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APS-MSA JOINT MEETING
PROGRAM

SCIENCE
EDUCATION

RESEARCH

NETWORKING



2013 APS • MSA
Joint Meeting
August 10–14
Austin, Texas

Mind the Gap

AgriStrip - Lateral flow tests

Complete kits for fast and easy use in field and greenhouse



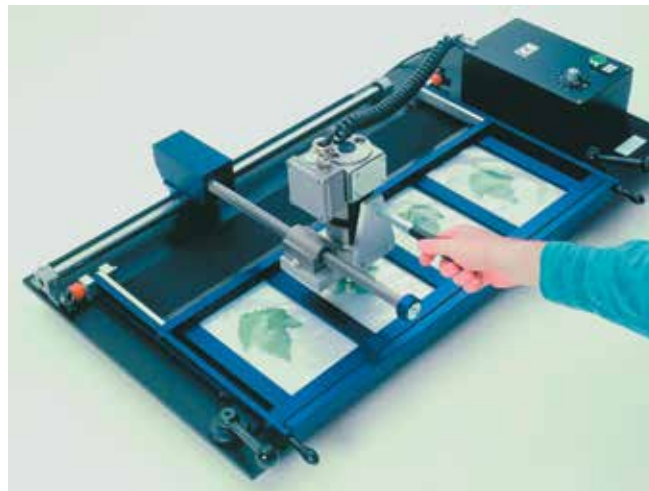
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Welcome

to the 2013 APS-MSA Joint Meeting



PRESIDENTS' WELCOME



On behalf of The American Phytopathological Society (APS) and The Mycological Society of America (MSA), we are thrilled to welcome you to Austin, Texas, U.S.A., for the 2013 APS-MSA Joint Meeting. This year's joint meeting offers a unique opportunity for our two premier biological science associations to share the latest advances, innovations, and discoveries with one another and explore new ways to collaborate. In today's ever-changing scientific world, embracing this spirit of discovery and collaboration has never been more important for our science. We hope throughout the course of this year's meeting that you will make the most of this time together to discuss critical issues in our science, network with your peers, and discover new methods and ideas.



This year's multidisciplinary scientific program is an exciting one, offering something for everyone with nearly 1,100 abstracts accepted, more than 45 technical sessions, nearly 25 special sessions, five field trips, multiple workshops and leadership opportunities, two plenary sessions (new this year!), and MSA's John Karling Lecture to choose from. Explore the science *and* get involved! Networking opportunities, socials, and committee meetings offer unlimited opportunities for the exchange of ideas and discussion, promoting future collaborations, partnerships, and global connections. Thank you for joining us at this year's joint meeting. We are so glad you are here!

Mike Boehm, APS President
Mary Berbee, MSA President

PROGRAM CHAIR WELCOME



As the Program Committee chair, it is my great pleasure to welcome you and thank you for joining us at the 2013 APS-MSA Joint Meeting. They say that everything is bigger in Texas, and this year's scientific program is no exception, offering an extensive array of scientific sessions and special events dedicated to the latest research and technological advances in plant pathology. Thanks to our partnership with The Mycological Society of America (MSA), you can also expect an extra infusion of mycological science as well.

This year's special sessions have been carefully selected to represent the interests of APS and MSA members and feature both hot topics and traditional topics in our science, such as food safety and biosecurity, cell biology and plant symbiosis, the world of fungi, and much more. Matched with an equally compelling variety of technical sessions, ranging from plant disease management to fungal molecular systematics and evolution to virus-host interactions, this year's stellar scientific program brings you face to face with the best and brightest scientists in our field.

There are several new features this year too, bringing more science and technology to attendees, including live streaming for the Opening General Session and both plenary sessions, PhytoFilms: APS's plant pathology-related film showcase, and complimentary web access to all recorded conference presentations after the meeting's conclusion. While not entirely new, our popular meeting app is back and better than ever, with enhanced features to keep you organized and help you capitalize on all the meeting has to offer.

In closing, I would like to extend a sincere thank you to the members of the APS-MSA Joint Meeting Program Board and to APS staff for their dedication and hard work over the past year in helping to make this meeting possible. Thanks are also due to the presenters, exhibitors, supporters, and the many volunteers for their contributions. Welcome to Austin and enjoy the meeting!

George Abawi, APS Program Chair and President-Elect

New Program Book Look, Again!

You asked, we listened, and this year we have a new program book look, taking the best features from the program guide and the program resource book from the last 3 years and combining them into one more-streamlined, four-color program book. We hope you find this format a convenient way to navigate the meeting. Also, check out the mobile app as a complete meeting resource guide.

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The American Phytopathological Society (APS)



is the premier society dedicated to high-quality, innovative plant pathology research. APS is driven by a distinctive community of scientists, whose energy and

commitment ensure the global advancement of this critical science. Members belong to receive cutting-edge scientific information and the best networking opportunities. Find out more at www.apsnet.org.

The Mycological Society of America (MSA)



was founded in 1932 and is a scientific society dedicated

to advancing the science of mycology—the study of fungi of all kinds, including mushrooms, molds, truffles, yeasts, lichens, plant pathogens, and medically important fungi.

U.S. Food Waste Challenge

On June 4, 2013 the U.S. Department of Agriculture (USDA), in collaboration with the U.S. Environmental Protection Agency (EPA) launched the U.S. Food Waste Challenge, calling on others across the food chain—including producer groups, processors, manufacturers, retailers, communities, and other government agencies – to join the effort to reduce, recover, and recycle food waste. APS supports this effort by working with the hotels and convention centers to donate food from APS meetings to food shelves in the local area.

Connect with Your Colleagues Get Social—

Share Your Meeting Experience

Connect with fellow attendees in the hallways, sessions, and events and then continue the discussion online! Share your meeting experience on **Twitter** with hashtag #APS13, start a discussion with our **LinkedIn** group, upload videos to www.youtube.com/plantdisease, pin to the **Pinterest** board at www.pinterest.com/plantdisease, and visit the APS **Facebook** page to add comments and photos.

