

12TH INTERNATIONAL VACCINIUM SYMPOSIUM

ISHS - IVS

12th INTERNATIONAL VACCINIUM SYMPOSIUM

VIRTUAL EDITION

30 AUG- 1 SEP 2021



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*transparency in
crop science*

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MAIN SPONSORS



The Chemical Company



WELCOME LETTER

Dear colleagues,

It was with honor, appreciation and optimism that we undertook preparations to host the Twelfth International Vaccinium Symposium back in 2016. With Canada never hosting the Symposium, it was our hope to develop a solid scientific program that would engage researchers from across the world while also providing an opportunity to see the unique nature of the wild blueberry production system as well as the cranberry and cultivated highbush blueberry sectors.

Unfortunately, just after the call for abstracts closed in February 2020, the realities of the COVID-19 pandemic became apparent with tremendous personal and professional losses, turmoil, sadness, pain, and poverty. We soon realized that it would not be possible with the Symposium in August 2020, so rescheduled to August 2021. Uncertainties existed with respect to the venues and facilities that were to have been used with the decision being made to defer their use until it is safe for international travel to occur and there be no negative impact on other meetings including the ISHS HortCongress. This was complimented with the loss of support to the Symposium as organizations focused on surviving and contending with the realities of COVID-19. The realities of COVID-19 also came apparent to Nova Scotia this April with a surge of cases and a lockdown with restrictions only recently being eased.

Throughout these uncertain times, the desire to hold the Symposium has not wavered. The decision was made in February to proceed virtually and to give authors the opportunity to present their oral and poster contributions; interact with other researchers, technology transfer specialists and industry representatives in a virtual format; and also publish their results in the conference proceedings. Registration fees were also significantly reduced to try and reduce the financial burden on researchers while simultaneously allowing the Symposium to try new virtual conference technologies. The Symposium will include regular plenary and technical sessions, the awards ceremony as well as spaces in which to connect with exhibitors and educators from across the globe. In addition, all attendees will have access to on-demand recordings after the completion of the live conference. You can join us live or watch recordings from your computer, tablet or phone, at your leisure.

The Organizing Committee would like to extend our sincerest gratitude to those continuing to participate in this Symposium. We hope that despite the present realities of COVID-19, the Symposium opens up a world of learning opportunities, possibilities to innovate, and connect with the Vaccinium Community around the world. We look forward to seeing you at IVS 2024!

David Percival
Convener and Chair
Dalhousie University

Samir Debnath
Co-Chair and
Proceedings Editor
Agriculture and
Agri-Food Canada

Jorge Retamales
Chair of the Division
Vine and Berry Fruits
University of Talca

James Polashock
Chair of the Vaccinium
Working Group
USDA Agricultural
Research Service

Inger Martinussen
Norwegian Institute
of Bioeconomy

Svetlana Yurgel
Dalhousie University

Justin Cox
NSW Dept.
Primary
Industries

ORGANIZING COMMITTEE

Steering Committee

- **Dr. David Percival (Chair and Convener)**
Symposium Convener
Department of Plant, Food, and Environmental Sciences, Dalhousie University
Truro, Nova Scotia, Canada
- **Dr. Samir Debnath (Co-Chair and ActaHort Editor)** Agriculture and Agri-Food
Canada
St. John's, Newfoundland, Canada
- **Dr. Jorge Retamales (Chair of the Division of Vine and Berry Fruits, ISHS)** University of Talca, Department of Horticulture
Talca, Chile
- **Dr. James Polashock (Chair of the Vaccinium Workgroup, ISHS)** USDA
Agricultural Research Service
Chatsworth, New Jersey, United States of America
- **Justine Cox**
Department of Primary Industries
Wollongbar, New South Wales, Australia
- **Inger Martinussen**
Division of Food Production and Society Horticulture
Norwegian Institute of Bioeconomy Research, Tromsø, Norway

Local Arrangements Subcommittee

- **Hugh Lyu**
Wild Blueberry Specialist, Perennia Food and Agriculture Inc.
- **Michel Melanson**
Crop Specialist - Blueberry & Apiculture, New Brunswick Department of
Agriculture
- **Cameron Menzies**
Berry Crop Development Officer / Provincial Apiarist, Prince Edward Island
Department of Agriculture and Land Agriculture Industry Development
- **Gary Brown**
Canadian Wild Blueberry Industry Research and Development Institute
- **David Percival**
Department of Plant, Food, and Environmental Sciences, Dalhousie University

Finance Subcommittee

- **Kelly Marshall**
Financial Services, Dalhousie University
- **Margaret Savard**
Department of Plant, Food, and Environmental Sciences, Dalhousie University
- **David Percival**
Department of Plant, Food, and Environmental Sciences, Dalhousie University
- **Ashley Coffin**
Extended Learning, Dalhousie University



SCIENTIFIC COMMITTEE

Scientific Program/Publications Subcommittee

- **Samir Debnath (Co-Chair and ActaHort Editor)**
Agriculture and Agri-Food Canada
St. John's, Newfoundland, Canada
- **James Polashock**
USDA Agricultural Research Service
Chatsworth, New Jersey, United States of America
- **Svetlana Yurgel**
Department of Plant, Food, and Environmental Sciences, Dalhousie University
Truro, Nova Scotia, Canada
- **Inger Martinussen**
Division of Food Production and Society Horticulture
Norwegian Institute of Bioeconomy Research, Tromsø, Norway
- **Justine Cox**
Department of Primary Industries
Wollongbar, New South Wales, Australia
- **David Percival**
Department of Plant, Food, and Environmental Sciences, Dalhousie University
Truro, Nova Scotia, Canada

