



NARBA

North American Raspberry & Blackberry Association

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North American Raspberry & Blackberry Conference

March 3-6, 2020

St. Louis, Missouri



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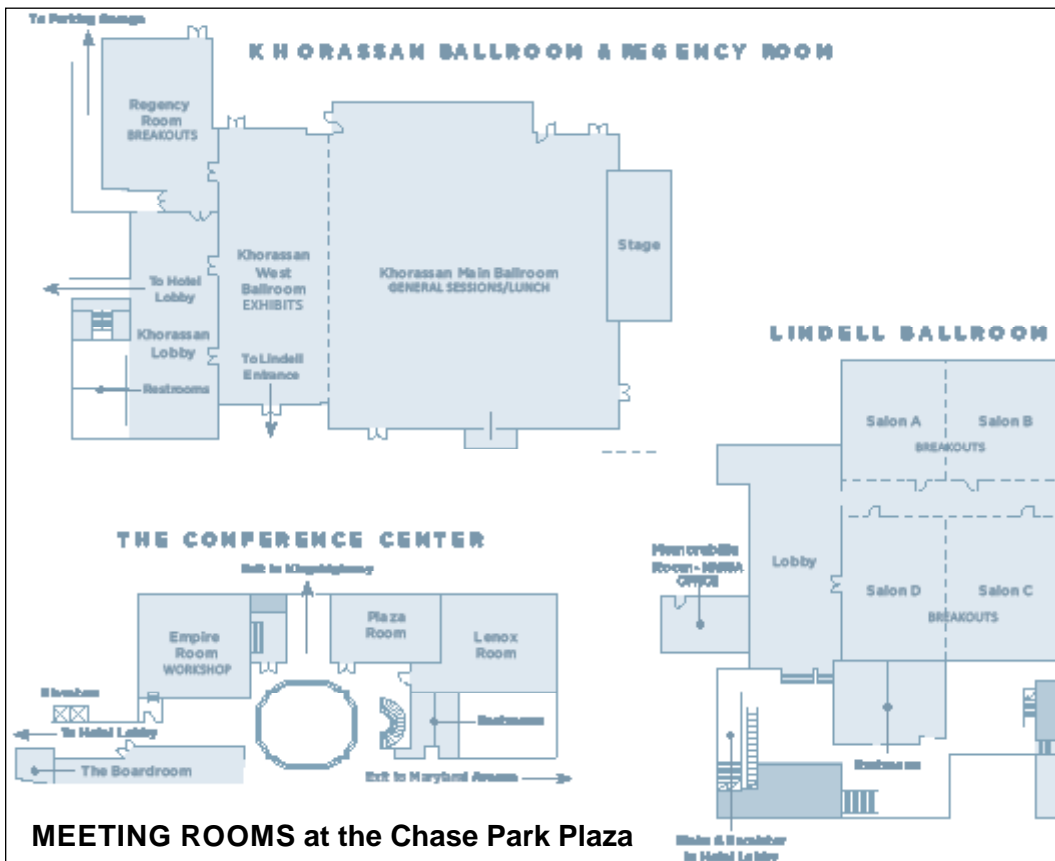


Contact information for all sponsors and exhibitors is listed on pages 16-17.

Program Planning Committee

Jill Bushakra, Patrick Byers, Chris Eckert, Jim Jedele, Amanda McWhirt, Tom O'Brien, Marilyn Odneal, Fumi Takeda, Margaret Worthington, and Debby Wechsler.

Thank you also to all speakers, moderators, helpers, and volunteers.



MEETING ROOMS at the Chase Park Plaza



Restaurants and shops

The Central West End neighborhood has lots to choose from! Consult the Chase Park Plaza's concierge for recommendations and directions.

More information: explorestlouis.com/things-to-do/neighborhoods/central-west-end/ and the map emailed to registrants pre-conference.

Visit the Arch!

Open 9:00 am – 6:00 pm daily. It's 15 minutes away by car or you can take the MetroLink train from the Central West End stop (about a 10-15 minute walk at each end).

TUESDAY, MARCH 3

- 2:00-7:00 **REGISTRATION** Chase Park Plaza Lobby
- 1:00-5:00 **WORKSHOP: Fundamentals of Caneberry Production** Empire Room *By pre-registration only.*
- 3:00-6:00 **NARBA Executive Council Meeting** Plaza Room
- 6:00 pm **OPENING RECEPTION** Zodiac Room
The History of St. Louis Agriculture – Valerie Mertz

WEDNESDAY, MARCH 4

- 8:30-5:30 **TOUR Meet in the Khorassan Ballroom Lobby at 8:15 to board the buses.**
By pre-registration only. The tour visits North Bay Produce Distribution Center, Eckert's Orchards, the Danforth Plant Science Center, and Anheuser Busch Brewery. We will have the opportunity to socialize in their Biergarten at the end of tour.
- 8:00-11:00 **HOSPITALITY ROOM** Room #346 – Join other attendees for refreshments and informal conversation. A hotel room key will be needed to access this floor.