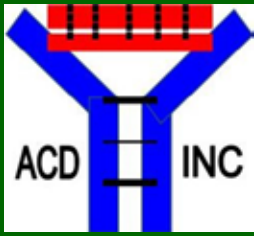


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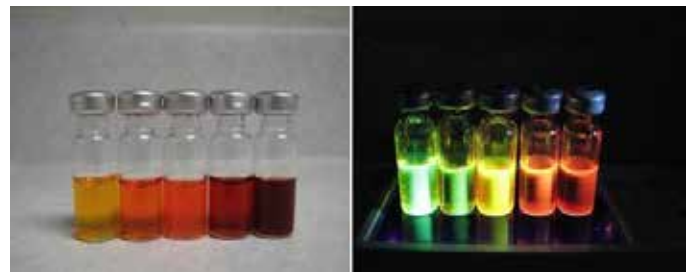
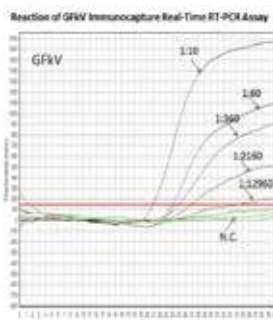
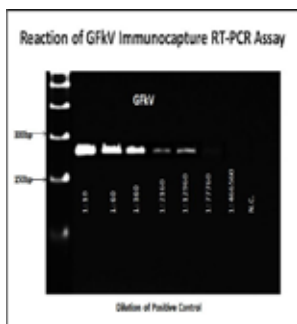
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Affordable Price

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Nano Products



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GENERAL INFORMATION

App into the 2013 Meeting! Mobile App— It Gets Better Every Year!

Connect Now to the Meeting!

Stay connected as you:

- Browse the program schedule, exhibitor list, posters, and general information
- Get the latest meeting announcements
- Select sessions from the Program Book to be added to your customized schedule or go to My Meeting and add customized schedule items
- Access session information, including full abstracts
- Add exhibitors to your to-do list
- Browse and connect with other attendees: send messages and make appointments with them from the app
- Access poster presenters' audio preview of their poster (Internet access required)
- Using an iPad, connect with your iPad-specific version

Get the app...it's free! Available for iOS (iPhone and iPad) and Android devices; Blackberry and Windows phone users have access to a mobile website that will offer the same functionality. Search the app store for APS 2013; Blackberry users go to mobileapp.apsnet.org.



Registration Hours

Hall 4 Foyer, Convention Center

Saturday, August 10	12:00 – 6:00 p.m.
Sunday, August 11	7:00 a.m. – 6:30 p.m.
Monday, August 12	7:00 a.m. – 5:30 p.m.
Tuesday, August 13	7:00 a.m. – 5:30 p.m.
Wednesday, August 14	7:30 a.m. – 1:00 p.m.

Exhibit and Poster Hours

Hall 4, Convention Center

Sunday, August 11

8:00 a.m. – 3:00 p.m.	Exhibit Set-Up
12:00 – 3:00 p.m.	Poster Set-Up
4:30 – 6:30 p.m.	Welcome Reception with Exhibition and Posters
4:30 – 8:00 p.m.	Poster Viewing

Monday, August 12

7:30 a.m. – 8:00 p.m.	Poster Viewing
10:00 a.m. – 6:00 p.m.	Exhibits Open
3:30 – 5:30 p.m.	Poster Viewing with Authors Present
	<i>If you are presenting two posters and they are scheduled during the same time period, please leave a note to indicate the other poster board where you can be found.</i>
3:30 – 4:30 p.m.	Posters 1 – 364 (even-numbered poster authors present)
4:30 – 5:30 p.m.	Posters 365 – 728 (even-numbered poster authors present)

Tuesday, August 13

7:30 a.m. – 6:00 p.m.	Poster Viewing
10:00 a.m. – 6:00 p.m.	Exhibits Open
3:30 – 5:30 p.m.	Poster Viewing with Authors Present
	<i>If you are presenting two posters and they are scheduled during the same time period, please leave a note to indicate the other poster board where you can be found.</i>
3:30 – 4:30 p.m.	Posters 1 – 364 (odd-numbered poster authors present)
4:30 – 5:30 p.m.	Posters 365 – 728 (odd-numbered poster authors present)
6:00 – 8:00 p.m.	New Time! Exhibit Take-Down

Wednesday, August 14

8:00 – 10:00 a.m.	Poster Take-Down
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Concession Service Available

Check the program addendum insert in your program book for concession hours and food options.

Open Meeting Room

A small meeting room for 10–12 people is available for use during the meeting at Hilton Austin Hotel. To check availability and location and to reserve a room, stop by the Registration Desk.



Texas State Capitol—ACVB Photo/ Frederica Georgia

Speaker Ready Room

11B, Convention Center

APS will again be recording scientific session presentations with author approval. A Speaker Ready Room is available for presenters to do the final loading of presentations and make any last-minute changes to presentations.

Saturday, August 10	4:00 – 8:00 p.m.
Sunday, August 11	7:00 a.m. – 7:00 p.m.
Monday, August 12	7:00 a.m. – 5:30 p.m.
Tuesday, August 13	7:00 a.m. – 5:30 p.m.
Wednesday, August 14	7:00 a.m. – 12:00 p.m.

Create Talent Connections

It's all about networking when it comes to a job/candidate talent search. This joint meeting is the perfect venue for making these critical connections. Start off by posting copies of your job/candidate information on the Job Board by registration. A one-on-one opportunity is also available on Monday, August 12, during the Early Career Professionals' Social, where candidates can hear first-hand from employers about various opportunities. Don't forget, the APSnet Job Center provides access to the most recent jobs and candidates year-round.

Support Global Awareness with a Silent Auction Bid!

A marvelous selection of items from around the world will again be available at this year's Silent Auction, with proceeds directed to the APS Office of International Program's Global Experience Program. Support this effort with your bids on Sunday, August 11, from noon to 6 p.m.



Create Possibilities for Plant Pathology with the APS Foundation

Make sure to stop by the APS Foundation booth in the registration area, and learn about the latest initiatives where your donations are creating possibilities for plant pathology! New this year, all students who donate \$20 or more will be entered in a drawing for the chance to win a \$500 travel grant for next year's meeting. It's a win-win opportunity; make sure to make your donation during the meeting!

See What's New and On Sale in the APS PRESS Bookstore!



Check out the new editions of the *Compendium of Sweetpotato Diseases, Pests, and Disorders* and the *Handbook of Turfgrass Insects* and the English edition of *Diseases, Pests and Beneficial Organisms of Strawberry, of Raspberry, and Blueberry*. New releases of *Fungicides for Field Crops, Tomato Health Management*, and *Pests of Ornamental Trees, Shrubs and Flowers* are all discounted in Austin. **Educators!** Please stop by the

APS PRESS Bookstore and learn how to use the *Hungry Planet: Stories of Plant Diseases* Kindle Edition in your courses in conjunction with the APSnet Education Center! If you have a book or product idea, APS PRESS wants to hear about it and can help you publish your work and make it known to plant pathologists worldwide. Check out the new t-shirts early for the best selection.

Photo Release

Photographs will be taken during the meeting. By registering for this meeting, you agree to allow APS to use your photo in any of its publications or on its website and membership materials.