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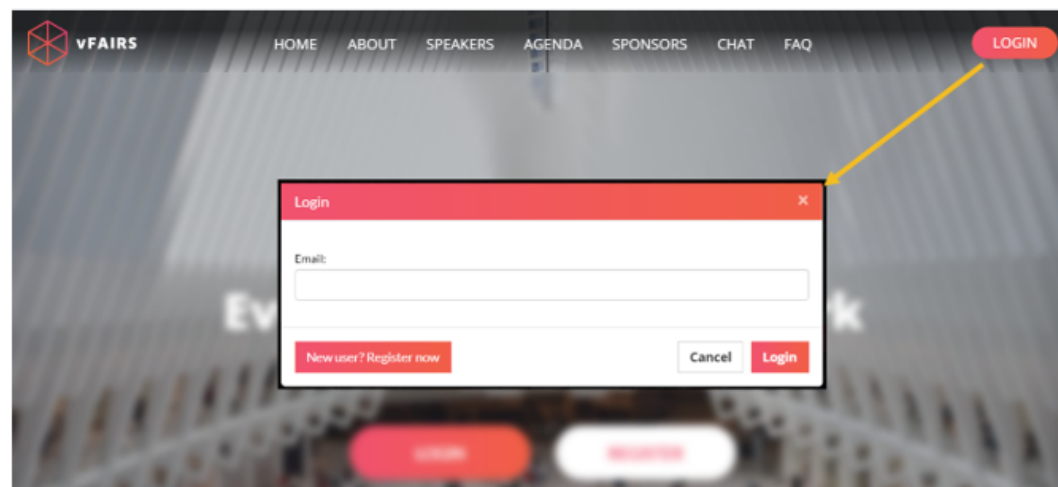
VIRTUAL PLATFORM OVERVIEW

Please see the IVS – Attendees User Guide for detailed information

LOGIN

The event URL can be accessed by browsing ivs.vfairs.com. The [login process](#) is quite simple. Depending upon the security restrictions:

- You might be required to enter one time password (OTP) in addition to your email id & password to log into the event. Or,
- You might enter the event by using your email id alone.



MENU BAR

When you enter the event, the main menu bar is going to be your best friend for friendly navigation across different features available.





VIRTUAL PLATFORM OVERVIEW

AUDITORIUM & WEBINARS

It takes you to the hall where you can access all the scheduled webinars/meetings/on-demand videos that you can easily participate in. The sessions could be live or pre-recorded.

Auditorium resembles the image shared below.



SPONSOR



GENERAL AND SCIENTIFIC INFORMATION

GENERAL INFORMATION

Certificate of attendance

- Certificate of attendance will be available after the meeting
- **On-demand contents**
- All contents of the Symposium will be recorded and available until December 2021
- **Social Media**
Follow US Twitter to get the latest news about the International Vaccinium Symposium

SCIENTIFIC INFORMATION

Information for Invited Speakers and Oral Presenters Each author shall have available:

- PC or Mac, slightly raised from the table if possible, with a stable internet connection (5 Mbit/sec in upload). Please, before starting, make sure to TEST the connection speed and quality of your device through one of the following common speed test website: <https://www.speedtest.net/it> - <http://speedtest.googlefiber.net/>
Supported browser: Google Chrome 83+; Firefox 78+; Edge 83+; Safari 13+ – NO: Internet Explorer.
- Earphones with microphone (in order to avoid the echo effect) Webcam (external or integrated)
Location with natural daylight
- Webcam (external or integrated)
- Location with natural daylight

KEYNOTE SPEAKERS



Speaker: David Brazelton

Presentation Title: Blueberries- Where have we been and where are we going?

David Brazelton is chairman of the Board of Directors for Fall Creek Farm & Nursery and is a founder of the family-owned company. After buying the initial farm in 1978 with his wife Barbara, Dave dedicated his career to the development of a dynamic and sustainable blueberry industry worldwide with a commitment to top-quality plant supply, innovative varieties, and horticultural support. Dave has held many industry positions, such as Chairman of the Oregon Blueberry Commission and is the current Chairman of the United States Highbush Blueberry Council Health Research committee. Fall Creek is a world leader in blueberry variety development and nursery stock production with operations in the US, Mexico, Chile, Peru, Holland, Spain, and South Africa.



Speaker: Laura Jaakola


Presentation Title: Phenolic compounds in *Vaccinium* spp.: diversity, biosynthesis, and molecular regulation

Professor Laura Jaakola is holding a position as Research leader of the Climate Laboratory Holt, UiT the Arctic University of Norway in Tromsø, which is a joint unit of UiT and the Norwegian Institute of Bioeconomy (NIBIO). She has a scientific background in plant physiology and molecular biology. Her research activities have focused largely on the North European wild berries and the biosynthesis of secondary metabolites, especially anthocyanins and other phenolic compounds. The main interest has been in the developmental control of the biosynthesis of the key metabolites in berries and the environmental and genetic factors that regulate the processes. She has numerous international publications and a wide international collaboration network.