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THURSDAY MORNING, MARCH 5

See the Schedule-at-a-Glance on the centerfold to see how breakout tracks fit together. Find contact information for all presenters on pages 12-15.

- 7:30-9:00 **REGISTRATION** Chase Park Plaza Lobby
- 7:30-9:00 Continental breakfast and visit with exhibitors
Khorassan West Ballroom

9:00-11:00 **GENERAL SESSION** Khorassan Main Ballroom
Changing Climate Conditions: Impacts for Caneberry Production – Doug Kluck, NOAA and Dennis Todey, USDA Midwest Climate Hub

Caneberry Market Update and Outlook – Roland Fumasi, RaboResearch

10:45-11:00 **Break**

11:00-12:15 **BREAKOUT SESSIONS** in three rooms
Go to the sessions of your choice. Talks in the rooms start/end at different times; just move quietly if you change rooms.

Regency Room – Cultivars & Breeding

11:00 **Opportunities and challenges for caneberry variety development in northern production areas** – Courtney Weber, Cornell University

11:20 **Ponca and Caddo: New blackberries from Arkansas** – John R. Clark, University of Arkansas

11:40 **How new PNW blackberry and raspberry cultivars will bring happiness to your farm!** – Mary Peterson, USDA-ARS, Corvallis, OR

12:00 **Open discussion** on cultivars and breeding

Lindell Ballroom C & D – Plant Management

11:00 **Irrigation and soil water monitoring in blackberry and raspberry** – David Bryla, USDA-ARS, Corvallis, OR

11:25 **Digging into soil health: How to build and maintain soil productivity for caneberries** – Amanda McWhirt, University of Arkansas

11:50 **Nutrient needs for double cropping systems: A two-year survey of leaf nutrients in single- and double-cropping blackberries** – Gina Fernandez, NC State University

Lindell Ballroom A & B – Farm & Family

11:00 **Building resilience and sustainability: Facing the challenges of climate change** – Panel/roundtable discussion – Doug Kluck, NOAA; Dennis Todey, USDA Midwest Climate Hub; Fred Koenigshof, K&K Farm (MI); Chris Eckert, Eckert Farms (IL)

THURSDAY AFTERNOON, MARCH 5

12:15-2:00 pm **LUNCH** Khorassan Main Ballroom
Lunch is included in the registration for all attendees.

NARBA annual meeting – Chaired by NARBA President Pierson Geyer

Remembering Chad Finn – Bernadine Strik



Please share your photos and comments from the conference on social media: **#NARBAconference**

2:00-5:00 **BREAKOUT SESSIONS** in three rooms

Regency Room – Pest and Disease

2:00 **Pests in a changing climate: What to expect when the weather is unexpected** – *Hannah Burrack, NC State University*

2:20 **Making pest management decisions** – *Donn Johnson, University of Arkansas (retired)*

2:45 **Status of broad mite management** – *Donn Johnson, University of Arkansas (retired)*

3:00-3:15 **Break**

3:15 **From pre-plant to re-plant: How to manage parasitic nematodes in raspberry** – *Lisa DeVetter, Washington State University*

3:45 **A decade in: What we've learned about SWD, the new key pest of caneberries** – *Hannah Burrack, NC State University*

4:15 **Optimizing a food-grade attractant to arrest SWD dispersal** – *Gabriella Tait, Oregon State University*

4:35 **Pesticide residue degradation and MRLs for 29 caneberry fungicides, insecticides, and miticides** – *Joe DeFrancesco, Oregon State University*

Lindell Ballroom C & D – Plant Management

2:00 **Best fertilizer practices for blackberries and raspberries: How to assess and plan** – *Bernadine Strik, Oregon State University*

2:45 **Management of primocane vigor of blackberry with plant growth regulators: Effects on primocane and florican development** – *Gina Fernandez, NC State University*

3:00-3:15 **Break**

3:15 **Trellis and training systems for northern states and for primocane-fruiting blackberries** – *Fumi Takeda, USDA-ARS, Kearneysville, WV*

3:50 **Substrate caneberry production: Adopting the European model** – *Ellen Thompson, Pacific Berry Breeding, Watsonville, CA*

4:15 **Growing brambles in high tunnels: Be prepared for something different!** – *Laura McDermott, Cornell University*

PROCEEDINGS of the conference (primarily pdf files of the presentations) will be posted online at the NARBA website. All registered conference attendees will be sent information by email about how to access the files. To request to receive Proceedings on CD instead, or make sure we have your email, please visit the registration table.