Dress

The official dress for the meeting is business casual.

Meeting Facilities

Austin Convention Center

500 East Cesar Chavez Street, Austin, TX 78701
512.404.4000

Hilton Austin

500 East 4th Street, Austin, TX 78701
512.482.8000

Hyatt Place

211 East 3rd Street, Austin, TX 78701
512.476.4440

Courtyard by Marriott and Residence Inn

300 East 4th Street, Austin, TX 78701
512.236.8008

Offsite Venues

MSA Student Mixer

Monday, August 12, 6:00 – 7:00 p.m.
Max's Wine Dive
207 San Jacinto Blvd. Austin, TX 78701

Industry & Extension Social—The Roaring Twenties

Monday, August 12, 6:30 – 9:30 p.m.
Speakeasy
412 Congress Avenue, Austin, TX 78701

Committee for Diversity and Equality presents "Networking: Take the Lead!"

Tuesday, August 13, 5:30 – 7:30 p.m.
Micheladas Restaurant
333 E. 2nd St, Austin, TX 78701

MSA Volunteer Reception

Tuesday, August 13, 6:00 – 7:00 p.m.
Max's Wine Dive
207 San Jacinto Blvd., Austin, TX 78701

Safety Tips

Do not travel alone—stay in groups and travel in well-lit areas. **Remove name badges when outside the hotel or Convention Center unless you are participating in a meeting event.**

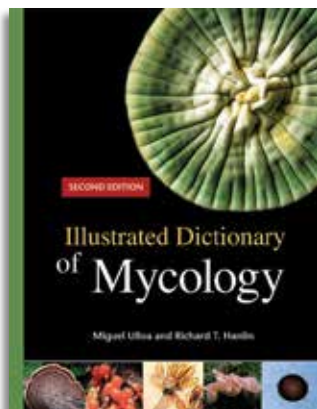
- Do not give your room number out to anyone you do not know and avoid giving out your room number in conversations where strangers may hear you talking.
- Bolt your hotel room door and only open it when you know who is on the other side. (Note: Hotel personnel wear uniforms and have identification badges. If in doubt, call hotel security to verify an employee's identity.)
- Do not leave your door ajar if you are going down the hall for ice. Someone may enter when you are not looking.
- Know where the stairs are located in case of a fire (do not use elevators). Also count the number of doors to the nearest exit in case you cannot see in a smoke-filled hallway.
- Valuables, airline tickets, and money should be kept in a hotel safety deposit box or in a room safe, if available.

Procedures in Case of a Fire

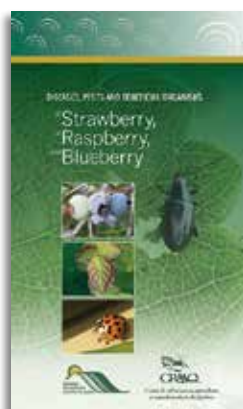
- Try to leave the hotel as quickly as possible. If you cannot, stay in your room and call the operator or security to let them know you are in your room.
- Put your hand on the room door to see if it is hot before opening it. If it is, do not open it quickly. Open it just a crack to see what is on the other side and be prepared to slam it shut quickly if necessary.
- If you leave the room, take your room key with you! Shut your room door to keep smoke out. You may have to return if the exit is blocked. Remember the way back to your room as you go to the exit in case you need to return.
- If necessary, drop to your knees to avoid smoke. Tie a wet towel around your nose and mouth to act as a smoke filter. Fold it into a triangle and put the corner in your mouth.
- Do not take the elevator when you smell smoke or if you know that there is a fire in the building.

NEW

and on SALE!



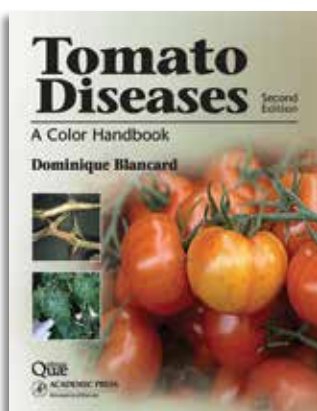
Illustrated Dictionary of Mycology,
Second Edition



Diseases, Pests, and
Beneficial Organisms of
Strawberry, Raspberry,
and Blueberry

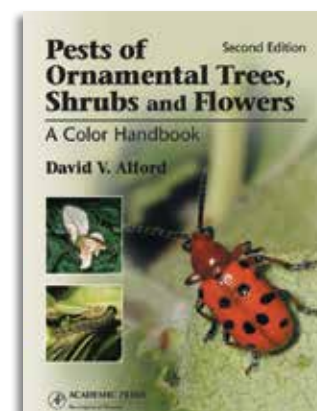


Handbook of Turfgrass Insects,
Second Edition



Tomato Diseases: A Color Handbook,
Second Edition

SAVE BIG
on Every
APS PRESS Title
in the Exhibit Hall!

