAC-seq was also conducted on maize F1-parent pairs to learn more about the heritability of chromatin accessibility. Calculating narrow sense heritability for chromatin accessibility revealed good concordance between high heritability at a region and caQTL detection in our panel. Heritability was high for most accessible chromatin regions but was higher in promoters or intergenic regions than accessible genic regions. Finally, we exploited our parent-offspring pairs to find accessible chromatin regions that had the hallmarks of trans regulation – these candidate regions can be combined with our diversity panel to empower the detection of trans caQTL, potentially discovering new regulatory relationships within the maize genome.

Bio: *Dr. Mark Allan Alexander Minow received his PhD in plant molecular biology and genetics in the department of Molecular and Cellular Biology at the University of Guelph in 2020 for his study of plant small RNA biology and the regulation of the maize floral transition. He is currently a Postdoctoral Research Associate at the University of Georgia under the supervision of Dr. Robert Schmitz, exploring maize biology through molecular genetics and single-cell genomics. An avid plant lover, when not in the lab, Dr. Minow is usually found landscaping his 2.5-acre property, nestled in the abandoned cotton terraces of rural North Georgia.*

WORKSHOPS IN PLANT CANADA 2024

Plant Canada 2024 brings an exciting program of workshops led by both professional and academic scientists.

These are open to all registered attendees of Plant Canada 2024 and are free with no reservations required – only exception is W2 with a fee and limited attendance.

The times and locations for each Workshop are provided below.

#	Date	Time	Location	Title
W1	Sunday, July 7	12:00-2:00 pm	Meeting Room 17	**Survival in the jungle of scholarly publishing: Building authorship and peer review skills**
W2	Sunday, July 7	2:30-4:30 pm	Meeting Room 17	**R for biovigilance of phytopathogens based on metabarcoding approach**
W3	Monday, July 8	11:15-1:00 pm	Millennium Suite	**Developing a community of practice for plant biology teaching**
W4	Tuesday, July 9	11:15-1:00 pm	Millennium Suite	**Bioinformatics 101: Your first steps into the world of 'omics' data analysis**
W5	Tuesday, July 9	11:15-1:00 pm	Presentation Theatre	**A brief overview of the gene editing landscape in Canada**

WORKSHOP #1

Survival in the jungle of scholarly publishing: Building authorship and peer review skills
July 7, 2024, from 12:00-2:00 pm in Meeting Room 17

The world of publication may look like a jungle for graduate students. Join Botany Co-Editors-in-Chief Dr. Liette Vasseur and Dr. Shelley Hepworth and journal staff for an interactive workshop designed to demystify the world of scholarly publishing. From selecting the right journal to preparing your submission, learn how to set up your manuscript for success. We will walk you through the peer review process and give tips for handling a variety of different situations, whether you are encountering them as an author or a peer reviewer. We will discuss Open Science, equity and inclusion in publishing, and other topics of interest. This workshop will include breakout activities for an opportunity to participate in hands-on exercises and receive real-time feedback from journal editors and staff. Join us and learn how to map your path to success in publishing your research.

WORKSHOP #2

R for biovigilance of phytopathogens based on metabarcoding approach
July 7, 2024, from 2:30-4:30 pm in Meeting Room 17

Metabarcoding combines DNA barcoding with high-throughput sequencing (HTS) technologies for rapid and high-throughput identification of multiple species from environmental samples, offering a powerful tool for biodiversity studies and ecosystem monitoring. It has transformed our ability to profile complex microbial communities and track plant pathogens in various environments.

This workshop will provide hands-on experience in metabarcoding-based community analysis using R, a versatile programming language and environment for statistical computing and graphics. You will learn about various R packages and tools that are essential for community data analysis, enabling you to effectively analyze and interpret metabarcoding data.

This workshop is designed to demonstrate how you may use metabarcoding for plant pathogen monitoring and tracking. This is crucial for early detection and management of plant diseases and for agriculture and biodiversity conservation. We will explore case studies and practical applications, highlighting how metabarcoding, combined with R analysis, becomes a potential diagnostic tool for Biovigilance of phytopathogens.

WORKSHOP #3

Developing a community of practice for plant biology teaching
July 8, 2024, from 11:15 am-1:00 pm in the Millennium Suite

Join us to discuss the ins and outs, ups and downs, and tips and tricks for teaching plant biology. You'll leave the session with new ideas for your teaching and new resources and connections to help make your ideas a reality. Beyond that, you'll be part of a team laying the groundwork and planting the seeds for an online community of like-minded colleagues across the country who believe in plant education and supporting the people who teach it. Participants of all career and experience levels are welcome! **No registration required for conference attendees!** https://cspb-scbv.ca/Education-Committee-Events

WORKSHOP #4

Bioinformatics 101: Your first steps into the world of 'omics' data analysis
July 9, 2024, from 11:15 am–1:00 pm in the Millennium Suite

Join us to discuss the basic bioinformatics skills researchers need to begin working in 'omics'. The workshop will come in two parts. In the first, we will provide a hands-on training that showcases basic command-line coding that will illustrate the power of BASH for data handling and processing of immensely large omics datasets. In the second part we will discuss RNA-seq, the various steps involved and considerations when setting up your first RNA-seq experiment. Ultimately, this workshop is intended to be a first introduction to bioinformatics and as a forum to ask any questions you may have if you intend to have bioinformatics as part of your future research. For Mac/Linux users, you are ready to start command-line tomorrow! For PC/Windows users, consider downloading 'MobaXterm' before attendance so that you are ready for working in a Unix environment (https://mobaxterm.mobatek.net/)!

WORKSHOP #5

A brief overview of the gene editing landscape in Canada
July 9, 2024, from 11:15 am–1:00 pm in the Presentation Theatre

Moderator: Dominique Michaud (Laval U)
Panelists: Stacy Singer (AAFC), Hannah Clouthier (CFIA), Jennifer Hubert (CropLife Canada), Steve Webb (GIFS), Pankaj Bhowmik (NRC)

Plant Biotechnology is at the forefront of scientific innovation in Canada, harnessing diverse tools and technologies to enhance plant genetics and yield products of agricultural, environmental or industrial value. The Plant Biotechnology sector significantly contributes to Canada's economy, providing 15,000 jobs and over $2 billion to the GDP each year. Beyond scientific and economic prowess, its influence also permeates regulatory frameworks and societal perspectives, shaping its impact on society, the economy and the environment. As a trailblazer in the realm of Plant Biotechnology, Canada is now witnessing a compelling chapter in its scientific narrative, strongly influenced by evolving guidelines amidst the rapid development of genome editing technologies and the adoption of gene-edited crops. Please join us for an open discussion about the gene editing landscape in Canada. Different aspects of the question will be addressed by the panelists, from the basic concepts of gene editing to the regulation, IP protection and commercialization of gene-edited crops and products.

CROPLIFE SYMPOSIA: RESISTANCE MANAGEMENT

SPONSORED BY CROPLIFE CANADA

Tuesday July 9, Hall C East at 11:45 am

Resistant insects, diseases, and weeds have the potential to affect all crops in Canada. Herbicide resistance alone costs Canadian growers an estimated $1.3 billion annually due to increased input use and decreased yield and quality. CropLife Canada invites Plant Canada attendees to be part of this discussion and learn the challenges and opportunities in the resistance field. The panel will focus on how researchers, industry and government can collaborate to ensure science-based policies best support innovation and secure farmers' access to the tools that help combat resistance.

PANELISTS

- **Jocelyn Smith**, University of Guelph, Ridgetown Campus
- **Curtis Rempel**, Canola Council of Canada
- **Albert Tenuta**, OMAFRA
- **Brittany Lacasse**, CropLife Canada

MODERATOR

- **Luis Luque**, CropLife Canada

Oral Presentations

Oral presentations are grouped by society and topic – refer to the concurrent session list to find the number for your talk. The presenter's name is underlined. Student presentations for competition are identified by an asterisk.