Lindell Ballroom A & B – Farm & Family / Genetics/ Resources

2:00 **Estate planning: You'd berry be ready!** – *Connie Haden, The Law Firm of Haden & Colbert; Brian Butler, Butlers Orchard, MD, and discussion*

3:15 **The wonderful world of caneberries: The USDA germplasm system and Rubus resources** – *Jill Bushakra, National Clonal Germplasm Repository*

3:40 **A unique collaboration that will increase access to new caneberry varieties** – *Cherie Oldenfield, Pairwise*

4:05 **Finding online resources: The NARBA website and more** – *Tom O'Brien, O'Brien Family Farm; Debby Wechsler, NARBA; Jill Bushakra, NARBA*

5:30-6:30 **POSTER SESSION Lindell Ballroom Lobby**

5:30-6:30 **Young Growers Gathering Lindell A & B**
All young growers, researchers, and others are invited to gather for an informal roundtable discussion, potentially adjourning to a nearby restaurant afterwards. Led by Pierson Geyer, Agriberry Farm & CSA

5:30-6:30 **North American Bramble Growers Research Foundation Research Committee meeting – Room #346 (Hospitality Room)**

6:30 – **DINNER ON YOUR OWN** *The concierge at the Chase can provide suggestions and directions.*

HOSPITALITY ROOM Room #346 *Join other attendees for refreshments and informal conversation.*

FRIDAY, MARCH 6

7:30-8:30 am **Registration Khorassan West**

7:30-8:30 am **Continental breakfast and visit with exhibitors Khorassan West Ballroom**

7:30-8:30 am **Check-back session Lindell A & B**

For workshop participants and others. A chance to ask the questions you've developed at the conference but haven't had a chance to ask. Led by Amanda McWhirt, University of Arkansas and Patrick Byers, Missouri State University. with a panel of other resource people

7:30-8:30 am **NARBA Executive Council meeting Empire Room**

8:30-10:00 **GENERAL SESSION Khorassan Main Ballroom**

Sehr Schöne Beeren! Caneberry production in Germany and Switzerland – *Lisa DeVetter, Washington State University*

You spoke, we listened: Stakeholder-identified priorities for research and extension in the US blackberry industry – *Margaret Worthington, University of Arkansas*

Tools for your wellness toolbox in times of farm stress – *Sean Brotherson, North Dakota State University*

10:00-10:15 **Break**

10:15-12:00 **BREAKOUT SESSIONS** in three rooms

Regency Room – Fruit & Flavor

10:15 **Bacteria, viruses, parasites: Key takeaways from past outbreaks to reduce food safety risks in caneberries** – *Connie Fisk, Produce Safety Alliance*

11:00 **New guidance for inspection of blackberries: Red drupelet disorder**– *Olivia Banks, USDA Agricultural Marketing Service, Fredericksburg, VA*

11:30 **Progression of flavor development in fruit** – *John R. Clark, University of Arkansas*

Lindell Ballroom C & D – New Products & Technology

10:15 **Emergence of new technologies: Progress and challenge in SWD management** – *Gabriella Tait, Oregon State University*

10:25 **Use of drone technology for spotting issues with plant diseases and water deficits** – *David Bryla, USDA-ARS, Corvallis, OR*

10:35 **PhylloLux technology: A new non-chemical crop protection strategy** – *Fumi Takeda, USDA-ARS, Kearneysville, WV*

10:45 **Preventing crown gall in caneberries** – *Wayne McBride, AgBioChem*

10:55 **Improved soil biology will improve fruit quality** – *Lawrence Alberty, American BioChar Company*

11:05 **AI in the raspberry and blackberry industry: Machine inspection in seconds with higher accuracy** – *Brian Mellea, AgShift, Inc.*

11:15 **Glucopro® growth regulator** – *Arthur Nonomura, BRANDT iHammer*

11:25 **Cold storage efficiencies and drain collection for substrate farming** – *Mike Schmidt, PlantLogic*

Lindell Ballroom A & B – Farm & Family

10:15 **More tools for your wellness toolbox in times of farm stress:** A follow-up discussion to the general session and additional topics – *Sean Brotherson, North Dakota State University, and Karen Funkenbush, Missouri AgrAbility Project*

11:00 **What really works: Best ideas for pick-your-own operations:** Panel and roundtable discussion. Topics include: Rotating trellis and its impact on PYO and Food safety issues for PYO – *Jerry Hearn, Eckert Farms, Connie Fisk, Produce Safety Alliance, others.*

NARBA CONFERENCE PROGRAM ENDS

Thank you for coming! Enjoy the rest of your stay in St. Louis and have a safe trip home.