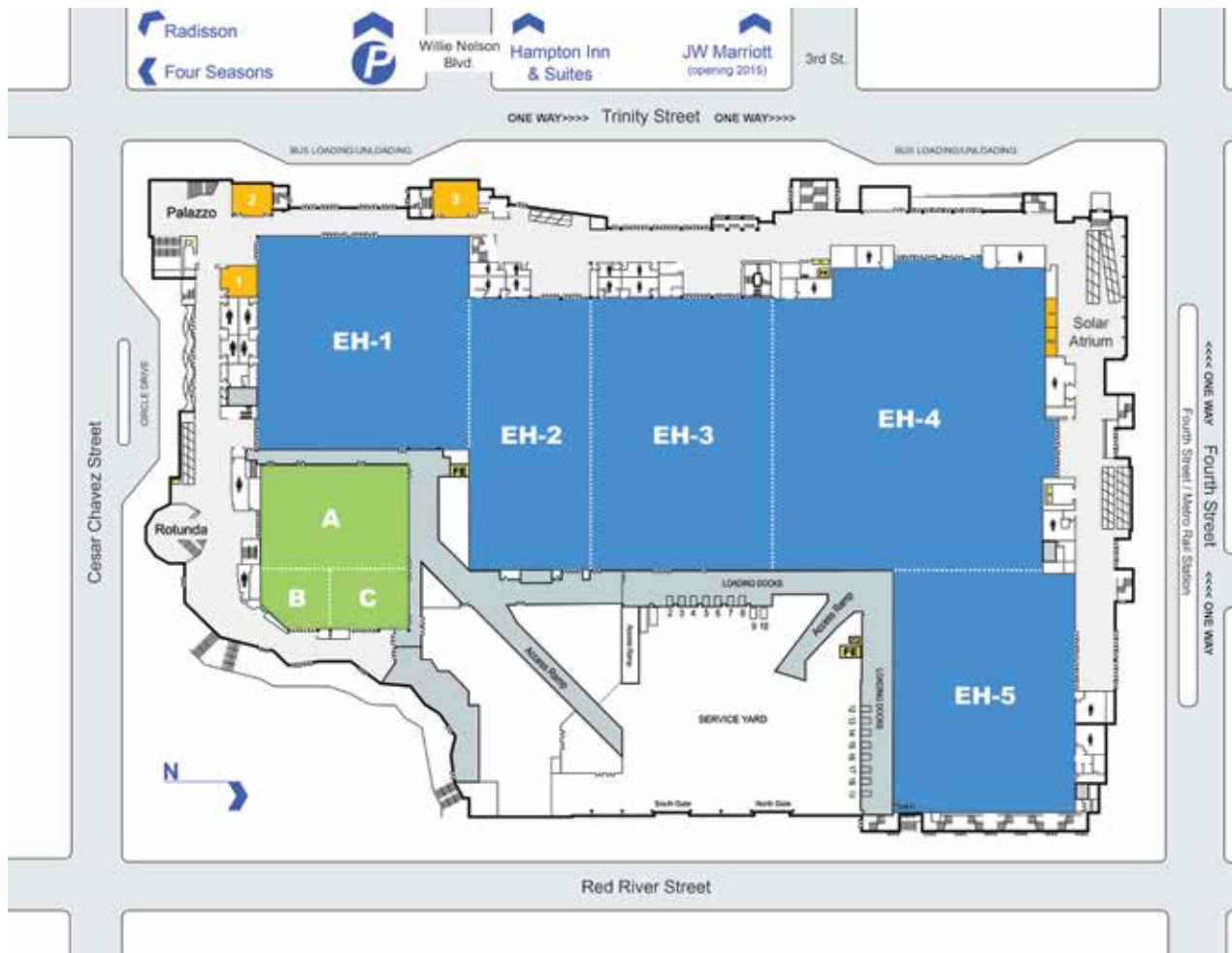


Pests of Ornamentals Trees,
Shrubs, and Flowers

Ad#7-2013

AUSTIN CONVENTION CENTER

LEVEL 1



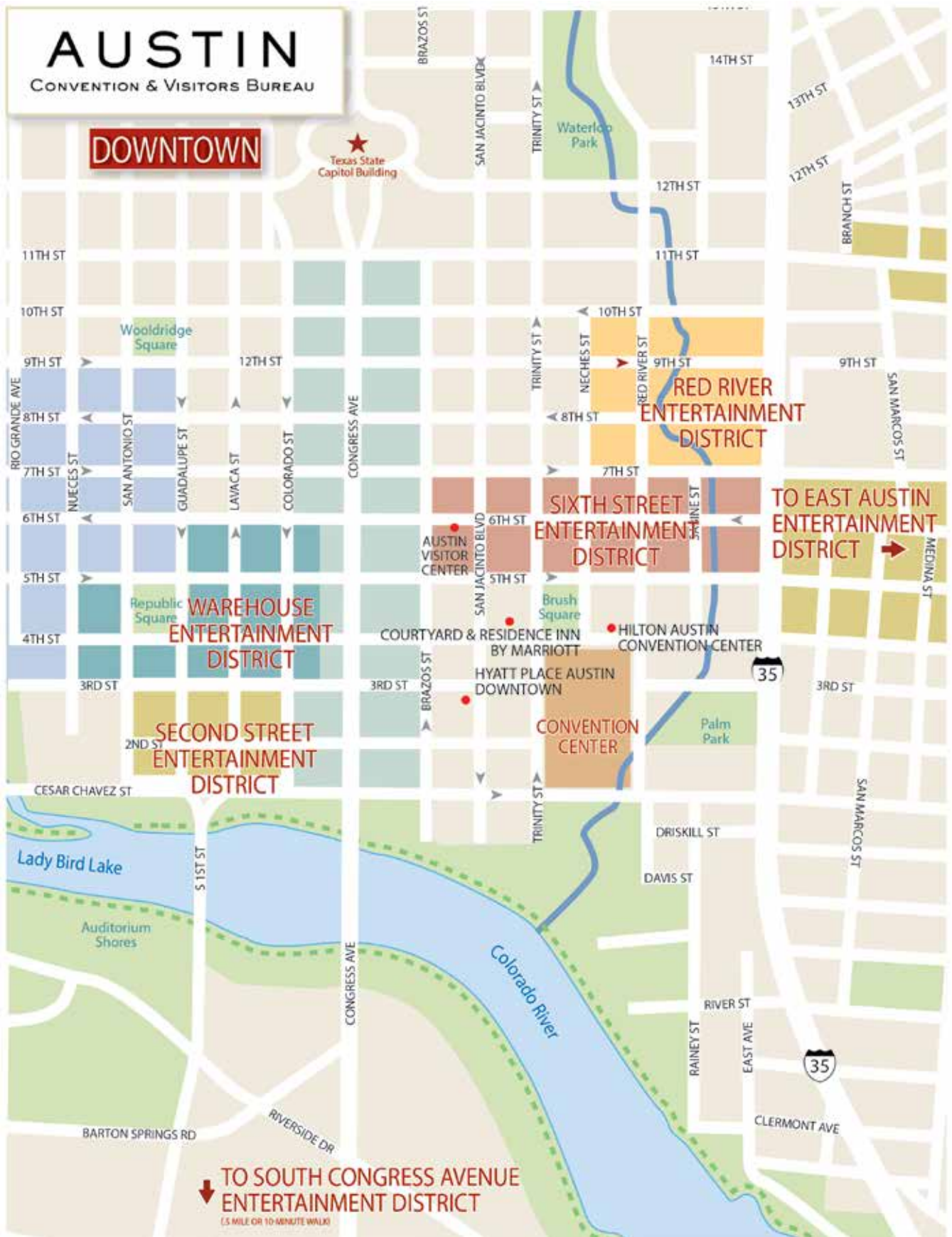
LEVEL 4



FOURTH FLOOR



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- Granular product for easy handling
- Powdered product available
- High humic fraction
- Superior shelf life
- Neutral pH



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to visit the
website



New to APS! PhytoFilms – check out the latest plant pathology science videos!

Sunday, Monday, Tuesday – Catch the latest research at our PhytoFilms viewing area, located next to the APS Press Bookstore in the Exhibit Hall. Watch one or watch all. For a complete listing see page 21 of the program book.



NEW! APS Reaches Out with Global Connections

We're connecting with members around the world with the live streaming of our Opening General Session and Plenary Sessions on the APS website. And checkout the opportunity to ask questions of our plenary speakers through twitter, from those attending the meeting and those watching for afar.