SCIENTIFIC PROGRAM

TIMETABLE

MONDAY – AUGUST 30, 2021- AUDITORIUM


	Time	Presenting Author	Title	Transmission
Opening of the International Vaccinium Symposium	9:00	David Percival, <i>IVS Chair and Convener, Dalhousie University</i>	Welcome attendees	Recorded
	9:10	Jennifer Bain, <i>Associate Vice President Research, Dalhousie University</i>	Welcome message- Dalhousie University	Recorded
	9:15	Gilles Saindon, <i>Assistant Deputy Minister, Agriculture and Agri-Food Canada</i>	Welcome on behalf of the Government of Canada and Agriculture and Agri-Food Canada	Recorded
	9:20	Jorge Retamales, <i>Chair of the Division of Vine and Berry Fruits, University of Talca</i>	ISHS Greetings	Recorded
	9:25	James Polashock, <i>Chair of the Vaccinium Workgroup, USDA Agricultural Research Service</i>	ISHS Greetings	Recorded
Technical Session 1: Plant Physiology and Plant Nutrition				
Moderator: Peter Jeranyama				
Session Sponsor:	9:30	Peter Jeranyama- <i>University of Massachusetts Amherst, Umass Cranberry Station, MA, United States of America</i>	Optimal nitrogen fertilizer application rates for second-generation cranberry hybrids	Recorded
	9:45	Jorge B. Retamales- <i>Agricultural consultant, Viña del Mar, Chile</i>	Sectorial pruning of highbush blueberries: long-term effects on yield and fruit quality	Recorded
	10:00	Hong Yu- <i>Jiangsu Province & Chinese Academy of Science, Jiangsu, China</i>	Water requirement estimation of rabbiteye blueberry seedlings based on water surface evaporation method	Recorded
	10:15	Amos Samkumar Rajan Premkumar- <i>Climate Laboratory Holt, Department of Artic and Marine Biology, The Artic University of Norway, Tromso, Norway</i>	Light quality from supplemental light emitting diodes modulates secondary metabolites biosynthesis in ripening bilberry (<i>Vaccinium myrtillus L.</i>)	Recorded
	10:30	Questions and Discussion		Live
BREAK	10:45	Coffee Break and Speed Networking and Virtual Tradeshow		

TIMETABLE

MONDAY – AUGUST 30, 2021- AUDITORIUM


Technical Session 2: Breeding, Genetics, and Phenomics

Moderator: Lara Giongo

Session Sponsor: 	11:00	Lara Giongo- <i>Fondazione Edmund Mach, San Michele aA, Italy</i>	Comparative study on texture: a key trait for blueberry fruit quality breeding	Recorded
	11:15	Jodi Humann- <i>Washington State University, Washington, United States of America</i>	Using the genome database for Vaccinium for genetics, genomics, and breeding research	Recorded
	11:30	Samir Debnath- <i>St. John's Research and Development Centre, Agriculture and Agri-Food Canada, St. John's, Newfoundland and Labrador, Canada</i>	Molecular variation, genetic structure and antioxidants in Vaccinium germplasm	Recorded
	11:45	Soichiro Nishiyama- <i>Graduate School of Agriculture, Kyoto University, Sakyo-Ku, Kyoto, Japan</i>	Characterization of population structure and genetic variation of chilling requirement in southern highbush blueberry	Recorded
	12:00	Questions and Discussion		
BREAK	12:15	Nutrition Break and Virtual Tradeshow		

Technical Session 3: Berry Composition and Quality

Moderator: Katherine Ghantous

Session Sponsor: 	13:00	Katherine Ghantous- <i>Umass Cranberry Station, Massachusetts, United States of America</i>	Concentration of quinclorac in cranberry plant tissue with repeated annual applications	Recorded
	13:15	Marlee Trandel-Hayse- <i>Plants for Human Health Institute, North Carolina State University, Kannapolis, North Carolina, United States of America</i>	Method optimization and cell wall analysis for peel and pulp of blueberry cultivars	Recorded
	13:30	Penelope Perkins-Veazie- <i>Plants for Human Health Institute, North Carolina State University, Kannapolis, North Carolina, United States of America</i>	New tools for rapid fruit quality analysis in blueberry	Recorded
	13:45	Questions and Discussion		



TIMETABLE

MONDAY – AUGUST 30, 2021- PLENARY ROOM


14:00	David Brazelton	Blueberries- Where have we been and where are we going?	Recorded
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TIMETABLE

MONDAY – AUGUST 30, 2021- AUDITORIUM


Technical Session 4: Pest Management

Moderator: Bill Cline

	15:00	Bill Cline- <i>North Carolina State University, Castle Hayne, North Carolina, United States of America</i>	Diseases and insects of economic importance affecting blueberry fruit in North Carolina	Recorded
	15:15	Alex Cornel- <i>Faculty of Agriculture, Dalhousie University, Truro, Nova Scotia, Canada</i>	Assessing fungicide efficacy for improved management of the wild blueberry foliar disease complex in eastern Canada	Recorded
	15:30	Seanna Annis- <i>University of Maine, Orono Maine, United States of America</i>	Mummy berry forecast system improves control of disease in Maine lowbush blueberry	Recorded
	15:45	Rishi Ram Burlakotti- <i>Agassiz Research and Development Centre, Agriculture and AgriFood Canada, British Columbia, Canada</i>	Baseline sensitivity of Septoria species associated with lowbush blueberry foliar disease to chlorothalonil and propiconazole fungicides	Recorded
	16:00	Questions and Discussion		Live