1:30-5:00 **Blackberry Planning Meeting Lindell C & D**
By invitation only

8:00-11:00 **HOSPITALITY ROOM – Room #346** Lots of people are staying over Friday night! Join other attendees for refreshments and informal conversation.

SATURDAY, MARCH 7

8:00-4:00 **Blackberry Planning Meeting Lindell C & D**
By invitation only

NARBA NOTICES

WELCOME NEW NARBA MEMBERS!

The North American Raspberry & Blackberry Association welcomes the many new members attending this conference. Please talk to our staff and board members at this meeting to learn more about our organization – and learn how you can become involved and get greater benefit from your membership and the network you are now part of.

NOT A MEMBER?

Join today! Ask at the registration table. A portion of your non-member registration fee may be applied to the membership fee if you join at the conference.

IF RESEARCH IS IMPORTANT TO YOU...

Support the North American Bramble Growers Research Foundation. The NABG Research Foundation receives donations and makes grants to raspberry and blackberry research. It is closely allied with NARBA. Since 1999, NABGRF has funded a total of \$267,088 to 104 projects. The Foundation's Research Committee meets at this conference to evaluate the proposals for funding in 2020.

Your support can help assure that important raspberry and blackberry research is funded. Grants from the Foundation also help researchers leverage funds from state/federal sources. To make a donation, visit the registration table, contact the NARBA office after the conference, or donate at our website.

The following are major donors for this funding year:

Nourse Farms	Indiana Berry & Plant Co.
Driscolls	North American Plant Co.
Northwest Plants	Naturipe Berry Growers

All donations are much appreciated!

Mark Your Calendar for NARBA's Next Conference

February 22-25, 2021

Gaithersburg, Maryland (near Washington, DC)

Several excellent member farms and the USDA Agricultural Research Service-Beltsville campus are nearby. As well as our usual topic areas, the conference will include a focus on national policy and regulation issues. Attendees will have the opportunity to learn how to lobby and to visit their congressional offices on Capitol Hill. We hope to see you there!

Contact NARBA if you have program suggestions or would like to help plan the conference.

SCHEDULE AT A GLANCE

Session titles below are abbreviated. Find full titles and names of speakers on pages 4-9. Note that presentations in the three breakout rooms sometimes start and stop at different times. It's fine to switch rooms; just enter and leave rooms quietly.

TUESDAY, MARCH 3		
12:00-6:00 pm	REGISTRATION Chase Park Plaza Lobby	
1:00-5:00	WORKSHOP: Fundamentals of Caneberry Production Empire Room	3:00-6:00 pm NARBA Executive Council Meeting Plaza Room
6:00 pm	OPENING RECEPTION & REGISTRATION Talk on the History of St. Louis Agriculture Zodiac Room	
WEDNESDAY, MARCH 4		
8:30 am -5:30 pm	TOUR Meet in the Khorassan Ballroom lobby at 8:15 to board the buses. Buses will leave at 8:30.	
8:00 pm-11:00 pm	Hospitality Room Room #346	
THURSDAY, MARCH 5		
7:30-9:00 am	REGISTRATION Chase Park Plaza Lobby	
7:30-9:00	Continental breakfast and visit with exhibitors Khorassan West Ballroom	
9:00-10:45	GENERAL SESSION Khorassan Main Ballroom • Changing Climate Conditions: Impacts for Caneberry Production • Caneberry Market Update & Outlook	
10:45-11:00	Break	
11:00-12:15	BREAKOUT SESSIONS IN THREE ROOMS, AS BELOW	
Regency Room – Cultivars & Breeding	Lindell C & D – Plant Management	Lindell A & B – Farm & Family
11:00 Cultivar updates northern production areas 11:20 New Ponca and Caddo blackberries 11:40 Blackberry & raspberry cultivars from the PNW 12:00 Open discussion of cultivars/breeding	11:00 Irrigation and soil water monitoring 11:25 Digging into soil health 11:50 Nutrient needs for double cropping	11:00 Building resilience and sustainability, facing the challenges of climate change – Panel/roundtable
12:15-2:00	LUNCH NARBA annual meeting / remembrance of Chad Finn / Award presentation Khorassan Main Ballroom	
2:00-5:00	BREAKOUT SESSIONS IN THREE ROOMS, AS BELOW	
Regency Room – Pest & Disease	Lindell C & D – Plant Management	Lindell A & B – Farm & Family/Genetics
2:00 Pests in a changing climate 2:20 Making pest management decisions 2:45 Status of broad mite management	2:00 Best fertilizer practices 2:45 Management of primocane vigor	2:00 Farm transition & estate planning
3:00-3:15	Break	
3:15 Managing parasitic nematodes in raspberry 3:45 Ten years in: What we've learned about SWD 4:15 A food-grade attractant to arrest SWD 4:36 Residue decline curves and MRLs	3:15 Trellis & training systems for blackberries 3:50 Substrate caneberry production 4:15 Growing brambles in high tunnels	3:15 USDA Rubus germplasm resources 3:40 Collaboration to increase access to caneberry varieties 4:05-5:00 Finding online resources
5:30-6:30	Research Foundation Meeting Room #346	Poster session Lindell Ballroom Lobby and refreshments; cash bar
8:00 pm-11:00	Hospitality Room Room #346	
FRIDAY, MARCH 6		
7:30-8:30 am	Registration and continental breakfast; visit with exhibitors Khorassan West Ballroom	
7:30-8:30 am	Check-back Q & A session Lindell A & B	NARBA Executive Council meeting Empire Room
8:30-10:00 am	GENERAL SESSION Khorassan Main Ballroom • Caneberry production in Germany and Switzerland • Stakeholder-identified priorities for research and extension in the U.S. blackberry industry • Tools for your wellness toolbox in times of farm stress	
10:00-10:15	Break	
10:15-12:00	BREAKOUT SESSIONS IN THREE ROOMS, AS BELOW	
Regency Room – Fruit & Flavor	Lindell C&D – New Products & Technology	Lindell A & B – Farm & Family
10:15 Reducing food safety risks 11:00 Inspection of blackberries: Red drupelet 11:30 Progression of flavor development	Multiple short presentation. See page 8 for details	10:15 More tools for your wellness toolbox in times of farm stress - Panel/Roundtable 11:00 Best ideas for PYO - Panel/Roundtable
1:30-5:00 pm	Blackberry Planning Meeting <i>By Invitation Only</i> Lindell C & D	
8:00 pm-11:00	Hospitality Room open Room #346	
SATURDAY, MARCH 7		
8:00-4:00	Blackberry Planning Meeting <i>By invitation only</i> Lindell C & D	