MONDAY AFTERNOON Concurrent Session 1

Meeting Room 1		CSPB-I Plant Reproduction *Chair: Teagen Quilichini*
1:15	*O1	A CELL ATLAS OF MALE AND FEMALE REPRODUCTIVE STRUCTURES IN POPULUS REPRESENTING MULTIOME DATA; Oscar Felipe Nunez-Martinez, Stefan Heinen, Raju Soolanayakanahally, and Katharina Bräutigam
1:30	O2	WITHDRAWN
1:45	O3	A FUNCTIONALLY REDUNDANT MAPK PATHWAY CONTROLS STIGMA RECEPTIVITY IN ARABIDOPSIS; Muhammad Jamshed, Subramanian Sankaranarayanan, Kumar Abhinandan, and Marcus A. Samuel
2:00	*O4	CHARACTERIZING THE ROLES OF MECHANOSENSITIVE ION CHANNEL GENES MSL7 AND MSL8 IN THE BASAL COMPATIBLE POLLEN RESPONSE IN A. THALIANA; Paula Beronilla and Daphne R. Goring
2:15	O5	SHOWCASING THE POWER OF SYNCHROTRON X-RAY IMAGING TOOLS FOR CROP SEED RESEARCH; Paula Ashe, Kaiyang Tu, Jarvis A. Stobbs, Jay Dynes, Miranda Vu, Hamid Shaterian, Sateesh Kagale, Karen K. Tanino, Janitha P.D. Wanasundara, Chithra Karunakaran, and Teagen D. Quilichini
2:30	O6	FLOWER OPENING; ARF2-MYB6 MODULE MEDIATES AUXIN-REGULATED PETAL EXPANSION IN ROSA HYBRIDA; Nisar Hussain, Changxi Chen, Xiaoming Sun, and Junping Gao
Meeting Room 15		**CSA-I Breeding and Genetics (Graduate Students)** *Chairs: Jamie Larsen and Simranjeet Kaur*
1:15	*O7	NESTED ASSOCIATION MAPPING TO IDENTIFY STRIPE RUST RESISTANCE LOCI AND THEIR MARKERS IN SPRING WHEAT; Simranjeet Kaur, Raman Dhariwal, Gurcharn Singh Brar, and Harpinder Singh Randhawa
1:30	*O8	GENOMIC PREDICTION FOR IMPROVING WINTER HARDINESS AND FUSARIUM HEAD BLIGHT RESISTANCE IN WINTER DURUM WHEAT; Ritesh K. Yadav, Raja Ragupathy, Gavin Humphreys, Demissew S. Desta, André Laroche, Harmeet S. Chawla, Marcos Cordeiro, Akshaya Vasudevan, Harpinder S. Randhawa, and Curt A. McCartney
1:45	*O9	ENHANCEMENT OF TOTAL SHOOT LIPID CONTENT (TSLC) IN PERENNIAL LEGUME FORAGES USING CHEMICAL MUTAGENESIS; Mohammed Musthafa Mukthar, Tharangani Somarathna, Bin Shan, Guanqun (Gavin) Chen, Stacy Singer, and Hari Poudel
2:00	*O10	IDENTIFYING KEY PHENOTYPIC AND GENOTYPIC TRAITS LINKED TO TRANSPIRATION EFFICIENCY AGAINST INDIVIDUAL AND COMBINED HEAT AND DROUGHT STRESSES IN CONTRASTING WHEAT GENOTYPES; Abdul Halim, Raju Soolanayakanahally, and Karen Tanino

Meeting Room 3		**CAPB/CSPB-II Abiotic Stress #1 Resilience to Climate Extremes** *Chair: Jean-Benoit Charron*
1:15	*O13	A SINGLE NUCLEUS ATLAS OF TRANSCRIPTIONAL RESPONSES TO GROWTH-ALTERING STRESS: DROUGHT, SALINITY, AND FLOODING; Sean Robertson and Olivia Wilkins
1:30	*O14	COMBINED EXPOSURE TO LOW PHOSPHATE AND SALT ELICITS DIFFERENT PHENOTYPIC AND TRANSCRIPTIONAL RESPONSES FOR TWO EXTREMOPHILE ECOTYPES; Haoran Jia, Solmaz Irani, Isabel Johnson, Maheshi Dassanayake and Elizabeth Weretilnyk
1:45	O15	DISSOCIATED FLOWERING AND COLD ACCLIMATION IN BRACHYPODIUM HYBRIDUM PROVIDE INSIGHTS INTO THE ADAPTIVE RESPONSES TO LOW TEMPERATURES IN CEREALS; Jean-Benoit Charron, Luc Ouellette, and Boris Mayer
2:00	*O16	TRANSCRIPTIONAL REPRESSION OF *MSWOX13-2* IN ALFALFA ENHANCES TOLERANCE TO WATERLOGGING STRESS; Udaya Subedi, Kimberley Burton Hughes, Madeline Lehmann, Gaganpreet Dhariwal, Guanqun(Gavin) Chen, Surya Acharya, and Stacy Singer
2:15	*O17	PLANT GROWTH-PROMOTING PHYTOMICROBIOME BACTERIA: ENHANCED CROP PERFORMANCE UNDER SALINITY STRESS AND FOR GREENHOUSE GAS MANAGEMENT; Rania Alrasheed, Sowmyalakshmi Subramanian, Michael Fefer, and Donald L. Smith
Meeting Room 4		**CSPB-III Molecular Host-Pathogen Interaction #1** *Chair: David Chiasson*
1:15	*O18	*TETRANYCHUS URTICAE* METABOLIC RESPONSES TO *ARABIDOPSIS THALIANA* DEFENSIVE PHENYLPROPANOIDS; A. Harrison, C. Sharma, K. Bruinsma, J. Maglov, M. Bernards, and V. Grbic
1:30	*O19	THE IMPACT OF ELEVATED TEMPERATURE ON NPR1 PROTEIN REGULATION IN PIPECOLIC ACID-MEDIATED IMMUNITY IN ARABIDOPSIS THALIANA; Spencer Tout and Christian Danve M. Castroverde
1:45	*O20	FER KINASE AND CELL WALL SENSORS LRX1/2 REGULATE MICROBIOME IN A PHOSPHATE-DEPENDENT MANNER; Siyu Song, Keegan J. McDonald, Melissa Y. Chen, Zayda Morales Moreira, and Cara H. Haney
2:00	*O21	DISTINCT PLANT IMMUNE RESILIENCE MECHANISMS IN DIVERSE ACCESSIONS OF *ARABIDOPSIS THALIANA*; Christina AM. Rossi, Dhrasti N Patel, and Christian Danve M. Castroverde
2:15	*O22	AGE-RELATED RESISTANCE REQUIRES SALICYLIC ACID SIGNALING VIA NPR PROTEINS AND RESULTS IN THE MODEST ACCUMULATION OF N-HYDROXYPIPECOLIC ACID IN LEAVES; G.M. Nunn, Jacob Lund, Natalie Belu, Rowan Brookman, and R.K. Cameron
Meeting Rooms 7+8		**CSHS-I / CPS-J1 Cannabis** *Chair: Dr. Youbin Zheng, University of Guelph*
1:15	O23	BOTTOM COOLING DURING CULTURE INITIATION INCREASES SURVIVAL AND REDUCES HYPERHYDRICITY IN MICROPROPAGATED CANNABIS PLANTS; Rambod Abiri, Declan O'Reilly, and Andrew Maxwell Phineas Jones

1:30	*O24	OPTIMIZING *EX-VITRO* ONE-STEP RUBY-EQUIPPED HAIRY ROOT TRANSFORMATION IN DRUG- AND HEMP-TYPE CANNABIS; Ladan Ajdanian, Mohsen Niazian, and Davoud Torkamaneh
1:45	*O25	SPECTRUM MATTERS: THE IMPACT OF RED LIGHT ON MORPHOLOGY, POTENCY, AND PHOTOBLEACHING IN *CANNABIS SATIVA*; Karine Jarzecki and Susan J. Murch
2:00	*O26	FUNGAL, OOMYCETE AND BACTERIAL MICROBIOME COMMUNITIES IN ROOTS OF GREENHOUSE CULTIVATED *CANNABIS SATIVA* ARE INFLUENCED BY GROWTH SUBSTRATE, HOST GENOTYPE, AND PLANT GROWTH STAGE; Heather H Tso and Zamir K Punja
2:15	*O27	CHARACTERIZATION OF INDIGENOUS POPULATIONS OF CANNABIS IN IRAN: A MORPHOLOGICAL AND PHENOLOGICAL STUDY; Mehdi Babaei and Davoud Torkamaneh
2:30	*O28	PROFILING THE TRANSCRIPTOMIC AND CELLULAR RESPONSE OF *CANNABIS SATIVA* TO INFECTION BY *SCLEROTINIA SCLEROTIORUM* THROUGH SPACE AND TIME; Natalie L. Cale, Rylee E. Swiderek, and Mark F. Belmonte
Meeting Rooms 9+10		**CBA-I General Botany** *Chair: Jenny McCune*
1:15	O29	RADIOMETRIC INVESTIGATION DUE TO NATURALLY OCCURRING RADIONUCLIDES IN SOILS OF IGBOKODA, A COASTAL AREA IN ONDO STATE, NIGERIA. A; Funmilola Mabel Ojo, Abiola Olawale Ilori and Kayode Olayele Karigidi
1:30	O30	PLANT AND SOIL COMMUNITIES GIVEN NITROGEN DEPOSITION, WARMING, HARVESTING AND SOIL CONDITIONS; Laura Super
1:45	*O31	PREVALENCE AND CONSEQUENCES OF INTERSPECIFIC POLLEN TRANSFER IN A MONTANE COMMUNITY; Jacalyn Grey and Anne Worley
2:00	*O32	EVOLUTIONARY ANALYSIS OF INDIAN & SRI LANKAN WOODY TREES; Harsimran Kaur, Sachin Medigeshi Harish, Semini Nawalage, and Selvadurai Dayanandan
2:15	O33	ECOLOGICAL PROCESSES DETERMINING WEED SPECIES DISTRIBUTION ACROSS NOVA SCOTIAN WILD BLUEBERRY FIELDS; Andrew McKenzie-Gopsill, Hugh Lyu, Scott White, and Sheldon Hann
Meeting Rooms 11+12		**CPS-I Advances in Plant Pathology 1** *Chair: Dr. Tom Hsiang (U of Guelph) & Dr. Lone Buchwaldt (AAFC Saskatoon)*
1:15	O34	CONTRIBUTIONS OF METABARCODING AND POPULATION GENETICS TO FUSARIUM HEAD BLIGHT EPIDEMIOLOGY; Toan Bao Hung Nguyen, Marie Foulongne-Oriol, Amandine Henri-Sanvoisin, Sylvie Treguer, Gaétan Le Floch, and Adeline Picot
1:30	O35	ADVANCED MOLECULAR DIAGNOSTICS REVEAL SHIFTS IN *FUSARIUM* POPULATIONS ASSOCIATED WITH WHEAT IN WESTERN CANADA: A FIVE-YEAR STUDY; Mohamed Hafez, Nicola Schatz, Khouloud Ayari, Rhodesia Celoy, Mouldi Zid, Ryan Gourlie, Dianevys GonzalezPenaFundora, Thomas Kelly Turkington, and Reem Aboulhaddour
1:45	O36	GENOME MINING OF PHYTOPATHOGENIC FUNGI FOR PHARMACOLOGICAL PRODUCTS; Tom Hsiang, Xueting Liu, Jingyu Zhang, Lixin Zhang, Lan Jiang, Xinye Wang, and Guoliang Zhu
2:00	O37	*EXECUTER1* IS TRIGGERED BY SINGLET OXYGEN AND CONFER RESISTANCE TO *SCLEROTINIA SCLEROTIORUM* VIA PROGRAMMED CELL DEATH IN BOTH CANOLA AND SOYBEAN; Lone Buchwaldt, Helen Lui, Alan Davies, Jonathan Durkin, and Fuyou Fu