Technical Session 5: Breeding, Genetics, Genomics, and Phenomics

Moderator: Massimo Iorizzo

	16:15	Massimo Iorizzo- <i>Kannapolis, North Carolina, United States of America</i>	VacciniumCAP, a community-based project to develop advanced genetic tools to improve fruit quality in blueberry and cranberry	Recorded
	16:30	Kim Hummer- <i>USDA National Clonal Germplasm Repository, Corvallis, Oregon, United States of America</i>	Confirming clonal identity: a case study in blueberries	Recorded
	16:45	Mark Ehlenfeldt- <i>USDA-ARS, P.E. Marucci Center for Blueberry & Cranberry Research</i>	<i>V. meridionale</i> hybrids with 4x highbush blueberry	Recorded
	17:00	Michael Dossett- <i>Agassiz British Columbia, Canada</i>	Challenges and strategies breeding for firmness, resistance to bruising, and reduced splitting tendency in blueberry in British Columbia	Recorded
	17:15	Questions and Discussion		Live

TIMETABLE

MONDAY – AUGUST 30, 2021- AUDITORIUM


Technical Session 6: Production Systems and Sustainability

Moderator: Alejandro Pannunzio

Session Sponsor:	17:30	Alejandro Pannunzio- <i>Guiraldes, Acasusso, Argentina</i>	Water footprint and life cycle assessment as approaches to compare three blueberry varieties and two ways of marketing either bulk or in clam shells	Recorded
Wyman's	17:45	Johannes Balas- <i>University of Natural Resources Vienna, Dept of Crop Sciences, sect Horticulture, Vienna, Austria</i>	Attempts of cultivation of bilberry in a horticultural system	Recorded
	18:00	Mathias Amundsen- <i>Peterhofveien Stabekk, Norway</i>	Effects of geographic origin and environmental conditions on anthocyanin profile of wild Norwegian lingonberries (<i>Vaccinium vitis-idaea</i> L.)	Recorded
	18:15	Questions and Discussion		Live
End of Day 1	18:30	Conclusions and Announcements		

TIMETABLE

TUESDAY – AUGUST 31, 2021- AUDITORIUM


	Time	Presenting Authors	Title	Transmission
Welcome for the day	9:10	Neri Vautour, <i>Wild Blueberry Association of North America (Canada)</i>	Greetings from the Wild Blueberry Association of North America (Canada)	Recorded
	9:15	David Gray, <i>Dean, Faculty of Agriculture, Dalhousie University</i>	Greetings from the Faculty of Agriculture, Dalhousie University	Recorded
	9:20	Loretta Robichaud, <i>Deputy Minister, Nova Scotia Department of Agriculture</i>	Greetings	Recorded
	9:25	Bloyce Thompson, <i>Minister of Agriculture and Land. Prince Edward Island</i>	Greetings	Recorded
Technical Session 7: Production Systems and Sustainability				
Moderator: Inger Martinussen				
Session 	9:30	Inger Martinussen- <i>Norwegian Institute for Bioeconomy Research, Ås, Norway</i>	Norwegian wild berries -increased predictability and value creation - the WILDBERRIES project	Recorded
	9:45	Hong Yu- <i>Jiangsu Province & Chinese Academy of Science, Jiangsu, China</i>	The development trend and potential of the blueberry industry in China	Recorded
	10:00	Melinda Simpson- <i>Department of Primary Industries, Wollongbar, New South Wales, Australia</i>	The Australian story: blueberry production past, present and future	Recorded
	10:15	Teresa Valdivieso- <i>INIAV, Quinta do Marques, Oeiras, Portugal</i>	<i>Corema album</i> from the wild to the field	Recorded
	10:30	Questions and Discussion		Live
BREAK	10:45	Coffee Break and Speed Networking and Virtual Tradeshow		

TIMETABLE

TUESDAY – AUGUST 31, 2021- AUDITORIUM


Technical Session 8: Breeding, Genetics, Genomics, and Phenomics

Moderator: Dorrie Main

Session Sponsor: 	11:00	Dorrie Main- <i>Washington State University, Pullman, Washington, United States of America</i>	Using the GDV breeding information management system for efficient management and analysis of breeding data	Recorded
	11:15	Mark Ehlenfeldt- <i>USDA-ARS P.E. Marucci Center for Blueberry & Cranberry Research</i>	Breaking interspecific barriers in <i>Vaccinium</i> : V. meridionale hybrids with blueberry, cranberry, and lingonberry	Recorded
	11:30	Joe Kawash- <i>Chatsworth, New Jersey, United States of America</i>	Identifying epistatic loci for fruit rot resistance in cranberry using machine learning	Recorded
	11:45	Eric Gerbrandt - <i>Abbot sford, British Columbia, Canada</i>	Heritability of leaf and fruit calcium may enable selection against green fruit drop disorder in highbush blueberry breeding	Recorded
	12:00	Questions and Discussion		Live
BREAK	12:15	Nutrition Break and Virtual Tradeshow		

Technical Session 9: Breeding, Genetics, Genomics, and Phenomics

Moderator: James Polashock

Session Sponsor: 	13:00	James Polashock- <i>USDA-ARS, Genetic Improvement of Fruits and Vegetables, Chatsworth, New Jersey, United States of America</i>	Cranberry genomics: advances and applications	Recorded
	13:15	Savithri Nambeesan- <i>Plant Sciences, Athens, Georgia, United States of America</i>	Transcriptome analysis of ethylene-regulated ripening in blueberry fruit	Recorded
	13:30	Svetlana Yurgel- <i>Faculty of Agriculture, Dalhousie University, Truro Nova Scotia, Canada</i>	Soil and plant-associated microbiomes in <i>Vaccinium angustifolium</i> management system	Recorded
	13:45	Robert Martin- <i>Oregon State University, Corvallis Oregon, United States of America</i>	High throughput sequencing aided identification of a novel luteovirus infecting blueberry	Recorded
	14:00	Questions and Discussion		Live