CONFERENCE PRESENTERS

Lawrence Alberty recently joined American BioChar Company after personally working with its soil amendment product in his orchards, where he observed first-hand the results of increased fruit production and overall health of his plants. He has a science-based background and has worked with internationally recognized companies. Contact: info@ambiochar.com, 269-663-2224.

Olivia Banks works for the USDA Agriculture Marketing Service in the Specialty Crops Inspection Division, Specialty Crops Program in Fredericksburg, VA, as an agriculture marketing specialist. She works with stakeholders to develop, revise, and maintain U.S. Standards for Grade of fresh fruits and vegetables and develops inspection instructions and visual aids to assist with interpretation of the standards. Contact: Olivia.Banks@ams.usda.gov, 540-361-2743.

Sean Brotherson is a Professor and Extension Family Life Specialist with North Dakota State University in Fargo, ND. He has conducted research and developed educational resources and programs on marriage, parenting, rural stress, grief and bereavement, and other family-related topics and he has authored numerous publications in the area of farm stress, such as *Farming and Ranching in Tough Times*. Contact: Sean.Brotherson@ndsu.edu, 701-231-6143.

David Bryla is a Research Horticulturist at the USDA-ARS Horticultural Crops Research Unit in Corvallis, Oregon. He has been conducting research on berry crops since 2003 and is working on ways to improve water and nutrient management of these crops. Contact: David.Bryla@usda.gov, 541-738-4094.

Hannah Burrack is a professor in the Department of Entomology and Plant Pathology at NC State University where she develops strategies to manage the pests and pollinators of specialty crops, including berries, tobacco, and industrial hemp. Contact: hjburrac@ncsu.edu, 919-513-4344, www.entomology.ces.ncsu.edu

Jill Bushakra is the crop curator for the *Rubus* and *Ribes* living collections at the USDA National Clonal Germplasm Repository in Corvallis, OR. She has been involved in the small fruits community since 2005 working with strawberries and caneberries. She is serving as NARBA's Conference Program Coordinator for this conference. Contact: Jill.Bushakra@usda.gov, 541-738-4219.

Ben Butler is the Farm and Finance Manager at Butler's Orchard, a 300-acre diversified, third-generation farm, in Germantown, MD. He represents the Mid-Atlantic region on the NARBA Executive Council. Contact: Ben@butlersorchard.com, 301-943-0721.

Patrick Byers is the Commercial Horticulture Field Specialist with University of Missouri Extension, in Marshfield, MO, serving six counties in southwest Missouri. His responsibilities include advising fruit and vegetable farmers to support sustainability and profitability, and produce food safety. Contact: byerspl@missouri.edu, 417-859-2044, http://extension.missouri.edu/webster.