APS Opening General Session and Awards & Honors Ceremony

Sunday, August 11, 10:30 a.m. – 12:00 p.m.; Governor's Ballroom, Hilton

This is your official welcome to the meeting! Connect with friends and fellow scientists from around the world as we recognize APS members with awards and honors for their work throughout the year. Hear about accomplishments and goals for APS from your leaders, honor those who have left our ranks in the past year, and learn what is in store at this year's joint meeting.

MSA Business Meeting and Awards Ceremony

Sunday, August 11, 10:30 a.m. – 12:00 p.m.; Room 19, Convention Center

Celebrate the winners of this year's MSA graduate student Mentor Travel Awards and Research Awards. Meet the new officers of MSA, and hear updates on MSA's meeting plans, publishing, and finances.

APS Public Policy Board Open Forum on Hot Topics

Monday, August 12, 10:30 a.m. – 12:00 p.m.; Room 406, Hilton

The U.S. government recently announced all research should be open access by 2014. Do you understand what the pros and cons of open access are for you and APS? Have you been updated recently on the status of funding for agricultural research in the United States and the short- and long-term implications of policies that are being batted around DC? The APS Public Policy Board is hosting an open forum of experts on these and other emerging hot topics to provide an overview and engage in discussions.



NEW! for 2013! Two Plenary Sessions!

Take advantage of two great opportunities and attend Monday's Plenary Session with a scientific focus and return for Tuesday's Plenary Session targeting a topic of interest both in the workplace and at home.

PLENARY SESSION I

Minding the Gaps – Yielding Tomorrows Solutions

Monday, August 12, 1:00 – 2:30 p.m., Governor's Ballroom, Hilton

Featured Presenters:

High-ranking government official in the U.S. Department of Agriculture—to be announced



Deirdre Ortiz

Deirdre Ortiz presents— Standing in the Gap for Nutrition

Deirdre Ortiz is a food industry professional with nearly 20 years of experience. She received her M.S. and Ph.D. degrees from Kansas State University from the Department of Grain Science and Industry. For the last 17 years, Ortiz has worked at the Kellogg Company in a variety of roles, most recently as fellow of global research, quality and technology. In her current role, she leads the research activities of the Global Snacks organization.

Her research topics include wheat and flour quality, baking, and technical troubleshooting. She actively volunteers with AACC International, including serving as technical program chair for the 2011 annual meeting. Ortiz's passion for good food, working with others, and building relationships between the food industry and growers has resulted in lasting relationships with several Michigan-based agriculture groups. Ortiz resides in Battle Creek, Michigan.



Simon Tripp

Simon Tripp presents— Agbiosciences: A Leading Driver of Science and Technology-Based Economic Growth for North America

Simon Tripp is senior director of the Battelle Memorial Institute's Technology Partnership Practice (TPP). At Battelle, Tripp is responsible for project team leadership in technology-based economic development, regional economic development strategies, and economic impact assessments.

Tripp has performed multiple high-profile impact assessments in biomedical and life science arenas for the Human Genome Project, Mayo Clinic, the Pharmaceutical Research and Manufacturers of America, the Advanced Medical Technologies Association, and the American Clinical Laboratories Association.

Prior to joining Battelle, Tripp served as senior partner of Impact Economics, LP. Tripp founded Impact Economics in 2000 following his position as cofounder, president, and CEO of the Pittsburgh-based research and planning company Tripp Umbach & Associates, Inc. A native of the United Kingdom, Tripp has also held positions as director of U.S. operations for the British Government's West Midlands Development Agency and as North American business development representative for the Welsh Development Agency.

Tripp holds a master's degree in geography (regional science) from West Virginia University and a B.A. (honors) degree in geography from the University of Portsmouth in the United Kingdom. He resides in Pittsburgh, Pennsylvania, and Merritt Island, Florida.



Michael B. Hofherr

Michael B. Hofherr presents—Is the Landscape of Higher Education Shifting? MOOCs and Everything in Between...

Michael B. Hofherr is Ohio State's associate vice president for distance education and eLearning. In that role, Hofherr oversees all forms of distance education and eLearning at Ohio State, including degree offerings, credit courses, noncredit certificates, iTunes U offerings, and hybrid as well as pure distance

programming. He will also be responsible for supporting the delivery of distance and eLearning efforts.

Prior to this new appointment, Hofherr served as senior director for learning technology in the Office of the Chief Information Officer, where he helped transform the educational technologies offerings on campus. He spearheaded the Digital First initiative, expanded the Impact Grants program, and led a classroom technology transformation that resulted in more than \$2 million in savings while improving services. As senior director for learning technology, Hofherr also oversaw Carmen, the university's learning management platform, and the Digital Union.

Hofherr came to Ohio State in 2011 from Penn State. Earlier, he had served as a training consultant for Arthur Andersen. Hofherr holds a B.S. degree in communications media from Indiana University of Pennsylvania and an M.S. degree in instructional systems from Pennsylvania State University.

**MSA John Karling Lecture
Evolution of Virulence in Fungal Pathogens of Plants**

Monday, August 12, 2:30 – 3:30 p.m.; Governor's Ballroom, Hilton



Barbara Howlett

The John Karling Annual Lecture is MSA's most prestigious invited talk and is presented this year by Barbara Howlett, a professor in the Department of Botany at the University of Melbourne in Australia. Howlett is a frequently called upon expert with respect to agriculture and enhancing crop production in Australia. She leads a national team that developed disease management strategies that are widely adopted by Australian farmers.

Howlett jointly led an international team that acquired and annotated the genome sequence for the fungus *Leptosphaeria maculans*. Bioinformatic analysis of this sequence led to the development of high-throughput molecular tests that monitor virulent fungal populations and predict disease outbreaks on canola crops across Australia. She serves on the editorial board of *Eukaryotic Cell* and has been an associate editor of *PLOS Pathogens* and *PLOS ONE* and a senior editor of *Molecular Plant Pathology*. Howlett is an elected fellow of the American Academy of Microbiology.

**PLENARY SESSION II
Striking a Better Balance: Balancing Stress at Work and Home**

Tuesday, August 13, 1:00 – 2:00 p.m.; Governor's Ballroom, Hilton



Joe Robinson

With more to do faster and with fewer resources, more and more of us are stretched to the limit. In a 24/7 world driven by instant technology, the default is to reflex and retaliatory behavior, which drives automatic stress, burnout, and overload. This presentation provides crucial tools to reduce stress, increase effectiveness, and strike a better balance between work and life.