TIMETABLE

TUESDAY – AUGUST 31, 2021- PLENARY ROOM


14:15	Laura Jaakola	Phenolic compounds in <i>Vaccinium</i> spp.: diversity, biosynthesis, and molecular regulation.	Recorded
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TIMETABLE

TUESDAY – AUGUST 31, 2021- AUDITORIUM


Technical Session 10: Berry Composition and Postharvest Physiology

Moderator: Sebastian Rivera

Session Sponsor: 	15:00	Sebastian Rivera- <i>School of Agriculture and Environment, Massey University, New Zealand</i>	Blueberry mechanical properties: Influence of harvest maturity and storage relative humidity	Recorded
	15:15	Richard Espley- <i>The New Zealand Institute for Plant, and Food Research Ltd, Mt Albert, Auckland, New Zealand</i>	The spatio-temporal accumulation and regulation of anthocyanin in Vaccinium	Recorded
	15:30	Giverson Mupambi- <i>East Wareham, Massachusetts, United States of America</i>	Investigating the potential of S-ABA to increase anthocyanin biosynthesis in `Stevens´ and `Howes´ cranberry	Recorded
	15:45	Nelly Arellanes Juárez- <i>Santa Cruz, Xoxocotlán, Oaxaca, México</i>	Phenolic compound content in blueberry var. Biloxi grown in the Sierra Norte of Oaxaca, Mexico, harvested in warm season	Recorded
	16:00	Questions and Discussion		Live

Technical Session 11: Germplasm and Propagation

Moderator: Margit Laimer


Session Sponsor: 	16:15	Margit Laimer- <i>Plant Biotechnology Unit, Dept. Biotechnology, BOKU University, Vienna, Austria</i>	Germplasm collection of Vaccinium species in vitro	Recorded
	16:30	Umanath Sharma- <i>Department of Biology, Memorial University of Newfoundland, St John's, Newfoundland and Labrador, Canada</i>	A comparison of three culture systems in shoot proliferation of lingonberry	Recorded
	16:45	Eduviges Borroto Fernández- <i>Plant Biotechnology Unit, BOKU University, Vienna, Austria</i>	Phytoplasmas in Vaccinium	Recorded
	17:00	Questions and Discussion		Live

TIMETABLE

TUESDAY – AUGUST 31, 2021- AUDITORIUM


Technical Session 12: Plant Physiology

Moderator: Bernadine Strik

Session Sponsor:	17:15	Bernadine Strik- <i>Department of Horticulture, Corvallis, Oregon, United States of America</i>	Lessons learned from long-term research on organic production systems of northern highbush blueberry	Recorded
	17:45	Kenneth Anku- <i>Faculty of Agriculture, Dalhousie University, Truro Nova Scotia, Canada</i>	Remote assessment of phenology and Monilinia and Botrytis diseases in wild blueberry fields	Recorded
	18:00	Questions and Discussion		Live
End of Day 2	18:15	Conclusions and Announcements		

TIMETABLE

WEDNESDAY – SEPTEMBER 1, 2021- AUDITORIUM


	Time	Presenting Author	Title	Transmission
Welcome for the day	9:15	David Percival	Update and greetings of the day	Recorded
Technical Session 13: Pest Management Moderator: Philip Fanning				
Session Sponsor: 	9:30	Philip Fanning- <i>University of Maine, Orono Maine, United States of America</i>	Integrated pest management for spotted wing drosophila in blueberry	Recorded
	9:45	Daniel Kirschbaum- <i>INTA Famaillá, Tucumán, Argentina</i>	Occurrence and population fluctuations of <i>Drosophila suzukii</i> (Diptera: Drosophilidae) in blueberry crops of subtropical Argentina	Recorded
	10:00	Benjamin Cinget- <i>Envirotron, Québec, Quebec, Canada</i>	From mitochondrial genome to strobilurin resistance: the history of group I intron evolution in cranberry fruit rot fungi	Recorded
	10:15	Lily Calderwood- <i>University of Maine, Orono Maine, United States of America</i>	Tine weeding as a weed management tool in Maine wild blueberry	Recorded
	10:30	Questions and Discussion		Live
BREAK	10:45	Coffee Break, Speed Networking and Virtual Tradeshow		

TIMETABLE

WEDNESDAY – SEPTEMBER 1, 2021- AUDITORIUM


Technical Session 14: Soil Fertility, Plant Physiology, and Plant Nutrition

Moderator: Pedro Brás Oliveira

Session Sponsor: 	11:00	Pedro Brás Oliveira- <i>INIAV, Nova Oeiras, Portugal</i>	Extending blueberry production season with different covering materials	Recorded	
	11:15	Sophie Parks- <i>NSW Department of Primary Industries, Gosford, New South Wales, Australia</i>	Better management of soilless potting media for southern highbush blueberry, an Australian case study	Recorded	
	11:30	Yifan Yan- <i>Vancouver British Columbia, Canada</i>	Fruit transpirational water loss in blueberry is affected by stem scar size and cuticular waxes	Recorded	
	11:45	Amanda Davis- <i>Aurora Oregon, United States of America</i>	Low-input pruning options in 'Mini Blues' for specialized processed markets reduce production costs while maintaining yield and quality	Recorded	
	12:00	Questions and Discussion			Live
BREAK	12:15	Nutrition Break and Virtual Tradeshow			