John R. Clark is a Distinguished Professor of horticulture at the University of Arkansas, Fayetteville. Since joining the University of Arkansas fruit breeding program in 1980 he has worked on blackberries, table grapes, wine and muscadine grapes, blueberries, and peaches/nectarines. He was the 2012 recipient of NARBA's Distinguished Service Award. Contact: JRClark@uark.edu, 479-575-2810.

Joe DeFrancesco is an Assistant Professor, Senior Research, at Oregon State University where he has conducted pest management research for the past 34 years. Until recently, he was Director of the Specialty Crops Research and Registration Program at OSU and, in cooperation with the national IR-4 Program, conducted field trials in a variety of crops to provide pesticide residue data to the US-EPA in support of pesticide registrations. Contact: defrancj@science.oregonstate.edu, 541-737-0718.

Lisa DeVetter is an Assistant Professor of Horticulture at Washington State University and leads the statewide small fruit horticulture research and extension program. The focus of her program is maximizing productivity, fruit quality, and on-farm efficiencies, while ensuring the health of natural resources critical for small fruit crop production in the region. Contact: Lisa.DeVetter@wsu.edu, 360-848-6124, https://smallfruits.wsu.edu.

Chris Eckert is the current President of Eckert's Country Store and Farms in Belleville, IL. Eckert's is a seventh-generation family farm that operates retail markets in Missouri and Illinois and pick your own/agritainment operations in Illinois and Kentucky. Eckert's produces over 600 acres of fruits and vegetables and is host to over 750,000 guests at their farms and stores each year. He serves as the central Midwest representative on the NARBA Executive Council. Contact: Chris.Eckert@eckerts.com, 618-233-0513.

Gina Fernandez is the John D. and Nell R. Leazar Distinguished Professor and a Professor/Extension Specialist in the Department of Horticultural Science at NC State University, Raleigh. She has worked in small fruit at NCSU since 1996 and is currently the caneberry extension specialist, and strawberry and caneberry breeder. She was the 2019 recipient of NARBA's Distinguished Service Award. Contact: Gina_Fernandez@ncsu.edu, 919-513-7416, www.ncsu.edu/project/berries.

Connie Fisk is the Northwest Regional Extension Associate for the Produce Safety Alliance. With a background in fruit production research and extension, she provides training and resources to help growers understand Good Agricultural Practices and how to comply with the Food Safety Modernization Act Produce Safety Rule. Contact: Connie.Fisk@cornell.edu, 541-250-6227.

Roland Fumasi is the Senior Analyst for fruit and vegetables for RaboResearch in Fresno, CA. Roland has a background in agribusiness research with international market development and finance experience in the agriculture industry. He was raised on a dairy and farming operation in the Sacramento Valley. Contact: Roland.Fumasi@rabobank.com, 559-447-7961, www.rabobank-america.com.

Connie S. Haden is a partner at the law firm of Haden & Colbert LLC in Columbia, Missouri, where she specializes in helping farm families plan for the next generation through customized farm and ranch estate planning. In her practice, Connie focuses on providing a full range of legal services to farmers, ranchers, and agricultural businesses. Contact: connie@showmelaw.com, 573-442-3535.

Donn Johnson recently retired from the entomology department at the University of Arkansas in Fayetteville, AR. He taught insect pest management and insect behavior, conducted entomology research and worked with extension to provide growers with pest management programs for pests of fruit and pecan. Contact: dtjohnso@uark.edu, 479-409-4628.

Doug Kluck is the Central Region Climate Services Director for the National Oceanic and Atmospheric Administration (NOAA), in Kansas City, MO. Doug's region covers 16 states from Colorado to Michigan. His activities include the interpretation or translation of complex and multi-faceted climate information, climate monitoring, and directing research. Contact: Doug.Kluck@noaa.gov, 816-994-3008.

Fred Koenigshof grew up on the family farm in Coloma, MI. He farms about 60 acres of red raspberries, black raspberries and blackberries. He also grows apples, pears, plums, and peaches. A past-president of NARBA, he was the 2017 recipient of NARBA's Distinguished Service Award. Contact: kandkfarms@sbcglobal.net, 269-208-6783.

Wayne McBride grows raspberries and blackberries in Utah. His company, Ag BioChem produces Galltrol, a product that helps prevent crown gall in caneberries and other fruit and ornamental crops. Contact: agbiochem9@gmail.com, 801-669-1957.

Laura McDermott is a regional berry specialist for Cornell University Cooperative Extension serving fresh market growers in 17 counties of eastern NY. Her work has focused on protected culture of berry crops including high tunnel raspberries, low and high tunnel strawberries and SWD exclusion netting with blueberries and raspberries. Contact: lgm4@cornell.edu, 518-746-2562.