2:15	O38	**VIRAL DIVERSITY IN A MIXED TREE FRUIT PRODUCTION SYSTEM DETERMINED THROUGH BEE-MEDIATED POLLEN METAGENOMICS;** Raj Vansia, Guillaume J. Bilodeau, Stephen F. Pernal, M. Marta Guarna, Michael Rott, and Jonathan S. Griffiths
Meeting Room 13		**CPS-II Advances in Plant Pathology, Surveillance, and Diagnostics (Competition)** *Chairs: Ryan Gourlie (AAFC Lethbridge) & Dr. Nora Foroud (AAFC Lethbridge)*
1:15	*O40	**POTENTIAL FOR BEES AND POLLEN AS BIOMONITORS OF AGRICULTURAL PATHOGENS THROUGH A METABARCODING HIGH THROUGHPUT SEQUENCING (HTS) APPROACH;** C. M. Hewapathirana, M.E. Rott, M.M. Guarna, S.F. Pernal, J.S. Griffiths, and G.J. Bilodeau
1:30	*O41	**IDENTIFICATION AND CHARACTERIZATION OF *PODOSPHAERA APHANIS* CAUSING POWDERY MILDEW ON SALMONBERRY AND THIMBLEBERRY PLANTS IN BRITISH COLUMBIA;** Chidrupa Podile, Rishi R. Burlakoti, Amy Novinscak, Miao Liu, Zamir K. Punja, Davis Iritani, and Yoichiro Watanabe
1:45	*O42	**ESTIMATING EARLY INFECTION OF ONIONS BY *STEMPHYLIUM VESICARIUM* BASED ON SPORE TRAPPING AND INFECTION OF BARLEY;** Julia Scicluna, Bruce D. Gossen, and Mary Ruth McDonald
2:00	*O43	**IDENTIFICATION OF NOVEL AND DIVERSE MYCOVIRUSES IN THE PHYTOPATHOGENIC FUNGUS, BOTRYTIS CINEREA;** Sarah C. Drury, Naser Poursalavati, Peter Moffett, and Mamadou Lamine Fall
2:15	*O44	**COLLECTION AND IDENTIFICATION OF *PLASMODIOPHORA BRASSICAE* PATHOTYPES COLLECTED IN WESTERN CANADA OVER THE LAST TEN FIELD SEASONS (2014-2023);** Emilee Storfie, Victor Manolii, Yoann Aigu, Michael Harding, Sheau-Fang Hwang, and Stephen Strelkov
2:30	*O45	**UTILITY OF CONTROLLED ENVIRONMENT AGRICULTURE IN THE PRODUCTION OF MEDICINAL FUNGI;** Jacqueline Nguyen, Nykole Crevits, Jeff Huber, Mike Dixon, and Thomas Graham
Meeting Room 2		**CPS-III Disease Resistance** *Chair: Dr. Lipu Wang (U of Saskatchewan) & Malini Jayawardana (U of Manitoba)*
1:15	O46	**A HIGH THROUGHPUT PHENOTYPING PLATFORM FOR CEREAL RESEARCH AND BREEDING PROGRAMS TO IDENTIFY FUSARIUM DAMAGED KERNELS AND FUSARIUM PRODUCED MYCOTOXINS;** Lipu Wang, Deborah Michel, Keyhan Najafian, Mackenzie Hladun, Alejandra M. Oviedo-Ludena, Sheila M P Andrade, Anas El-Aneed, Ruijiao Kang, Yuefeng Ruan, Lingling Jin, Ian Stavness, and Hadley R. Kutcher
1:30	O47	**A NEW MODEL: FUNCTIONAL GENES CONTRIBUTING TO ADULT PLANT RESISTANCE FROM CANOLA-BLACKLEG PLAYBOOK;** Zhongwei Zou, and W. G. Dilantha Fernando
1:45	O48	**CANADIAN DURUM WHEAT CULTIVAR STRONGFIELD EXHIBITS MODERATE SUSCEPTIBILITY TO MEXICAN LEAF RUST (*PUCCINIA TRITICINA*) RACES;** Firdissa E. Bokore, Kerry Boyle, Yuefeng Ruan, Curt A. McCartney, Colin W. Hiebert, Ron E. Knox, Xiangyu Pei, Elsa Reimer, Karim Ammar, Wentao Zhang, Pierre Fobert, Richard D. Cuthbert, Samia Berraies, and Brent D. McCallum
2:00	O49	**IDENTIFYING RESISTANCE (R) GENES TO BLACKLEG *LEPTOSPHAERIA MACULANS* IN ACCESSIONS OF CANOLA;** Oluwafemi Lawal and Dilantha Fernando
2:15	O50	**THE EFFECT OF *R* GENE ROTATION ON MITIGATION OF CANOLA BLACKLEG DISEASE IN WESTERN CANADIAN PRAIRIES;** Malini Anudya Jayawardana, Zhongwei Zou, and Dilantha Fernando

MONDAY AFTERNOON Concurrent Session 2

Meeting Room 1		CSA-II Breeding and Genetics *Chairs: Harpinder Randhawa and Ritesh Yadav*
3:15	O51	DEVELOPMENT OF SALT TOLERANT ALFALFA (*MEDICAGO SATIVA* L.): FROM LAB TO FIELD; Bill Biligetu, Shanna Quilichini, and Surendra Bhattarai
3:30	O52	LEAF WATER RELATIONS AND OSMOTIC ADJUSTMENT OF CANADA WESTERN RED SPRING WHEAT CULTIVARS SUBJECTED TO DROUGHT; Gopal Sharma, Thorsten Knipfer, and Gurcharn S. Brar
3:45	O53	ENHANCING PROTEIN CONTENT IN *BRASSICA NAPUS*: GENETIC INSIGHTS AND BREEDING IMPLICATIONS; Harmeet S. Chawla, Mohamed S. Youssef, Sean Walkowiak, and Robert W. Duncan
4:00	O54	PARTICIPATORY PLANT BREEDING TO INCREASE DIVERSITY AND RESILIENCE: A CASE STUDY OF CANADIAN WHEAT; Michelle Carkner and Martin Entz
4:15	O55	EXAMINING THE RELATIONSHIP BETWEEN BACTERIAL BROWN SPOT AND COMMON BACTERIAL BLIGHT IN COMMON BEAN; Caio Correa, Emily Morneau, Owen Wally, Chris Gillard, and Jamie Larsen
4:30	O56	PROGRESS IN OAT BREEDING IN NORTH CHINA; Junyong Ge, Xingyu Wang, Yunxia Li, Zhanhong Dong, Haige Zhao, Huadong Zang, Yadong Yang, Zhaohai Zeng
Meeting Room 15		**CSA-III Agronomy I – Cropping Systems** *Chairs: Malinda Thilakarathna and Ahmad Sharjeel*
3:15	O57	DETERMINING OPTIMUM SEEDING RATIOS AND PEA-BRASSICA INTERCROP COMBINATIONS FOR MAXIMIZING AGRONOMIC BENEFITS; Yunfei Jiang and Claude Caldwell
3:30	O58	AN INTEGRATED STRATEGY TO IMPROVE PROFITABILITY OF BARLEY PRODUCTION IN WESTERN CANADA: AN INTRODUCTION OF GROW BARLEY PROGRAM; Hiroshi Kubota
3:45	O59	IMPLEMENTING DIVERSIFIED CROP ROTATIONS ENHANCES ECOSYSTEM SERVICES; Liu K, Wen G, Chau H, Kubota H, Mohr R, Peng G, Semach G, Lokuruge P, Entz M, Lemke M, Khakbazan M, Kim YM, Sharpe S, Town J, Hernandez G, Iheshiulo E, Ferrari Machado P, Glenn A, Zhang H, Qian B, Jing Q, Kroebel R, and Bourgault M
4:00	O60	EFFECT OF ECOTEA™ SEED TREATMENT ON SPRING CROPS AT THUNDER BAY; Tarlok Singh Sahota
4:15	O61	COVER CROPPING AND NITROUS OXIDE EMISSIONS IN THE RED RIVER VALLEY; Mario Tenuta, Shannon Mustard, Katie Webb, Junaid Afzal, Rida Sabirova, and Brad Sparling
Meeting Room 3		**CSPB-IV Molecular Host-Pathogen Interaction #2** *Chair: Christian Danve Castroverde*
3:15	O62	MOLECULAR ANALYSES OF DIFFERENTIAL RESISTANCE IN LODGEPOLE AND JACK PINE TO CRONARTIUM HARKNESSII, THE CAUSAL AGENT OF WESTERN GALL RUST; Janice Cooke, Samson Osadolor, Rhiannon Peery, Laura Manerus, Marion Mayerhofer, L. Irina Zaharia, and Chandra McAllister
3:30	*O63	DO GINSENOSIDES ALTER THE PATHOGENICITY OF *ILYONECTRIA*? Anka Colo and Mark A. Bernards