Technical Session 15: Berry Composition and Postharvest

Moderator: Charles Forney

Session Sponsor: 	13:00	Charles Forney- <i>Agriculture and Agri-Food Canada, Kentville Nova Scotia, Canada</i>	Impact of species, growing location, and cultivar and flavor chemistry of blueberry fruit	Recorded
	13:15	Joana Pico Carbajo- <i>Vancouver British Columbia, Canada</i>	HPLC/QTOF validated methodology for the determination of free and bound phenolic compounds in six commercial blueberry varieties	Recorded
	13:30	Tej Acharya- <i>Plant Sciences, Athens, Georgia, United States of America</i>	Investigating ethylene regulated changes in metabolite composition during the blueberry (<i>Vaccinium</i> spp.) fruit ripening	Recorded
	13:45	Questions and Discussion		

TIMETABLE

WEDNESDAY – SEPTEMBER 1, 2021- AUDITORIUM


Special Session	14:00	Robert Martin	Tribute to Chad Finn	Recorded
	14:15	Arnfinn Nes	Tribute to Rolf Nestby	Recorded

TIMETABLE


WEDNESDAY – SEPTEMBER 1, 2021- AUDITORIUM

Technical Session 16: Soil Fertility, Plant Physiology, Plant Nutrition

Moderator: David Bryla

Session Sponsor: 	14:30	David Bryla- <i>USDA ARS, Horticultural Crops Research Laboratory, Corvallis Oregon, United States of America</i>	Beneficial use of biostimulants in northern highbush blueberry	Recorded
	14:45	David Leon- <i>Mayorazgo, Lima, Peru</i>	Response of northern highbush blueberry to fertigation and granular applications of phosphorus fertilizer	Recorded
	15:00	Pedro Rojas Barros - <i>Madison, Wisconsin, United States of America</i>	Fall nitrogen fertilization in cranberry: effects on plant growth and fruit production	Recorded
	15:15	Pablo Muñoz Vega - <i>Chillán, Chile</i>	Relationship between fruit firmness and dry matter of three blueberry cultivars (<i>Vaccinium corymbosum</i> L.) in different agroclimatic zones in Chile	Recorded
	15:30	Questions and Discussion		Live

ISHS International Vaccinium Symposium Awards and Business Meeting

Session Sponsor: 	15:45	ISHS Graduate Student Presentation Awards		Live
		ISHS Business Meeting		Live
		Report on the 12 th IVS 2021		Live
		Preparations for the next IVS 2024		Live
	18:00	Adjournment and See You in 2024!		

VIRTUAL TOURS

Technical Tours

General Introduction of the Virtual Field Tour
Host: Hugh Lyu, Wild Blueberry Specialist, Perennia



Technical Tours

Wild Blueberry Field Tour
Host: Hugh Lyu, Wild Blueberry Specialist, Perennia

Tour Stop	Presenting Guest
General Introduction of the Wild Lowbush Blueberry in the Maritimes Canada	Hugh Lyu, Perennia
Introduction of the Wild Lowbush Blueberry Industry in the Maritimes Canada	Gary Brown, Canadian Wild Blueberry Industry Research and Development Institute
Introduction of the Wild Lowbush Blueberry Harvester	Peter Swinkels, Wild Blueberry Producers Association of Nova Scotia; Doug Bragg Enterprises Ltd.
Tour of the Local Blueberry Farm: Millen Farms Ltd.	Curtis Millen, Millen Farms Ltd.

Highbush Blueberry Field Tour
Host: Sonny Murray, Berry Specialist, Perennia

Tour Stop	Presenting Guest
General Introduction of the Highbush Blueberry in the Maritimes Canada	Sonny Murray, Perennia
Introduction of the Highbush Blueberry Industry in the Maritimes Canada	Bobby Kidston, Nova Agri Inc.
Tour of the Local Blueberry Farm: Nova Agri Inc.	Bobby Kidston, Nova Agri Inc. Sean Edwards, Nova Agri Inc.

Technical Tours

Cranberry Field Tour

Host: Jennifer Haverstock, Manager of Horticulture, Perennia

Tour Stop	Presenting Guest
General Introduction of the Cranberry in the Maritimes Canada	Jennifer Haverstock, Perennia
Introduction of the Cranberry Industry in the Maritimes Canada	David Ernst, Terra Beata Farms
Tour of the local Cranberry Farm: Terra Beata Farms	Colin Boutilier, Terra Beata Farms

Research and Product Development Tour

Host: Hugh Lyu, Wild Blueberry Specialist, Perennia

Tour Stop	Presenting Guest
Overview of the Research and Product Development in the industries in the Maritimes Canada	David Percival, Dalhousie University
Introduction of the Research Development	David Percival, Dalhousie University
Introduction of the Product Development	Emily Page, Perennia