Amanda McWhirt is an Assistant Professor in the Department of Horticulture at the University of Arkansas, Little Rock, and serves as Fruit and Vegetable Production Extension Specialist, working with commercial producers to improve the efficiency and productivity for these crops in the state. She was a co-leader of NARBA's caneberry production workshops in Savannah in 2019 and 2020. Contact: AMcwhirt@uaex.edu, 501-671-2229.

Brain Mellea is a business development executive with AgShift, Inc. Brian has spent over five years with agtech companies who provide Internet of Things (IoT) crop monitoring, enhanced fertilizer, vineyard yield prediction, and other solutions to the ag industry. Previously, he led product development and marketing for both major tech companies and over 15 startups. Contact: Brian@agshift.com, 650-814-1046, www.agShift.com

Valerie Mertz is a retired AP Biology teacher of 43 years, and currently serves as manager of The Fulton School farm program. She sits on the Missouri Farm Bureau's Promotion and Education Committee and is secretary of St. Louis County Farm Bureau. Contact: VBMertz@msn.com, 636-394-6330.

Arthur Nonomura is a co-founder of BRANDT iHammer. After earning his PhD from UC Berkeley, Arthur spent many years working as a scientist at one of the world's largest chemical companies; for three decades, he collaborated with Andrew Benson, a world-renowned biochemist and a leading expert in photosynthesis. Contact: Art.N@BRANDTiHammer.co, 623-225-5278, BRANDTiHammer.co.

Tom O'Brien is Southeast Region representative on the NARBA Executive Council and the president of OBrien Family Farms, Inc. in Coats, NC. Tom and his family planted six acres of blackberries (Natchez and Ouachita) on their small farm in March 2018 and had their first harvest in June 2019. Contact: obrientp@aol.com, 505-350-2121.

Mary Peterson is a Biological Science Technician with the USDA Agricultural Research Service in Corvallis, Oregon. She has

worked with Dr. Chad Finn managing caneberry breeding at the USDA-ARS/Oregon State University Cooperative Breeding Program for the past 19 years. Contact: Mary.Peterson@usda.gov, 541-738-4043.

Bernadine Strik is a Professor of Horticulture at Oregon State University where she is responsible for Extension programs for the commercial berry crop industries, research, and teaching. Her areas of expertise include whole plant physiology, pruning, plant nutrient management and conventional and organic production systems for improved yield and quality. She was the 2018 recipient of NARBA's Distinguished Service Award. Contact: Bernadine.Strik@oregonstate.edu, 541-737-5434.

Mike Schmidt has been the U.S. and Canada sales representative for Plantlogic LLC, since 2017. He is based in Yorba Linda, CA. Contact: Micheal.Schmidt@getplantlogic.com, 209-303-5658, www.getplantlogic.com

Fumiomi Takeda is a Research Horticulturalist for the USDA-ARS Appalachian Fruit Research Center in Kearneysville, WV. He directs the small fruit research program, conducting research on blackberry, blueberry and strawberry, and collaborating with colleagues with research interest and expertise in many areas. Contact: Fumi.Takeda@usda.gov, 304-725-3451.

Gabriella Tait is a research associate with Vaughn Walton at Oregon State University where she studies various aspects of spotted winged drosophila. One of their projects is implementation of a new technology for SWD management. Contact: Gabriella.Tait@oregonstate.edu, 541-829-0860.

Ellen Thompson is the Director of Plant Breeding and Research for Pacific Berry Breeding LLC in Watsonville, CA, a subsidiary of Hortifrut SA. She has released eight raspberry varieties and three blackberry varieties for Pacific Berry Breeding. Her work has included season extension of primocane fruiting blackberries and she works closely with growers on management practices. Contact: Ellen@pacificberrybreeding.com, 541-602-0449.

Dennis Today is the Director of the USDA Midwest Climate Hub in Ames, IA, which delivers actionable climate information for agriculture in an eight-state region over most of the Corn Belt. He has worked on regional climate services in the Missouri River Basin and Midwest for over a decade partnering with NOAA, Regional Climate Centers, state climatologists and extension and on issues of climate change impacts on all types of Midwest/Plains agriculture. Contact: Dennis.Today@usda.gov, 515-294-2013.

Courtney Weber is an Associate Professor and Horticulture Program Leader at Cornell University where he directs the small fruits breeding program (strawberry, black and red raspberry, and blackberry). He also works on the development of molecular tools to improve the efficiency of breeding new varieties, concentrating especially on disease resistance. He serves as the Northeast representative on the NARBA Executive Council. Contact: caw34@cornell.edu, 315-787-2395, www.hort.cals.cornell.edu

Margaret Worthington is an Assistant Professor at the University of Arkansas, Fayetteville. Her primary research interest is the development of improved peach, nectarine, and muscadine grape cultivars. She also leads research on fruit genetics and molecular breeding and is especially interested in the development of molecular tools and modern breeding methods which will accelerate genetic gain and strengthen cultivar development programs. Contact: mlworthi@uark.edu, 479-575-2122.