3:45	O64	PLANT IMMUNE RESILIENCE: FROM GENE REGULATORY NETWORKS TO BIOMOLECULAR CONDENSATES; Christian Danve M. Castroverde, Jong Hum Kim, Alyssa Shields, Lingya Yao, Shuai Huang, Eric J.R. Marchetta, Richard Hilleary, Adam Seroka, John D. MacMicking, Xiu-Fang Xin, and Sheng Yang He
4:00	*O65	BACK TO THE ROOTS: EXPLORING PLANT-INSECT INTERACTIONS IN CULTIVATED AND WILD TOMATOES; Andreea Bosorogan, Osmond Hui, and Eliana Gonzales-Vigil
4:15	O66	PAPERCLIP RNA STRUCTURES REDUCE DISEASE SYMPTOMS CAUSED BY SCLEROTINIA SCLEROTIORUM THROUGH HOST INDUCED GENE SILENCING; Mark F Belmonte, Bliss M. Beernink, and Steve Whyard
Meeting Room 4		**CBA/CSPB-V Cellular Conversations: Decoding Plant Signals and Developmental Responses** *Chair: Shelley Hepworth*
3:15	O67	VOICES FROM BOTH SIDES: A MOLECULAR DIALOGUE BETWEEN TRANSCRIPTIONAL ACTIVATORS AND REPRESSORS IN SEED AND SEEDLING DEVELOPMENT; Liang Song
3:30	*O68	SOMETHING SWEET: SUGAR MEDIATED CHANGES IN CELL PROLIFERATION VIA TOR-BRASSINOSTEROID SIGNALLING REQUIRE THE MICROTUBULE ASSOCIATED PROTEIN *CLASP;* Sean P.A. Ritter, Dr. Laryssa Halat, and Dr. Geoffrey Wasteneys
3:45	O69	HOW INTERNAL GROWTH CONTROLS PLANT MORPHOGENESIS? Sylvia R. Silveira, Loann Collet, Sahil M. Haque, Luc Lapierre, Agnieszka Bagniewska-Zadworna, Frederick P. Gosselin, Richard S. Smith, Anne-Lise Routier-Kierzkowska, and Daniel Kierzkowski
4:00	O70	A UNIVERSAL MODEL OF EMBRYO DEVELOPMENT IN LAND PLANTS (EMBRYOPHYTES) AND THEIR POTENTIAL APPLICATIONS FOR CROP IMPROVEMENT; Prakash Venglat, Perumal Vijayan, Timothy F. Sharbel, Abidur Rahman, and Karen Tanino
4:15	*O71	ADAPTIVE ROOT MORPHOLOGY AND ARCHITECTURE AS A DROUGHT RESPONSE IN *BROMUS* INERMIS; Nora Kroeger and Rafael Otfinowski
Meeting Rooms 7+8		**CSHS-II / CPS-J2 Cannabis** *Chair: Dr. Youbin Zheng (University of Guelph)*
3:15	*O72	QUANTIFICATION OF BIO-STIMULANTS (MICROBES AND BACILLIN-20) AND THEIR INTERACTIONS FOR ENHANCED CANNABIS GROWTH AND QUALITY IN TERMS OF SECONDARY METABOLITE COMPOSITION; Ambreen, A. Geitmann, and D.L.Smith
3:30	*O73	BIOCONTROL ACTIVITY OF *BACILLUS SP.* OF PHYTOMICROBIOME AGAINST *BOTRYTIS CINEREA* IN *CANNABIS* SATIVA; Haleema Tariq, Anja Geitmann, and Donald Smith
3:45	O74	GENETIC CONTROL OF FLOWERING IN *CANNABIS SATIVA*; Soheil S. Mahmoud
4:00	O75	HOW TO DETERMINE THE OPTIMAL FLOWERING-STAGE PHOTOPERIOD FOR CANNABIS PRODUCTION; Youbin Zheng
4:15	*O76	OPTIMIZATION OF SOLVENT-BASED EXTRACTION USING A CENTRIFUGE ON THE BASIS OF PARTICLE SIZE AND THE AGITATION TIME; Ritul Jyani, Philip Wiredu Addo, Sarah MacPherson, Nichole Taylor, Michelle Shearer, Fredrick Gallant, Maxime Paris, Valerie Orsat, and Mark Lefsrud
4:30		PANEL DISCUSSION

Meeting Rooms 9+10		**CSA-IV Nutrient Management (Graduate Students)** *Chairs: Hiroshi Kubota and Emma McIlveen*
3:15	*O77	*EFFECT OF ENHANCED EFFICIENCY NITROGEN FERTILIZERS AND **ANVOL™** ON SPRING WHEAT PRODUCTION AND SOIL HEALTH;* Harsh Bagria , Tarlok Singh Sahota, and Brian McLaren
3:30	*O78	**CAN STARTER POTASH APPLICATIONS IMPROVE THE YIELD AND CROP HEALTH OF CHICKPEA, MUSTARD, AND DURUM WHEAT IN THE BROWN SOIL ZONE OF SASKATCHEWAN? Tristan Chambers, Jeff Schoenau, Ryan Hangs, Michelle Hubbard, Alejandra Oviedo-Ludeña, and Randy Kutcher**
3:45	*O79	**THE EFFECT OF VARYING FERTILITY MANAGEMENT REGIMES N THE YIELD AND QUALITY OF VARIOUS FORAGE SPECIS/MIX; Puja Lamichhane and Kimberley Schneider**
4:00	*O80	**EFFECT OF ENHANCED EFFICIENCY NITROGEN FERTILIZERS ON AGRONOMIC AND ENVIRONMENTAL PERFORMANCE IN GRAIN CORN; Baillie Lynds and Yunfei Jiang**
Meeting Rooms 11+12		**CPS-IV Molecular Host-Pathogen Interactions (Competition)** *Chair: Dr. Jim Menzies (AAFC Morden) & Dr. Mohamed Abdel-Fattah (AAFC Lethbridge)*
3:15	*O81	**MECHANISMS OF DEMETHYLATION INHIBITOR RESISTANCE IN *CLARIREEDIA JACKSONII*; E. McNab and T. Hsiang**
3:30	*O82	**FUNCTION OF THE CONCANAMYCIN PHYTOTOXINS IN THE POTATO COMMON SCAB PATHOGEN STREPTOMYCES SCABIEI; Corrie V. Vincent and Dawn R. D. Bignell**
3:45	*O83	**TRANSGENIC EXPRESSION OF PROTEIN-BASED INHIBITOR AGAINST TURNIP YELLOW MOSAIC VIRUS IN ARABIDOPSIS THALIANA; J K Anuradha De Silva, Kihun Kim, Jacky Chung, John Weiland, Jihyun Hwang, Melvin Bolton, Mohammed Mira, Claudio Stasolla, Sachdev Sidhu, and Brian Mark**
4:00	*O84	**DECIPHERING *TETRANYCHUS URTICAE - ARABIDOPSIS THALIANA* INTERACTIONS: UNVEILING DETOXIFICATION MECHANISMS AND PLANT RESISTANCE STRATEGIES; Michele Antonacci, Jorden Maglov, Julia Pastor Fernandez, Chetan Sharma, Vladimir Zhurov, Brendan Abiskaroon, Maksymilian Chruszcz, and Vojislava Grbic**
4:15	*O85	**PROTEOMIC ANALYSIS REVEALS NEW INSIGHTS RELATED TO THE INTERACTION BETWEEN *XANTHOMONAS PHASEOLI PV PHASEOLI* AND *PHASEOLUS VULGARIS* L.; Mylene Corzo-Lopez, Jason McAlister, Boyan Liu, Jennifer Geddes-McAlister, and K. Peter Pauls**
4:30	*O86	**INSIGHTS FROM NEXT GENERATION SEQUENCING: NOVEL VIRUSES AND VARIANTS IN HIGHBUSH BLUEBERRIES OF BRITISH COLUMBIA; Sachithrani Kannangara, Juan Rodriguez, Adam Gilewski, Gerda de Villiers, Megan Ellis, Peter Ellis, Eric Erbrandt, and Jim Mattsson**
4:45	*O87	**A CLUBROOT PATHOGEN EFFECTOR DISRUPT AUXIN HOMEOSTASIS TO PROMOTE COLONIZATION; Melaine González García, Marina Silvestre Vano, Soham Mukhopadhyay, Ian Major, and Edel Pérez López**