A work-life and productivity trainer, speaker, consultant, and author, Joe Robinson is one of the most quoted experts on work-life balance. He has appeared on *The Today Show*, *CNN*, *NBC Nightly News*, and National Public Radio's *All Things*

Considered and in dozens of newspapers and radio stations around the country. He has conducted work-life training programs for organizations from IBM to Genentech, LEGO, Homeland Security, and McDonald's. His articles have appeared in publications from the *New York Times* to the *Los Angeles Times*, *Entrepreneur*, *Fast Company*, and *National Geographic Adventure*. He is author of *Work to Live*, a roadmap out of stress and overload, and the audio program "The Email Overload Survival Kit."

MSA Presidential Address—Fungal Diversity and Geological Time

Tuesday, August 13, 1:00 - 2:00 p.m.; Room 19AB, Convention Center

Presented by MSA President Mary Berbee, a professor at the University of British Columbia.

MSA Auction, Awards, and Social

Wednesday, August 14, 5:00 – 7:00 p.m.; Grand Ballroom G, Convention Center

Preceding the APS-MSA Final Night Celebration, join MSA for the auction, awards, and social that will include snacks and drinks from the cash bar. From 5:00 to 5:30 p.m., MSA will present awards to some of our distinguished scientists and teachers, as well as awards for outstanding graduate student talks and posters. The silent auction of books, photographs, and fungi-related memorabilia will run from 5:30 to 6:30 p.m., with simultaneous live auction items up for bid.

Final Night Celebration—Final Round-Up

Wednesday, August 14, 6:30 – 9:30 p.m.; Ballroom D, Convention Center

What better way to end the 2013 joint meeting than with a true Austin, Texas, sendoff! We're dusting off our boots and taking in some country western feel, both in our grub for the night (Texas cuisine) and in our music, featuring the local band—Shakedown! But stick around because there will also be time for some rock & roll as the night progresses. Looking for a quiet place without the music? We have that too, so stick around and make that final connection with friends and colleagues before you head home. *Ticket to event and drink ticket are included with full registration. Guests' tickets are available for purchase at the Registration Desk.*

LEADERSHIP OPPORTUNITY

APS Leadership Institute: Effective Team Leadership

Saturday, August 10

8:30 – 4:30 p.m.; 400, Hilton

Organizers: Bill Schneider, USDA ARS, Fort Detrick, MD, U.S.A.; Janna Beckerman, Purdue University, West Lafayette, IN, U.S.A.; Eric Tedford, Syngenta Crop Protection, Greensboro, NC, U.S.A.

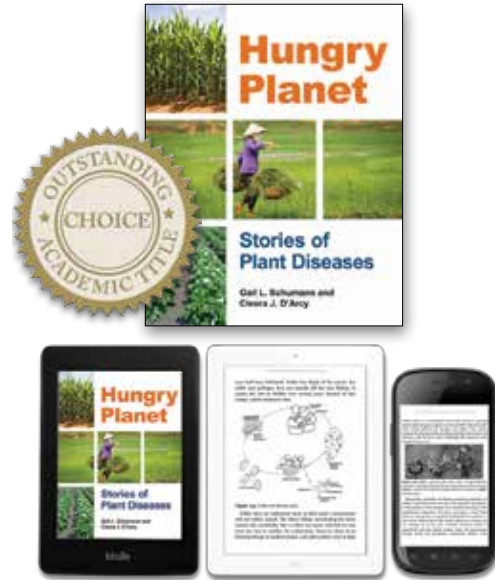
Sponsoring Committee: APS Leadership Institute Committee

Sponsored in-part by: Monsanto Company

Continuing the tradition of providing leadership skills training through APS, this workshop, led by Sherry Harsch-Porter, Ph.D., will explore effective methods for developing goals, communicating your vision to others, building and working with a team, and motivating others to work with you toward team goals. Designed to develop effective future leaders for APS, this workshop is intended for graduate students, post-docs, and early and mid-career professionals, but all career levels are welcome. Sherry Harsch-Porter, The Porter Bay Group, Inc., teaches executive coaching, leadership skills, and global human resources courses at Washington University, is a frequent speaker at national and regional conferences, and contributes regularly to professional journals.



The APS Education Center and the e-book edition of *Hungry Planet* team up for a seamless approach to teaching with this digital textbook!

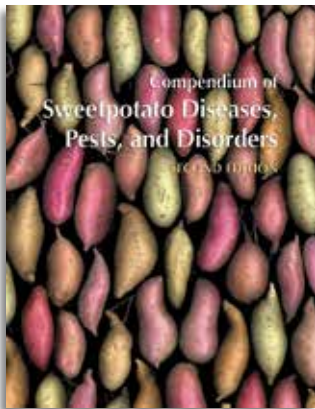


Named a “Choice Outstanding Academic Title” for 2013, *Hungry Planet: Stories of Plant Diseases*, is now available for Kindle and iPad from Amazon. The e-book edition links directly to the APS Education Center where students will find free resources like the image gallery, podcasts, review questions, group discussion topics, demonstrations, and lab exercises.

Free instructor resources, written by the authors themselves, give educators ideas for teaching assignments and shorten the prep time needed for lesson plans and lectures.

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SCIENTIFIC SESSIONS-AT-A-GLANCE