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POSTERS AT THE CONFERENCE

Posters are alphabetized below by title. Authors known to be attending are indicated in bold italic, and at least one email is provided. Abstracts and pdf images for posters will be included in the Proceedings if provided. Additional posters may be displayed that are not listed here.

A new food-grade behavior disruptor as a management tool for spotted wing drosophila

Marco Valerio Rossi Stacconi, Gabriella Tait, Vaughn Walton, Oregon State University, marco.stacconi@oregonstate.edu

Blackberry Advanced Breeding Line Trial: Bringing New Cultivars to NC

Karen Blaedow, Jeff Chandler, Gina Fernandez, and John Clark, NC State University, University of Arkansas, karen_blaedow@ncsu.edu

Effect of Harvest Time on Red Drupelet Reversion in Blackberry

Mitchell E. Armour, Margaret L. Worthington, and John R. Clark, University of Arkansas, mearmour@uark.edu

Effects of harvest time (7:00 AM and 12:00 PM) on postharvest quality of Arkansas fresh-market blackberries

M. Felts, R.T. Threlfall, J.R. Clark, and M.L. Worthington, University of Arkansas, Fayetteville, AR, rthrelf@uark.edu

Fruit Development in Blackberry Types and Cultivars – Impact of Days and Temperature from Bloom to Stages of Ripening

A.J. Vance, P.A. Jones, C.E. Finn, and B.C. Strik, Oregon State University, USDA-ARS, Horticultural Crops Research Unit, Corvallis, OR, bernadine.strik@oregonstate.edu

Mapping the Primocane-Fruiting Locus in Blackberry

Mitchell E. Armour, Margaret L. Worthington, Bode A. Olukolu, University of Arkansas, University of Tennessee, mearmour@uark.edu

Modifying cane architecture of primocane-fruiting blackberry with prohexadione calcium and summer pruning

Thomas M. Kon, Gina Fernandez, Penelope Perkins-Veazie, and Karen Blaedow, NC State University

Rapid Digital Imaging Approach for Screening Red Drupelet Reversion in Blackberry

T.M. Chizk, Margaret Worthington, John R. Clark, and Kenneth Buck, University of Arkansas, Fayetteville, AR, tmchizk@uark.edu

Rotating Cross-Arm™ Trellis: Impacts on Pest Occurrence in Blackberry

Erika Henderson, Amanda McWhirt, Jackie Lee, Renee Threlfall, and Taunya Ernst, University of Arkansas, eohender@uark.edu

Rubus genetic resources at the US National Clonal Germplasm Repository

J.M. Bushakra, N. Bassil, C.E. Finn, K.A. Carter, M. Driskill, C. Mulch, A. Nyberg, M. Peterson, J.D. Zurn and K.E. Hummer, Jill.Bushakra@usda.gov

Season extension of subtropical blackberry production by chemical induction of defoliation and bud break

Syuan-You Lin and Shinsuke Agehara, University of Florida, sagehara@ufl.edu

USDA-ARS/OSU Cooperative Breeding Program - Black Raspberries for Grower Trial

Chad E. Finn, Mary Peterson, Bernadine C. Strik, Pat Jones, USDA-ARS, Horticultural Crops Research Unit, Corvallis, OR, mary.peterson@usda.gov

USDA-ARS/OSU Cooperative Breeding Program - Fresh Market and Ornamental Blackberries for Grower Trial

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USDA-ARS/OSU Cooperative Breeding Program - Red Raspberries for Grower Trial

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USDA-ARS/OSU Cooperative Breeding Program - Trailing Blackberries for Grower Trial

Chad E. Finn, Mary Peterson, Bernadine C. Strik, Pat Jones, USDA-ARS, Horticultural Crops Research Unit, Corvallis, OR, mary.peterson@usda.gov

Using an online survey to determine consumer perceptions of fresh-market blackberries

R.T. Threlfall, A.N. Dunteman, J.R. Clark and M.L. Worthington, University of Arkansas, rthrelf@uark.edu

Using the relationship between fertilization practices, soil and plant nutrient status, and yield in caneberry grower fields to inform research and extension programs

P.A. Jones, A. J. Vance, and B.C. Strik, Oregon State University, bernadine.strik@oregonstate.edu

UV-C Irradiation Technology for Two-Spotted Spider Mite Control

B.D. Short, F. Takeda, W. Janisiewicz, and T.C. Leskey, USDA-ARS Fruit Research Center, Kearneysville, WV, Fumi.Takeda@usda.gov

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