Meeting Room 13		**CPS-V Advances in Fusarium Management (Competition)** *Chairs: Dr. Adam Foster, AAFC Charlettetown & Dr. Ahmed Abdelmagid (AAFC Morden)*
3:15	*O88	RNASEQ STUDY OF PARTIALLY RESISTANT AND SUSCEPTIBLE PEA GENOTYPES UPON *FUSARIUM AVENACEUM* INFECTION; Sijan Pandit, Eoin O'Hara, Robert Gruninger, and Syama Chatterton
3:30	*O89	METABARCODING REVEALS BACTERIAL ENDOPHYTES FROM BARLEY GRAINS ARE SIGNIFICANTLY ASSOCIATED WITH FUSARIUM HEAD BLIGHT, BARLEY GENOTYPE, AND TIME OF SAMPLING; Vinuri Weerasinghe, Matthew Bakker, James Tucker, Dilantha Fernando, Ana Badea, and Champa Wijekoon
3:45	*O90	COMMERCIAL FORMULATIONS CONTAINING *BACILLUS* SPECIES REDUCE THE DEVELOPMENT AND SURVIVAL OF *FUSARIUM OXYSPORUM* IN SOIL-LESS GROWTH MEDIA; Denna N. Dalrymple and Zamir K. Punja
4:00	*O91	GENETIC MAPPING OF RESISTANCE TO FUSARIUM HEAD BLIGHT AND DON ACCUMULATION IN WATKINS LANDRACE WAT.1190580; Sharandeep Dhaliwal, Maria Antonia Henriquez, Curt McCartney, Samuel Holden, and Gurcharn Singh Brar
4:15	*O92	THE EVOLUTIONARY DYNAMICS OF AZOLE RESISTANCE IN *FUSARIUM GRAMINEARUM*; Kelsey Wog, Matthew. G. Bakker, and Aleeza C. Gerstein
4:30	*O93	THE ROLE OF HYD5 PROTEIN IN *FUSARIUM*-BARLEY INTERACTIONS; Anuradha U. Jayathissa, W. G. Dilantha Fernando, Raymond He, David N. Langelaan, and Matthew G. Bakker
Meeting Room 2		**CPS-VI Soilborne Diseases and Pathogens** *Chairs: Dr. Michelle Hubbard (AAFC Swift Current) & Dr. Owen Wally (AAFC Harrow)*
3:15	O94	PREVALENCE OF *VERTICILLIUM* SPP. AND *PRATYLENCHUS* SPP. IN COMMERCIAL POTATO FIELDS IN EASTERN CANADA; Dahu Chen, Ryan Barrett, Benjamin Mimee, Tanya Arseneault, Louis-Pierre Comeau, Kamrun Nahar, Sebastian Ibarra Jimenez, and Bernie J. Zebarth
3:30	O95	IMPACT OF CROP ROTATION ON THE MICROBIOMES OF SUDDEN DEATH SYNDROME (SDS) AND SOYBEAN CYST NEMATODE (SCN) SUPPRESSIVE SOILS OF SOYBEANS IN SOUTHERN ONTARIO, CANADA; R. Malla, L.A. Phillips, K.E. Dunfield, B.Seuradge, A. Wragg, and O.S. Wally
3:45	O96	PREVALANCE STUDY AND EVALUATION OF COMMERCIAL CULTIVARS AS AN IMMEDIATE MEASURE TO FIND VERTICILLIUM MANAGEMENT OPTIONS ON CANOLA; Venkat Chapara, Anitha Chirumamilla, Amanda Arens, and Larissa Jennings
4:00	O97	GINSENOSIDE MOBILITY IN GINSENG GARDEN SOIL; Andrew Rabas and Mark A. Bernards
4:15	O98	INTERACTIONS BETWEEN *APHANOMYCES EUTEICHES* AND *FUSARIUM AVENACEUM* AND *GRAMINEARUM*; Michelle Hubbard, Olivia Zajac, Anas Eranthodi, Syama Chatterton, David Overy, and Nora Foroud
4:30	O99	PRESCREENING AND MONITORING EVALUATION USING SEQUENCING TECHNOLOGIES FOR *PHYTOPHTHORA* AND OOMYCETES; Guillaume J. Bilodeau and Hervé Van der Heyden

5:00 – 7:00 pm **Poster Session 1 in Hall D**

Students who have a poster with an **ODD** number are to remain by their posters until they are judged.

Light refreshments will be served.

Sponsored by

MANITOBA CROP ALLIANCE

TUESDAY AFTERNOON Concurrent Session 3

Meeting Room 1		**CAPB/CSPB-VI Plant Metabolomics** *Chair: Barbara Hawkins*
1:15	*O100	PROFILING ENVIRONMENTAL AND SEASONAL VARIATIONS IN CONDENSED TANNINS AND METABOLITES OF BIRDSFOOT TREFOIL (*LOTUS CORNICULATUS* L.) CULTIVARS; Solihu Kayode Sakariyahu, Tim McDowell, Justin Renaud, Yousef Papadopoulos, Kathleen Glover, Rebecca Brown, Mike Peel, Heathcliffe Riday, Susanne Kohalmi, and Abdelali Hannoufa
1:30	O101	METABOLIC ENGINEERING-INDUCED TRANSCRIPTOME REPROGRAMMING ENHANCES OIL COMPOSITION IN OAT (*AVENA SATIVA* L.); Zhou Zhou, Rajvinder Kaur, Thomas Donoso, Jae-Bom Ohm, Rajeev Gupta, Mark Lefsrud, and Jaswinder Singh
1:45	*O102	THE RELATIONSHIPS AMONG PHYTOHORMONES AND BENZYLISOQUINOLINE ALKALOIDS DURING EARLY DEVELOPMENT OF *PAPAVER RHOEAS* L.; Zeynab Azimychetabi, Anna B. Kisiala, Scott C. Farrow, and R. J. Neil Emery
2:00	O103	PROANTHOCYANIDINS IN POPLAR ROOTS: EFFECTS ON MYCORRHIZAL COLONIZATION AND NITROGEN UPTAKE; Daisuke Yamakawa, C. Peter Constabel, and Barbara J. Hawkins
2:15	*O104	A PROMOTER FOR THE METABOLIC ENGINEERING OF GLANDULAR TRICHOMES IN LAVENDER; Reza Sajaditabar and Soheil Mahmoud
Meeting Room 2		**CAPB/CSPB-VII Plant Lipids** *Chair: Eliana Gonzales-Vigil*
1:15	*O105	SOYBEAN CYTOCHROME P450S AND THE MAKING OF ALIPHATIC SUBERIN MONOMERS; Lorena S. Yeung, Delicia Wong, Sangeeta Dhaubhadel, and Mark A. Bernards
1:30	*O106	BUILDING OF SUBERIN - THE IMPORTANCE OF TIMING AND A STRONG FOUNDATION; Jessica L. Sinka and Mark A. Bernards
1:45	*O107	SUBERIN PRODUCTION IN SOYBEAN IS MICROBIOME-RESPONSIVE; Alicia Halhed, Isabel Molina, and Owen Rowland
2:00	O108	GONE WITH THE WIND: CUTICULAR WAXES AS PRECURSORS OF VOLATILE ORGANIC COMPOUNDS; Jeff Y. Chen, Aswini Kuruparan, Mahbobeh Zamani-Babgohari, and Eliana Gonzales-Vigil
2:15	*O109	IDENTIFICATION OF QUANTITATIVE TRAIT LOCI (QTL) FOR ERUCIC ACID CONTENT IN *BRASSICA NAPUS* L.; Yong Liu, Genyi Li, Harmeet S Chawla, Robert W. Duncan, and Curt McCartney
Meeting Room 3		**CSPB- VIII Plant Organelle Biology** *Chair: Peter Constabel*
1:15	*O110	TOC159 RECEPTORS: THE ROLE OF PLASTID MEMBRANE GALACTOLIPIDS IN TARGETING TO THE CHLOROPLAST OUTER ENVELOPE; Michael Fish, George Saudan, Simon Chuong, Masoud Jelokhani-Niaraki, and Matthew Smith
1:30	O111	THE REGULATORY FUNCTION OF PLASTID CHAPERONE HSP90C C-TERMINAL EXTENSION; Bona Mu, Adheip Monakan Nair, and Rongmin Zhao
1:45	*O112	IDENTIFICATION AND CHARACTERIZATION OF OEP6 MOTIFS AND THEIR ROLE IN TARGETING TO THE CHLOROPLAST OUTER MEMBRANE; Holly Ferguson, Matthew Smith, and Simon Chuong