Adjournment



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Poster Number	Presenting Author (Order: first name, last name)	Poster Title
Technical Session 1: Breeding, Genetics, Genomics and Phenomics		
P1	Massimo Iorizzo-Kannapolis, North Carolina, United States of America	Development of a ultradensity linkage map and QTL mapping for fruit quality traits in blueberry (<i>Vaccinium corymbosum</i> L.)
P2	James Polashock-USDA-ARS, Chatsworth, New Jersey, United States of America	Evidence of a reciprocal heterozygous translocation in cranberry
P3	David Percival- Director of Wild Blueberry Research Program, Faculty of Agriculture, Dalhousie University, Truro Nova Scotia, Canada	Wild blueberry phenotypes infected with <i>Monilinia vaccinii corymbosi</i> have varied PR gene responses under field conditions
P4	Ryan Cullen-Gainesville Florida, United States of America	Screening of southern highbush blueberry breeding population for parthenocarpic ability and fruit quality characteristics
P5	Kuo-Tan Li- Department of Horticulture Landscape Architecture, National Taiwan University, Taipei Taiwan	Environmental regulations on flowering and expression of flowering genes in southern highbush blueberry
P6	Ozgecan Yalcin- Oregon State University, Department of Horticulture, Corvallis Oregon, United States of America	Confirming identity of blueberry cultivars with a microsatellite fingerprinting set
P7	Jeffrey Neyhart- Chatsworth New Jersey, United States of America	Identification of candidate abiotic stress tolerance loci in wild cranberry using environmental association
P8	Patrick Jones- Aurora, Oregon, United States of America	Lessons learned from 30 years of evaluating northern highbush blueberry genotypes ' the importance of rotating plantings and using commercial production methods
P9	Jeannine Rowland - USDA-ARS, GIFVL, BARC-West, Beltsville, MD, United States of America	High density genetic linkage map and identification of QTL for chilling requirement, cold hardiness, and fruit quality traits in a diploid blueberry population
P10	Marti Pottorff - 600 Laureate Way, Kannapolis NC 28081, United States of America	A high-throughput phenotyping method using near infrared spectroscopy to measure anthocyanin content in blueberry

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P11	Joel Abbey - <i>Dalhousie University, 50 Pictou Road, PO Box 550, Truro Nova Scotia B2N 5E3, Canada</i>	Molecular responses of wild blueberry phenotypes to <i>Botrytis cinerea</i> infection
P12	Elina Coneva - <i>Department of Horticulture, Auburn University, 101 Funchess Hall, Auburn, AL 36849, United States of America</i>	Assessment of rabbiteye blueberry (<i>Vaccinium ashei</i>) cultivars in Alabama
P13	Sara Knowles – <i>125a Lake Oswego Rd, Millville NJ 08332, NJ, United States of America</i>	Relationships between fruit rot resistance and horticultural traits in American cranberry (<i>Vaccinium macrocarpon</i> Ait.)

Technical Session 2: Germplasm and Propagation

P14	Matthew Davis- <i>Gainesville Florida, United States of America</i>	Optimizing lighting conditions in tissue culture for blueberry
P15	Adrian Asanica- <i>Bucharest, Romania</i>	First outcomes of grafting highbush blueberry in Romania
P16	Denisa Kovarova - <i>Plant Biotechnology Unit, Dept. Biotechnology, BOKU University</i>	In vitro cultivation of <i>Vaccinium arctostaphylos</i> , section <i>Hemimyrtillus</i>

Technical Session 3: Pollination, Production Systems and Sustainability, and Precision Agriculture

P17	Lisa Devetter- <i>Mount Vernon, Washington, United States of America</i>	Optmizing honey bee hive densities and using pheromones to increase blueberry pollination
P18	David Yarborough, <i>University of Maine, Orono Maine, United States of America</i>	The wild blueberry industry in North America
P19	Adrian Asanica- <i>Bucharest, Romania</i>	Upright training system for blueberry
P20	Kuo-Tan Li- <i>Department of Horticulture Landscape Architecture, National Taiwan Univeristy, Taipei, Taiwan</i>	Pollination compatibility and parthenocarpic berry set in autumn-bloom rabbiteye blueberry cultivars and breeding lines
P21	David Bryla- <i>USDA ARS, Horticultural Crops Research Laboratory, Corvallis, Oregon, United States of America</i>	Application of small unmanned aerial systems for spatial and temporal assesment of plant water deficits and irrigation needs in northern highbush blueberry

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P22	Kyoka Nagasaka- <i>Kyoto, Japan</i>	Evaluation of 'O'Neal' pollen performance on highbush blueberry fruit size and quality
P23	Robert Veberic- <i>University of Ljubljana, Biotechnical faculty, Jamnikarjeva, Ljubljana, Slovenia</i>	Challenges to blueberry cultivation in protected environment
P24	Rafa Tasnim- <i>Room-209, 2nd floor, Deering Hall, University of Maine, Orono Maine 04469, United States of America</i>	Wild blueberry fields at downeast, Maine are warming faster than the whole region of Maine
P25	Amanda Davis- <i>Aurora Oregon, United States of America</i>	Improving production efficiency in 'Legacy' blueberry through pruning, training, and harvest techniques
P26	Susanna Simovaara- <i>University of Helsinki, Finland</i>	First results from a high tunnel experiment with soilless culture of American cranberries under Nordic conditions
P27	Rui Machado- <i>Dept. de Fitotecnia, Univ.de De Evora, Mitra, Portugal</i>	Strategies to reduce supraoptimal temperatures during field and containerized production of highbush blueberry in warm climates
P28	Pratima Pahadi - <i>4 Aster Lane, Apt 1A, Orono Maine 04473, United States of America</i>	Ecological niches and leaf economic spectrum across genotypes of <i>Vaccinium angustifolium</i> and <i>Vaccinium myrtilloides</i> in a semi-natural agricultural system
Technical Session 4: Soil Fertility, Plant Physiology and Plant Nutrition		
P29	Lisa DeVetter- <i>Mount Vernon, Washington, United States of America</i>	Determining optimal nitrogen fertilizer sources and rates for organic highbush blueberry grown in high pH soils
P30	Manabu Watanabe- <i>Iwate University, Takizawa Iwate, Japan</i>	Relationship between summer-autumn flowering and air temperature in highbush blueberry
P31	Hiroyuki Nakagawa- <i>Hina Co., Ltd., Hiratsuka, Kanagawa, Japan</i>	Plant growth promotion by heat-resistant fungi isolated from blueberry fruit
P32	Chris Benedict – <i>Bellingham, Washington, United States of America</i>	The use of manure- derived ammonium sulfate in blueberries
P33	Justine Cox- <i>NSW DPI, Wollongbar Australia</i>	The relationship between moisture content of soilless media and floral nectar in potted southern highbush blueberry
P34	David Leon- <i>Mayorazgo-Ate- Lima Lima, Peru</i>	Comparison of methods for applying boron fertilizers in northern highbush blueberry