	SUNDAY	MONDAY
8:30 – 9:45 a.m.		<p>TECHNICAL: Bacterial Virulence Mechanisms 1 • 18B, CC</p> <p>TECHNICAL: Fungal Ecology 1 • 18D, CC</p> <p>TECHNICAL: Fungal Molecular Systematics and Evolution 3 • 16A, CC</p> <p>TECHNICAL: Virus Characterization • 12B, CC</p>
8:30 – 11:30 a.m.		<p>SPECIAL: 13th I. E. Melhus Graduate Student Symposium: What's in Our Toolbox to Minimize the Risk of Plant Disease? • 19AB, CC</p> <p>SPECIAL: An Unconventional Classroom: Reaching New Students with Online and Distance Courses and Programs • 18A, CC</p> <p>SPECIAL: Innovations in Microbial Forensics and Plant Biosecurity • 16B, CC</p> <p>SPECIAL: New Horizons in the Cell Biology of Fungi • 18C, CC</p> <p>SPECIAL: Status and Challenges in Identification and Diagnosis of Gram inicolous Downy Mildews • 12A, CC</p>
10:15 – 11:30 a.m.		<p>TECHNICAL: Bacterial Virulence Mechanisms 2 • 18B, CC (10:15–11:15 a.m.)</p> <p>TECHNICAL: Ectomycorrhizal Community Ecology, and Endophytes • 18D, CC</p> <p>TECHNICAL: Fungal Genomics and Ecology • 16A, CC</p> <p>TECHNICAL: Resistance to Viruses and Virus Characterization • 12B, CC</p>
LUNCH		
1:00 – 2:15 p.m.	<p>TECHNICAL: Bacterial-Host Interactions • 16B, CC</p> <p>TECHNICAL: Disease Diagnosis and Detection • 16A, CC</p> <p>TECHNICAL: Fruit Pathogen Epidemiology • 18D, CC</p> <p>TECHNICAL: Fungal Molecular Systematics and Evolution 1 • 12A, CC (1:00 – 2:00 p.m.)</p> <p>TECHNICAL: Plant Disease Management • 18A, CC</p>	
1:00 – 4:00 p.m.	<p>SPECIAL: Functional, Evolutionary, and Ecological Diversity of Wood Decay Systems • 12B, CC</p> <p>SPECIAL: Schroth Faces of the Future: New Frontiers in Mycology • 18B, CC (1:00 – 3:15 p.m.)</p> <p>SPECIAL: Small Noncoding RNAs: New Paradigms in Plant-Microbe Interactions • 19AB, CC</p> <p>SPECIAL: Virus Intracellular Accumulation and Movement as a Target for Disease Control • 18C, CC</p>	
2:15 – 3:30 p.m.		
2:45 – 4:00 p.m.	<p>TECHNICAL: Chemical Control • 18D, CC</p> <p>TECHNICAL: Disease Detection • 16A, CC</p> <p>TECHNICAL: Food Safety • 16B, CC</p> <p>TECHNICAL: Fungal Molecular Systematics and Evolution 2 • 12A, CC</p> <p>TECHNICAL: Host Resistance • 18A, CC (2:45 – 4:15 p.m.)</p>	

TUESDAY	WEDNESDAY
<p>TECHNICAL: Fungal Biology • 18A, CC TECHNICAL: Fungal Genetics and Genomics • 12A, CC TECHNICAL: Mechanism of Host and Non-Host Resistance • 16B, CC TECHNICAL: Virology • 16A, CC</p>	<p>TECHNICAL: Endophyte Biology • 16A, CC (8:30 – 9:30 a.m.) TECHNICAL: Fungal Diversity and Dispersal • 12B, CC TECHNICAL: Liberibacter Biology • 12A, CC</p>
<p>SPECIAL: Emerging Issues of Mycotoxins in Food Safety • 12B, CC SPECIAL: Filling in the Gaps: How Do Xanthomonads Adapt to Diverse Hosts, Tissues, and Environments? • 19AB, CC SPECIAL: Fungal Ecology Beyond Boundaries: From Communities to the Globe • 18C, CC SPECIAL: Invasive Threats to Palm Trees • 18D, CC SPECIAL: New Products & Services • 18B, CC</p>	<p>SPECIAL: Counting Beans & Tooting Horns: Effective Metrics for Documenting the Impact of Research and Extension • 18D, CC SPECIAL: Interaction Between Plants and Human Pathogens • 19AB, CC SPECIAL: Interactions and Mechanisms of Symptomless Plant Symbioses • 18B, CC SPECIAL: One Fungus, One Name: The Impact of Recent Changes in Fungal Nomenclature • 18C, CC SPECIAL: Plant Pathologists of the Future: Showcasing the Top Graduate: Students from APS Division Meetings • 16B, CC (8:30 – 11:00 a.m.)</p>
<p>TECHNICAL: Diseases of Potato • 18A, CC TECHNICAL: Fungal-Host Transcriptomics • 16B, CC TECHNICAL: Fungal Population Biology, Ecology, and Biochemistry • 12A, CC TECHNICAL: Virus-Host Interactions • 16A, CC</p>	<p>TECHNICAL: Basidiomycete Molecular Systematics and Evolution • 16A, CC TECHNICAL: Fungal Diversity and Management • 12B, CC TECHNICAL: Liberibacter Biology and Detection • 12A, CC</p>
	<p>TECHNICAL: Fungal Genomics 1 • 12B, CC TECHNICAL: Fusarium • 12A, CC TECHNICAL: Population Genetics • 18D, CC TECHNICAL: Resistance and Defence Pathway Identification • 18A, CC (1:00 – 2:00 p.m.)</p>
	<p>SPECIAL: Exploring Genomic and Molecular Mechanisms of Host-Parasite: Interactions for Crop Protection • 19AB, CC SPECIAL: Filling the Gap: Understanding Factors Driving Expanding Distributions of Plant Viruses • 18C, CC SPECIAL: Innovations in Seed Treatments for Crop Protection and Health • 16A, CC SPECIAL: Insect-Transmitted Bacterial Diseases: Passing the Gift • 18B, CC SPECIAL: Responses of Plant-Symbiotic Fungi to Climate Change: Diversity, Distribution, and Function • 16B, CC</p>
<p>TECHNICAL: Biological Control • 12A, CC TECHNICAL: Fruit Tree Pathology • 18D, CC TECHNICAL: Fungal Disease Control on Monocots • 18A, CC TECHNICAL: Fungal Ecology 2 • 18C, CC TECHNICAL: Fungi • 18B, CC TECHNICAL: GenBank, Fungal Digitization, and Cell Biology • 16B, CC (2:15 – 3:15 p.m.) TECHNICAL: Pathogen Resistance • 16A, CC TECHNICAL: Pest and Disease Management • 12B, CC (2:15 – 3:15 p.m.)</p>	
	<p>TECHNICAL: Disease Control Alternatives • 12A, CC TECHNICAL: Fungal Genomics 2 • 12B, CC TECHNICAL: Host Resistance • 18D, CC (2:45 – 3:45 p.m.) TECHNICAL: Pest and Disease Management on Apple • 18A, CC</p>

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Molecular Plant Pathology
Impact Factor: 3.899



Biotropica
Impact Factor: 2.229



Plant Pathology
Impact Factor: 2.125



Forest Pathology
Impact Factor: 1.74



Restoration Ecology
Impact Factor: 1.681



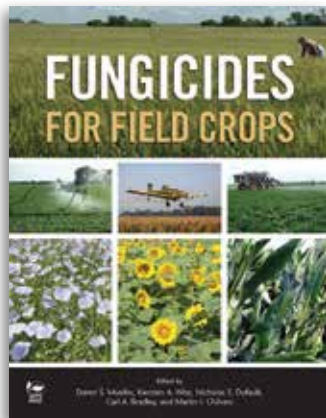
Journal of Phytopathology
Impact Factor: 0.791



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DAILY MEETING SCHEDULE AND SESSIONS

The meetings take place in the Austin Convention Center (CC) and the Hilton Hotel (H).