2:00	*O113	**PLASTID MOLECULAR CHAPERONE HSP90C INTERACTS WITH THE SECA1 SUBUNIT OF SEC TRANSLOCASE FOR THYLAKOID PROTEIN TRANSPORT;** Adheip Monikantan Nair, Tim Jiang, Bona Mu, and Rongmin Zhao
Meeting Room 4		**CPS-J4/CAPB/CSPB-IX Plant Pathogenesis and Protection** *Chair: Shuanglong Hong*
1:15	O114	**ADVANCING CANOLA PROTECTION: QPCR SCREENING AND MARKER DEVELOPMENT FOR VERTICILLIUM STRIPE DISEASE RESISTANCE;** Mohamed Samir Youssef, W. G. Dilantha Fernando, Robert Duncan, Sally Vail, Isobel A. P. Parkin, and Harmeet Singh Chawla
1:30	*O115	**IDENTIFICATION OF MICROORGANISMS WITH CLUBROOT BIOCONTROL POTENTIAL AND INVESTIGATION OF MECHANISMS OF THEIR ACTION;** Ananya Sarkar, Anna Kisiala, Vedanti Ghatwala, Neil Emery, Habibur Rahman, and Nat N.V. Kav
1:45	O116	**MODULATION OF PLASTIDIAL PROTEIN TURNOVER BY *PB*PAE, A *PLASMODIOPHORA BRASSICAE* PLASTID-ASSOCIATED EFFECTOR THAT FACILITATES CLUBROOT DISEASE PROGRESSION IN ARABIDOPSIS;** Musharaf Hossain, Christopher D. Todd, Yangdou Wei, and Peta C. Bonham-Smith
2:00	*O117	**CLUBROOT RESISTANCE OF *BRASSICA NAPUS* INTROGRESSED FROM *BRASSICA OLERACEA;*** Sonia Navvuru, Nat N.V. Kav, and Habibur Rahman
2:15	O118	**MULTI-OMICS ANALYSIS OF MECHANISMS BEHIND THE "GAME OF HIDE AND SEEK" IN THE *BRASSICA NAPUS - LEPTOSPHAERIA MACULANS* PATHOSYSTEM;** Shuanglong Huang, Peng Gao, Dilantha Fernando, and Gary Peng
2:30	O119	**DECIPHERING THE MOLECULAR EVENTS BEHIND SYSTEMIN-INDUCED RESISTANCE AGAINST *BOTRYTIS CINEREA* IN TOMATO PLANTS;** Julia Pastor-Fernández, Neus Sanmartín, Maria Manresa, Cédric Cassan, Pierre Pétriacq, Yves Gibon, Jordi Gamir, Beatriz Romero Rodriguez, Araceli G. Castillo, Miguel Cerezo, Victor Flors, and Paloma Sánchez-Bel
Meeting Rooms 7+8		**CSHS-III / CPS-J3 Root Crops** *Chair: Dr. Wahab Jazeem (AAFC, Saskatoon) and Dr. Bourlaye Fofana (AAFC, Charlottetown)*
1:15	O120	**BLACKLEG PREVENTION IN POTATO BY PATHOGEN AND BACTERIOPHAGE IDENTIFICATION;** Binod Pageni, Michele Konschuh, Jonathan Neilson, Melanie Kalischuk, and Lawrence Kawchuk
1:30	*O121	**SOIL MICROBIOME AND SOIL PROPERTIES ASSOCIATED WITH THE RISK OF CAVITY SPOT ON CARROTS IN HIGH ORGANIC MATTER SOILS;** Umbrin Ilyas, Lindsey J. du Toit, M. Kalischuk, and Mary Ruth McDonald
1:45	O122	**PERFORMANCE OF SWEET POTATO UNDER HIGH-TUNNEL PRODUCTION SYSTEM IN SASKATCHEWAN;** Jazeem Wahab, Reynald Lemke, Raju Soolanayakanahally, Champa Wijekoon, Edmund Mupondwa, Erl Svendsen, Dale Tomasiewicz, and Evan Derdall
2:00	O123	**CULTURAL PRACTICES INFLUENCE WEED COMMUNITY AND SEEDBANK DYNAMICS IN THE LIVING LABS ATLANTIC;** McKenzie-Gopsill A, Nyiraneza J, and Fillmore S
2:15	O124	**GLOBAL REGULATION OF PLANT PATHOGENICITY IN THE COMMON SCAB PATHOGEN STREPTOMYCES SCABIEI;** Wanyue Li, Aaron Rees, and Dawn R. D. Bignell
2:30	O125	**DROUGHT-RESILIENT DIPLOID POTATOES FOR SHORT AND LONG GROWING SEASON AGROCLIMATES AS DEPICTED THROUGH GENOME-WIDE ASSOCIATION STUDIES;** Bourlaye Fofana, David Main, Moshin Zaidi, and Benoit Bizimungu

Meeting Room 17		**CBA-II General Botany** *Chair: John Markham*
1:15	O126	GENOMIC DISSECTION OF ISLAND SYNGAMEONS: ARBORESCENT ASTERACEAE FROM ST HELENA (SOUTH ATLANTIC OCEAN); **Quentin Cronk**, Andreas Kolter, and Mikko Paajanen
1:30	O127	NUTRIENT LIMITATION IN SUBARCTIC TERRESTRIAL PLANT COMMUNITIES; **John Markham** and Emily Klapprat
1:45	O128	TESTING ECOWOOL PELLET APPLICATION AS AN ENVIRONMENTALLY FRIENDLY AMENDMENT IN GREENHOUSES; **Liette Vasseur**, Avalon Halgreen, Natasha Hearn, Reem Mahamoud, and Vaughn Mangal
2:00	O129a	DESIGNING AND IMPLEMENTING A USER-FRIENDLY PLANT COMMUNITY SURVEY PROTOCOL TO HELP CONSERVATION ORGANIZATIONS SELECT REINTRODUCTION SITES FOR AN ENDANGERED PRAIRIE BUTTERFLY IN MANITOBA; **Katherine Dearborn** and Richard Westwood
2:15	*O129b	CHARACTERIZING DEFENSE MECHANISMS IN *ARABIDOPSIS THALIANA* AGAINST *TETRANYCHUS URTICAE* HERBIVORY; **Jorden Maglov**, Julia Pastor-Fernandez, Michele Antonacci, Alexander Harrison, Emilie Widemann, Vladimir Zhurov, and Vojislava Grbic
2:30	O129c	BRAWLING WEEDS AND THE FIGHT FOR CROP SURVIVAL; **Clarence Swanton**, Sasan Amirsadeghi, Nicole Berardi, William Kramer, and Andrew McKenzie-Gopsill
Meeting Rooms 11+12		**CSPB-X Plant Signaling** *Chair: Hong Wang*
1:15	O130	DECIPHERING THE ROLE OF ER-LOCALIZED HSP90 FAMILY HEAT SHOCK PROTEIN IN PLANT DEVELOPMENT AND STRESS RESPONSES; **Rongmin Zhao**, Jenan Noureddine, and Morvenley Mamenta
1:30	O131	ARABIDOPSIS ICK/KRP CYCLIN-DEPENDENT KINASE INHIBITORS ARE INTRINSICALLY DISORDERED PROTEINS AND REGULATED BY BOTH UBIQUITIN-DEPENDENT AND UBIQUITIN-INDEPENDENT MECHANISMS; Shengjian Ye, Sheng Wang, Ron Chan, Ling Cao, and **Hong Wang**
1:45	*O132	EXPLORING SPECIFICITY OF PLANT RLCK-VII SIGNALLING; **Eleanor Khochaba** and Thomas A. DeFalco
2:00	*O133a	DOWNSTREAM SIGNALING RESULTING FROM DAMAGED RIBOSOMAL RNA BY POKEWEED ANTIVIRAL PROTEIN (PAP); **Tanya Prashar** and Katalin A. Hudak
2:15	O133b	*ASCOPHYLLUM NODOSUM*-DERIVED FUCOIDAN INDUCES FLOWERING BY REGULATING THE *MIR156*-MEDIATED AGE PATHWAY IN ARABIDOPSIS; **Ramin Bahmani**, Pramod Rathor, and Balakrishnan Prithiviraj
Meeting Room 13		**CPS-VII Resistance Genetics and Host-Pathogen Interactions (Competition)** *Chairs: Dr. Rudolph Fredua-Agyeman (U of Alberta) & Mary Ruth McDonald (U of Guelph)*
1:15	*O134	THE IDENTIFICATION AND FUNCTIONAL ASSESSMENT OF *PLASMODIOPHORA BRASSICAE* EFFECTORS; **Emilee Storfie**, Leonardo Galindo-González, Sheau-Fang. Hwang, and Stephen Strelkov
1:30	*O135	GENOMIC ANALYSIS OF THE PUCCINIA STRIIFORMIS F.SP TRITICI POPULATIONS CAUSING STRIPE RUST IN CANADA; **Bohan Wei**, Ryan Gourlie, Rodrigo Ortega Polo, Nathaniel Zhin-Loong Lim, Rhodesia Celoy, Stephen Strelkov, and Reem Aboukhaddour

1:45	*O136	DEVELOPMENT OF A KASP ASSAY FOR DETECTION OF SUCCINATE DEHYDROGENASE MUTATIONS ASSOCIATED WITH SDHI RESISTANCE IN *STEMPHYLIUM VESICARIUM*; Julia Scicluna, Emily McFaul, Afsaneh Sedaghatkish, Bruce D. Gossen, and Mary Ruth McDonald
2:00	*O137	GENOME-WIDE ASSOCATION STUDY (GWAS) OF STEM RUST RESISTANCE IN WESTERN CANADIAN WINTER WHEAT; Kaitlyn A. Pidherny, Jim G. Menzies, Colin W. Hiebert, Harwinder S. Sidhu, and Curt A. McCartney
2:15	*O138	GENETIC ANALYSIS AND GENOMIC SELECTION MODELS FOR LEAF RUST RESISTANCE IN CANADA WESTERN RED WINTER WHEAT; Anirup Sengupta, Brent D. McCallum, Colin W. Hiebert, Harwinder S. Sidhu, and Curt A. McCartney
2:30	*O139	UNVEILING A DNA VIRUS SECRETS: *DE NOVO* METHYLATION PROFILING OF GRAPEVINE RED BLOTCH VIRUS VIA LONG-READ SEQUENCING; Vahid J Javaran, Pierre Lemoyne, Dong Xu, Dave T Ste-Croix, Peter Moffett, and Mamadou L Fall
Meeting Room 15		**CSA-V Agronomy II (Graduate Students)** *Chair: Bill Biligetu and Baillie Lynds*
1:15	*O140	PURPOSE-GROWN BIOMASS CROPS IN NOVA SCOTIA: STATISTICAL PREDICTIVE YIELD MODELLING AND REAL-WORLD VERIFICATION; Emily G. Mantin, Laura K. Weir, Yousef A. Papadopoulos, and J. Kevin Vessey
1:30	*O141	A SEED TREATMENT FOR THE MANAGEMENT OF SOYBEAN CYST NEAMTODE ON DRY BEANS; Emma McIlveen, Chris Gillard, and Owen Wally
1:45	O142	EFFECT OF HUMIC-BASED SOIL AMENDMENT ON PLANT GROWTH, YIELD AND SYMBIOTIC NITROGEN FIXATION OF FIELD PEA (*Pisum sativum* L.); Pramod Rathor, Thomas D. Warkentin, and Malinda S. Thilakarathna
2:00	*O143	ON-FARM ASSESSMENT OF YIELD RESPONSE OF GRAIN CROPS TO SOIL PH AND LIMING IN CENTRAL ALBERTA; Chirchir Jedida, Dyck Miles, Enesi Rebecca, and Gorim Linda
2:15	*O144	THE EFFECT OF INTEGRATED CROP MANAGEMENT PRACTICES ON WEED GROWTH AND PERSISTENCE TRAITS; Uthpala Ekanayake, Rob Gulden, Chris Willenborg, Jonathan Rosset, and Dilshan Benaragama
Meeting Rooms 9 + 10		**CPS-VIII Advances in Plant Pathology 2** *Chair: Drs. Mamadou Fall (AAFC) and Afsaneh Sedaghatkish (U. of Guelph)*
1:15	O145	THE EFFECT OF BORON ON CLUBROOT SEVERITY AND DEFENSE MECHANISMS IN *BRASSICA NAPUS*; A. Sedaghatkish, S. Chesney, B. D. Gossen, and M. R. McDonald
1:30	O146	BACTERIAL LEAF STREAK SURGE ON THE CANADIAN PRAIRIES: INSIGHTS AND MANAGEMENT STRATEGIES; Shaheen Bibi, Malini Jayawardana, and Dilantha Fernando
1:45	O147	A SURVEY FROM 2006-2023 TO STUDY THE STATE AND PREVALENCE OF FUSARIUM HEAD BLIGHT DISEASE ON WHEAT IN ALBERTA; Monika Dayarathne, Michael Harding, and Dilantha Fernando
2:00	O148	ARE NEMATODES INVOLVED IN THE EMERGING CHICKPEA HEALTH ISSUE IN SASKATCHEWAN? Fernanda Gouvea Pereira, Mario Tenuta, Michelle Hubbard, and Sarah Anderson
2:15	O149	ADVANCEMENT OF B2-BASED DSRNA EXTRACTION METHOD: COST-EFFECTIVENESS COMPARISON OF HTS-BASED VIRUS DETECTION METHODS; Mamadou L. Fall, Dong Xu, and Pierre Lemoyne