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P35	Pauliina Palonen- <i>University of Helsinki, Finland</i>	Winter hardiness of highbush blueberry cultivar Arto as affected by high tunnel cultivation
P36	Anne Hykkerud – <i>Tromsøe, Norway</i>	Effect of temperature on growth and quality of clones of <i>Vaccinium myrtillus</i>
P37	Bernadine Strik – <i>Department of Horticulture, Corvallis Oregon, United States of America</i>	Revised leaf tissue nutrient sufficiency standards for northern highbush blueberry in Western Oregon
P38	Maty Diop - <i>6- 300, avenue giguere, Quebec Quebec, Canada</i>	Use of symbiotic microorganisms to improve growth, productivity and quality of cranberries grown in Quebec
P39	Yong-Jiang Zhang - <i>5735 Hitchner Hall, RM261, University of Maine, Orono Maine 04469, United States of America</i>	Impacts of warming on wild blueberry physiology, pest pressure and yield

Technical Session 5: Pest Management

P40	Seanna Annis- <i>University of Maine, Orono Maine, United States of America</i>	Potential effects of insects on survival of <i>Monilinia vaccinii-corymbosi</i> pseudosclerotia
P41	Simon Morvan- <i>Institut de Recherche en Biologie Vegetale, University of Montreal, Sherbrooke Quebec, Canada</i>	Effect of thermal pruning on wild lowbush blueberry (<i>Vaccinium angustifolium</i> Ait.) and its environment
P42	Joel Abbey- <i>Dalhousie University, Faculty of Agriculture, Truro Nova Scotia, Canada</i>	Potential use of biofungicides for the control of Botrytis blossom blight and Septoria leaf spot in wild blueberry fields
P43	Walter Apaza-Tapia- <i>Universidad Nacional Agraria La Molina, La Molina Lima, Peru</i>	Effect of different fungicides on the control of <i>Lasiodiplodia theobromae</i> causal agent of dieback in blueberries in the Chavimochic irrigation project in Peru
P44	Daniel Kirschbaum- <i>INTA Famailla, Tucuman, Argentina</i>	Parasitoids associated with the invasive pest <i>Drosophila suzukii</i> (Diptera: Drosophilidae) in Argentina and their potential role as biological control agents in blueberry orchards
P45	Austin Lloyd- <i>Dept. Plant, Food and Environmental Sciences, Dalhousie University, Truro Nova Scotia, Canada</i>	Soil microbiome of lowbush blueberries under fungicidal management
P46	Alberto Pedreros - <i>Av Vicente Méndez 595, Chillan, Chile, Chillán, Chile</i>	Organic management of weeds in blueberry production in a volcanic soil of Chile

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Technical Session 6: Berry Composition and Postharvest Attributes

P47	Edgar Vinson - <i>Auburn University, Dept. Of Horticulture, 101 Funchess Hall, Auburn, AL 36849, United States of America</i>	Incidence of Spotted Wing Drosophila Infestation in Blueberries in Alabama
P48	Hugh Lyu - <i>50 Pictou Road, Bible Hill B2N 2R8, Canada</i>	Weed survey of Nova Scotia wild blueberry (<i>Vaccinium augustifolium</i> Ait.) fields
P49	Priyanka Trivedi- <i>University of Oulu, Taidonkari 1, D8, Oulu, Finland</i>	Composition, biosynthesis and effect of environmental factors on the cuticular wax of bilberry fruit (<i>Vaccinium myrtillus</i>)
P50	Kjersti Aaby- <i>Nofima, The Norwegian Food Research Inst., Osloveien 1, 1430 Aas, Norway</i>	Evaluation of extraction methods for determination of phenolic compounds, organic acids and sugars in lingonberries (<i>Vaccinium vitis-idaea</i>)
P51	Adrian Berry, <i>University of Florida, 2550 Hull Rd, Gainesville FL 32611, United States of America</i>	Pulp temperature at impact affects southern highbush blueberry fruit quality
P52	Travis Esau- <i>Dalhousie University, Faculty of Agriculture, Truro Nova Scotia, Canada</i>	Performance of a soft sorter for removing overripe and damaged wild blueberries during processing
P53	Giverson Mupambi- <i>East Wareham Maine, United States of America</i>	Aminoethoxyxvinylglycine (AVG) does not improve fruit firmness of `Stevens` and `Howes` cranberry
P54	Lara Giongo- <i>Fondazione Edmund Mach, San Michele aA, Italy</i>	Endogenous ethylene production plays an important role in blueberry fruit quality and storability
P55	Pedro Bras Oliveira - <i>INIAV, I.P., Av.da República, Nova Oeiras, 2784-505 Oeiras, Portugal</i>	Effects of hot air treatment and storage temperature on `Camarinha` (<i>Corema album</i> (L.) D. Don) postharvest quality
P56	Taishan Li - <i>Room 425, Lab of Pomology, Kyoto University, Nougakubusougouk, Kyoto, Japan</i>	Effects of 5-AzaC, an inhibitor of DNA methyltransferase, on blueberry fruit development and ripening