TUESDAY AFTERNOON Concurrent Session 4

Meeting Room 1		CSPB-XI Plant Cell Biology *Chair: Katharina Braeutigam*
3:15	*O150	PECTIN DYNAMICS DICTATES ANISOTROPIC CELL GROWTH DURING MESOPHYLL MORPHOGENESIS; Diksha Bhola and Anja Geitmann
3:30	*O151	SNAKE CHARMMING: UNDERSTANDING COBRA THROUGH BIOINFORMATICS AND MUTATIONAL ANALYSIS; Kamryn Diehl and Geoffrey Wasteneys
3:45	O152	FROM SINGLE CELLS TO COMPLEX TISSUES - THE MOLECULAR DECODING OF PLANT SEXUAL REPRODUCTION AT SINGLE CELL RESOLUTION; Katharina Bräutigam
4:00	O153	FORMATION OF A STABLE TUBULAR ER NETWORK REQUIRES A LOCALIZED PHOSPHATIDYLCHOLINE SYNTHESIS IN ARABIDOPSIS; Weina Wang
Meeting Room 2		**CSHS-IV Fruits** *Chair: Dr. Melanie Kalischuk (University of Guelph)*
3:15	O154	TESTING THREE ALTERNATIVE TECHNOLOGIES AGAINST POWDERY AND DOWNY MILDEWS ON WINE GRAPE, GREENHOUSE CUCUMBER, FIELD ZUCCHINI AND STRAWBERRY; Andrew C. Wylie, Irina Perez-Valdes, and Rose Buitenhuis
3:30	O155	DEVELOPING 'STONY HARD' PEACH TO MITIGATE CLIMATE CHANGE EFFECTS AND LONGER SHELF LIFE; Jayasankar Subramanian and Naincy Sharma
3:45	O156	CRANBERRY RESPONSES TO IN-FIELD EXPERIMENTAL WARMING; Lauren A E Erland
4:00	O157	EPIDEMEOLOGY OF *NEOPESTALOTIOPSIS* SPP. IN STRAWBERRY; Justin McNally, Adam Dale, Erica Pate, and Melanie Kalischuk
4:15	*O158	THE DIVERSITY OF BIOACTIVE COMPOUND PROFILES IN CANADIAN PRAIRIE SMALL FRUITS AND THEIR ANTIOXIDANT AND ANTI-HYPERTENSIVE POTENTIAL AS FUNCTIONAL FOODS; Chamali Kodikara, Sura Srinivas, Nandika Bandara, Thomas Netticadan, Sijo Joseph, and Champa Wijekoon
4:30	*O159	EXOGENOUS APPLICATIONS OF DOUBLE-STRANDED RNA TO INDUCE RNA INTERFERENCE FOR THE CONTROL OF THE NOVEL FUNGAL PATHOGEN *NEOPESTALOTIOPSIS* SP. AFFECTING STRAWBERRY; Sarah Koeppe and Melanie Kalischuk
Meeting Room 3		**CSHS-V Vegetables** *Chair: Dr. Lord Abbey (Dalhousie University)*
3:15	O160	LEAFY GREEN VEGETABLE PRODUCTION IN SASKATCEWAN; Jazeem Wahab, Janitha Wanasundara, Edmund Mupondwa, Erl Svendsen, Raju Soolanayakanahally, and Evan Derdall
3:30	*O161	OPTIMIZATION OF LIGHT INTENSITY FOR GROWTH OF MINT (*MENTHA* SPP.) IN CONTROLLED ENVIRONMENTS; Andrew Burns, Mike Dixon, Mike Stasiak and Youbin Zheng
3:45	*O162	HARNESSING CONTROLLED ENVIRONMENT SYSTEMS FOR ENHANCED PRODUCTION OF MEDICINAL PLANTS; Ajwal Dsouza, Mike Dixon, Mukund Shukla, and Thomas Graham

4:00	O165a	TEMPERATURE IMPACT ON PLANT GROWTH AND DEVELOPMENT OF SELECTED VEGETABLES; **Peter A. Ofori, Raphael Ofoe, Efoo B. Nutsukpo, and Lord Abbey**
4:15	*O165b	EXPLORING THE IMPACT OF FAR-RED AND BLUE LED LIGHT RATIOS ON *BOTRYTIS CINEREA*'S MORPHOGENESIS; **Abheet Aulakh, William Jordan, and Valerie Gravel**
Meeting Room 4		**CAPB/CSPB-XII Plant Genomics** *Chair: David Konkin*
3:15	O166	COMPARING PHENOTYPIC SELECTION WITH GENOMIC SELECTION WHEN BREEDING FOR NEW VARIETIES OF COMMON BEAN (PHASEOLUS VULGARIS): AN EMPIRICAL STUDY; **Robert McGee, Isabella Chiaravalotti, Marysia Zaleski-Cox, Evan Wright, Karen Cichy, Diego Jarquin D, and Valerio Hoyos-Villegas**
3:30	O167	A MULTISPECIES AMPLISEQ APPROACH TO ASSESS INTRA- AND INTER-SPECIFIC DIVERSITY OF *SPHAGNUM* AND ASSIST RESTORATION EFFORTS; **Mélanie Bourque, François-Olivier Hébert, and David L. Joly**
3:45	*O168	GENOME-WIDE ASSOCIATION ANALYSIS OF LODGING-RELATED CULM TRAITS IN DIVERSE SPRING WHEAT (*TRITICUM AESTIVUM* L.) POPULATION; **Ginelle Grenier, Muhammad Iqbal, Curt McCartney, Gavin D. Humphreys, Dean Spaner, and Belay T. Ayele**
4:00	O169	PAN-GENOME AND LONG-READ STRUCTURAL VARIANT LANDSCAPE OF 51 BRASSICA NAPUS GENOMES UNVEIL CANOLA'S HIDDEN GENETIC DIVERSITY FOR CROP IMPROVEMENT; **Sampath Perumal, Kevin Koh, Raju Chaudhary, Peng Gao, Isobel Parkin, and Andrew Sharpe**
4:15	*O170	GENOME-WIDE ASSOCIATION AND GENOMIC SELECTION FOR OIL AND FATTY ACID PROFILE IN RAPESEED (*BRASSICA NAPUS* L.); **Jared Bento, Jia Sun, Sakaria Liban, Curt McCartney, Harmeet Chawla, and Robert Duncan**
4:30	O171	CROSS-SPECIES COMPARATIVE SEQUENCE-BASED GENE EXPRESSION MODELLING IN LEGUMES; **Nicolas Raymond, Sheikh Jubair, Jordan Ubbens, Xi Zhang, Fatima Davelouis, Ruchika Verma, David Staszak, Dustin Cram, Halim Song, Yongguo Cao, Christine Sidebottom, Yasmina Bekkaoui, Morgan Kirzinger, Deborah Akaniru, and David Konkin**
Meeting Rooms 7+8		**CSA-VI Plant-Soil health** *Chair: Kui Liu and Jedida Chirchir*
3:15	O173	HUMIC PRODUCTS: TO USE OR NOT TO USE IN YOUR FIELD; **Linda Y. Gorim**
3:30	O174	GROWTH-PROMOTING RHIZOBACTERIA MITIGATES SALT STRESS IN RICE THROUGH THE ENHANCEMENT OF ANTIOXIDANT DEFENSE, ION HOMEOSTASIS, AND PHOTOSYNTHETIC PARAMETERS; **Ayesha Siddika, Alfi Anjum Rashid, Shakila Nargis Khan, Amena Khatun, Muhammad Manjurul Karim, PV Vara Prasad, and Mirza Hasanuzzaman**

3:45	O175	**EFFECTS OF DEFOLIATION ON ROOT TRAITS, NITROGEN FIXATION, SOIL NITROGEN AVAILABILITY, SOIL ENZYME ACTIVITIES AND SOIL BACTERIAL COMMUNITIES OF FORAGE LEGUMES; Malinda Thilakarathna, Danielito Dollete, Rhea Amor Lumactud, Cameron Carlyle, and Krzysztof Szczyglowski**
4:00	O176a	**EFFECT OF ROW SPACINGS/GEOMETRY AND RATES OF S APPLICATION ON ALFALFA YIELD AND QUALITY IN NORTHERN ONTARIO; Tarlok Singh Sahota, Harmeet Singh, Mikala Parr, David Thompson, and Kim Jo Bliss**
4:15	O176b	**CLIMATE CONDITIONS IN THE NEAR-TERM, MID-TERM AND DISTANT FUTURE FOR GROWING SOYBEANS IN CANADA; Budong Qian, Ward Smith, Qi Jing, Yong Min Kim, Guillaume Jégo, Brian Grant, Scott Duguid, Ken Hester, and Alison Nelson**
Meeting Room 17		**CPS-IX OMICS** *Chair: Dr. Wen Chen (AAFC Ottawa) & Dr. Sandra Velasco-Cuervo (U of Alberta)*
3:15	O177	**DE NOVO WHOLE-GENOME ASSEMBLIES AND A COMPARATIVE PANGENOME ANALYSIS OF THE SOILBORNE PLANT PATHOGEN PLASMODIOPHORA BRASSICAE; Sandra M. Velasco-Cuervo, Yoann Aigu, Leonardo Galindo-Gonzailez, Sheau-Fang Hwang, and Stephen E. Strelkov**
3:30	O178	GENOMIC INVESTIGATION OF WESTERN CANADIAN *APHANOMYCES EUTEICHES* ISOLATES FROM MULTIPLE HOST LEGUME CROPS; Zelalem Taye, Jamuna Paudel, Lou Kun, Cormier Trista, Ethan Done, Jennifer Town, Syama Chatterton, Michelle Hubbard, Hossein Borhan and Nicholas Larkan
3:45	O179	**SINGLE-CELL DNA SEQUENCING OF *PLASMODIOPHORA BRASSICAE* REVEALS CLONAL CHARACTERISTICS; A. Sedaghatkish, B. D. Gossen, and M. R. McDonald**
4:00	O180	**METAGENOMICS-BASED MICROBIAL COMMUNITY PROFILING IN THE QUEST FOR POTATO WART BIOLOGICAL CONTROL AGENTS; Ishraq Akbar, Yichao Shi, Bart. T. L. H. van de Vossenberg, Theo A. J. van der Lee, Sean Li, Linda Jewell, Hai D.T. Nguyen, and Wen Chen**
4:15	O182	**ALLELIC DIVERSITY AND EVOLUTIONARY PATTERNS OF TOXB GENE IN PYRENOPHORA TRITICI-REPENTIS AND RELATED SPECIES: A GLOBAL PERSPECTIVE; Mohamed Hafez, Ryan Gourlie, Megan McDonald; Melissa Telfer, Marcelo A. Carmona, Francisco J. Sautua, Caroline S. Moffat, Paula M. Moolhuijzen, Pao Theen See, and Reem Aboukhaddour**
4:30	O183	**ENDOGENOUS RUST PEPTIDES FROM PUTATIVE SHORT OPEN READING FRAMES IDENTIFIED USING PEPTIDOMICS AND DE NOVO SEQUENCING STRATEGIES; Christof Rampitsch, Slavica Djuric-Ciganovic, Zhen Yao, and Mark Lubberts**

Meeting Rooms 11+12		**CPS-X Disease Management (Competition)** *Chairs: Maxime Delisle-Houde (U of Laval) & Dr. Bruce Gossen (AAFC Saskatoon)*
3:15	*O185	CHANGES IN SENSITIVITY OF *CLARIREEDIA JACKSONII* TO THE DEMETHYLATION INHIBITOR FUNGICIDE PROPICONAZOLE AFTER 30 YEARS OF USE; Andrea Rether, Mikaela Ryan, Nava Brimble, Alexa Nguyen, and Tom Hsiang
3:30	*O186	IMPROVING BACTERIAL LEAF STREAK MANAGEMENT IN WHEAT: DEVELOPMENT OF A RAPID LOOP-MEDIATED AMPLIFIATION (LAMP) PROTOCOL FOR SEED TESTING; Valentina Anastasini, Heting Fu, Jie Feng, T. Kelly Turkington, Michael Harding, Constanza Fleitas, and Randy Kutcher
3:45	*O187	EVALUATING THE INFLUENCE OF NITROGEN ON ROOT ARCHITECTURE AND CLUBROOT RESPONSE IN *BRASSICA* GENOTYPES; Danna Rotariu, Yoann Aigu, Rudolph Fredua-Agyeman, Sheau-Fang Hwang, and Stephen Strelkov
4:00	*O188	EFFECTS OF FREEZE AND THAW TEMPERATURE CYCLES ON THE SURVIVAL OF PLASMODIOPHORA BRASSICAE RESTING SPORES; K. Holy, B. D. Gossen, and M. R. Mcdonald
Meeting Room 13		**CSPB-XIII Plant Biochemistry** *Chair: Neha Vaid*
3:15	*O189	UNRAVEL TO BUILD: PTEROCARPAN BIOSYNTHESIS FROM LEGUMES TO HETEROLOGOUS HOSTS; Audrey Cote, Brandon Saltzman, and Mehran Dastmalchi
3:30	*O190	CHARACTERIZATION OF A CYSTEINE PROTEASE FROM PHYTOLACCA AMERICANA AND ITS ASSOCIATION WITH POKEWEED ANTIVIRAL PROTEIN; Annabelle Audet and Katalin A. Hudak
3:45	O191	GLUTAMINE ACTIVATION OF TOR REGULATES PROTEIN SYNTHESIS IN DEVELOPING PEAS; Brendan O`Leary, Vinti Kumari, and Christoph Rampitsch
4:00	*O192	EXPLORING THE ALKENE BIOSYNTHETIC PATHWAY IN POPULUS TRICHOCARPA; Jessica Hu, Jeff Chen, Bianca Ortiz,, and Eliana Gonzales-Vigil
4:15	O193	POPLAR LEAF BUD RESIN BIOCHEMISTRY: SEASONAL PATTERNS AND ENZYMES FOR RESIN SYNTHESIS IN BLACK COTTONWOOD (POPULUS TRICHOCARPA); C. Peter Constabel, David Ma, and Eerik-Mikael Piirtola
4:30	O194	REGIOSELECTIVE O-METHYLATION OF STILBENES IN SACCHARINAE GRASSES; Nan Lin, Andy CW Lui, Kah Chee Pow, Zhuming Fan, Chen Jing Khoo, Quan Hao, and Clive Lo
Meeting Rooms 9 + 10		**CSPB-XIV All Societies Gene Editing Session** *Chair: Andriy Bilichak*
3:15	*O195	MODULATION OF CLOCK IN WHEAT VIA DIPLOID AND HAPLOID GENE EDITING; Sandhya Gautam, Fengying Jiang, Chelsi Harvey, Andre Laroche, Guanqun Chen, John Laurie
3:30	*O196	SPEED EDITING: HIGH THROUGHPUT GENE EDITING USING CRISPR/CAS9 SYSTEM IN *BRASSICA NAPUS*; Rajbir Kaur, Mohamed Samir Youssef, Robert Duncan, and Harmeet Singh Chawla

3:45	O197	FUNCTIONAL VALIDATION OF A CANDIDATE GENE CONTROLLING SOYBEAN ROOT SYSTEM ARCHITECTURE BY CRISPR-CAS9 TECHNOLOGY; **Benjamin Karikari**, Waldiodio Seck, Davoud Torkamaneh, and François Belzile
4:00	O198	GENE EDITING-ASSISTED FUNCTIONAL GENOMICS STUDIES IN WHEAT (TRITICUM AESTIVUM L.); **Andriy Bilichak**, Louie Lopos, Emanpreet Kaur, and Natalia Bykova
4:15	O199	CRISPR/CAS9 BASED LOSS-OF-FUNCTION GENE EDITING CONFERS BROAD-SPECTRUM CLUBROOT TOLERANCE IN CANOLA; **L. Wang**, R. Wen, B. Luo, K. Yang, X. Liu, T. Dumonceaux, G. Peng, and W. Xiao

5:00 – 7:00 pm Poster Session 2 in Hall D

Students who have a poster with an **EVEN** number are to remain by their posters until they are judged.

Light refreshments will be served.

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Poster Presentations

Poster presentations are grouped by society in the following order: CPS, CWSS, CBA, CSHS, CAPB, CSPB, CSA, and non-affiliated. The presenter's name is underlined. Student presentations for competition are identified by an asterisk. Poster sessions will be held in Hall D from 5:00 pm – 7:00 pm on Monday July 8 (odd numbers) and Tuesday July 9 (even numbers).

CPS (Posters P1-P51, P148)

P1	**FIRST REPORT OF *FUSARIUM SPOROTRICHIOIDES* AND *FUSARIUM CEREALIS* CAUSING ROOT ROT OF SOYBEAN IN CANADA, WITH POTENTIAL IMPLICATIONS FOR CROP ROTATION STRATEGIES;** Ahmed Abdelmagid, Mohamed Hafez, and Fouad Daayf
P2	**THE OCCURRENCE AND SPREAD OF CLUBROOT IN ALBERTA (2005-2023);** Y. Aigu, V.P. Manoli, S.F. Hwang, and S.E. Strelkov
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