■ SATURDAY, AUGUST 10

Field Trips depart from the Convention Center, 4th Street and Trinity bus loading area

7:30 a.m. – 5:00 p.m.	Field Trip: Ornamental and Urban Farming	Offsite
7:30 a.m. – 5:00 p.m.	Field Trip: Texas Hill Country Fruit Disease	Offsite
8:00 a.m. – 12:30 p.m.	Field Trip: Texas Foray	Offsite & 13A, CC
8:00 a.m. – 1:30 p.m.	Technologies and Integrated Strategies for Management of Thrips-Transmitted Tospoviruses Meeting	15, CC
8:00 a.m. – 4:30 p.m.	Field Trip: Turfgrass	Offsite
8:30 a.m. – 4:30 p.m.	Leadership Opportunity: APS Leadership Institute: Effective Team Leadership	400, H
9:00 a.m. – 12:00 p.m.	Workshop: Comparative Fungal Genomics with MycoCosm	17B, CC
9:00 a.m. – 4:30 p.m.	Field Trip: Current Perspectives on Abiotic and Biotic Threats to Forest and Shade Trees of Texas	Offsite
10:00 a.m. – 5:30 p.m.	Workshop: Sampling Terms, Concepts, and Best Practices for Plant Pathologists <i>(includes lunch on your own, 12:00 – 1:30 p.m.)</i>	406, H
11:30 a.m. – 1:30 p.m.	APS Office of International Programs (OIP) Board Meeting	402, H
11:30 a.m. – 2:30 p.m.	APS PRESS Board Meeting	414, H
12:00 – 6:00 p.m.	Registration	Hall 4 Foyer, CC
1:00 – 4:30 p.m.	Postharvest Discussion Meeting	410, H
1:00 – 5:00 p.m.	Workshop: Genotyping-by-Sequencing	17A, CC
1:00 – 5:00 p.m.	ARM Workshop	415AB, H
1:30 – 6:30 p.m.	MSA Council Meeting	404, H
2:30 – 5:00 p.m.	APS Publications Board Meeting	414, H
3:00 – 4:30 p.m.	APS Committee Chair/Vice Chair Orientation	408, H
4:00 – 6:00 p.m.	Microbial Forensics Interest Group	602, H
4:30 – 5:30 p.m.	First Timers' Orientation	412, H
5:00 – 6:30 p.m.	APS <i>PDMR</i> Editors' Meeting	414, H
6:30 – 8:00 p.m.	Committee Meetings	
	• Biotechnology Committee	14, CC
	• Committee for Diversity and Equality	18A, CC
	• Diagnostics Committee	18B, CC
	• Emerging Diseases and Pathogens Special Committee, <i>by invitation</i>	18D, CC
	• Forest Pathology Committee	13A, CC
	• Integrated Plant Disease Management Committee	15, CC
	• Pathogen Resistance Committee	408, H
	• Phyllosphere Microbiology Committee	410, H
	• Postharvest Pathology Committee	400, H
	• Soil Microbiology and Root Diseases Committee	16A, CC
	• Tropical Plant Pathology Committee	16B, CC
8:00 – 9:30 p.m.	Committee Meetings	
	• Biological Control Committee	12B, CC
	• Collections and Germplasm Committee	410, H
	• Epidemiology Committee	13A, CC
	• Extension Committee	408, H
	• Host Resistance Committee	16B, CC
	• Industry Committee	14, CC
	• Mycotoxicology Committee	18B, CC
	• Nematology Committee	12A, CC
	• Regulatory Plant Pathology Committee	18D, CC
	• Seed Pathology Committee	18A, CC
	• Turfgrass Pathology Committee	400, H
	• Virology Committee	16A, CC

SCHEDULE

DAILY MEETING SCHEDULE AND SESSIONS

The meetings take place in the Austin Convention Center (CC) and the Hilton Hotel (H).

■ SUNDAY, AUGUST 11

7:00 – 9:00 a.m.	APSnet Education Center Editorial Board Meeting	402, H
7:00 – 9:00 a.m.	Vegetable Seed Industry Breakfast, <i>by invitation</i>	400, H
7:00 a.m. – 6:30 p.m.	Registration	Hall 4 Foyer, CC
8:00 – 8:30 a.m.	Moderator Orientation	12B, CC
8:00 – 9:00 a.m.	APS Leadership Institute Committee Meeting	404, H
8:00 – 9:00 a.m.	APS <i>Phytopathology</i> Senior Editors' Meeting	410, H
8:00 – 9:00 a.m.	APS <i>Plant Disease</i> Senior Editors' Meeting	412, H
8:00 – 10:00 a.m.	APS Awards and Honors Committee Meeting, <i>by invitation</i>	401, H
8:00 a.m. – 3:00 p.m.	Exhibit Set-Up	Hall 4, CC
8:30 – 10:00 a.m.	Committee Meetings	
	• Bacteriology Committee	414, H
	• Chemical Control Committee	15, CC
	• Crop Loss Assessment and Risk Evaluation (CARE) Committee	13A, CC
	• Diseases of Ornamental Plants Committee	14, CC
	• Early Career Professionals Committee	16A, CC
	• Evolutionary Genetics and Genomics Committee	16B, CC
	• Graduate Student Committee	18A, CC
	• Molecular and Cellular Phytopathology Committee	18B, CC
	• Mycology Committee	18C, CC
	• Plant Pathogen and Disease Detection Committee	18D, CC
	• Teaching Committee	12A, CC
	• Vector-Pathogen Complexes Committee	408, H
9:00 – 10:00 a.m.	APS <i>Phytopathology</i> Editorial Board Meeting	410, H
9:00 – 10:00 a.m.	APS <i>Plant Disease</i> Editorial Board Meeting	412, H
10:30 a.m. – 12:00 p.m.	APS Opening General Session and Awards & Honors Ceremony	Governor's Ballroom, H
10:30 a.m. – 12:00 p.m.	MSA Business Meeting and Awards Ceremony	19, CC
12:00 – 1:00 p.m.	Lunch Break (<i>with concessions in the Convention Center</i>)	
12:00 – 2:00 p.m.	APS Division Officers' Luncheon	412, H
12:00 – 3:00 p.m.	Poster Set-Up	Hall 4, CC
12:00 – 6:00 p.m.	APS-OIP Silent Auction	Hall 4 Foyer, CC
	Technical Sessions	
1:00 – 2:00 p.m.	• Fungal Molecular Systematics and Evolution 1	12A, CC
1:00 – 2:15 p.m.	• Bacterial-Host Interactions	16B, CC
1:00 – 2:15 p.m.	• Disease Diagnosis and Detection	16A, CC
1:00 – 2:15 p.m.	• Fruit Pathogen Epidemiology	18D, CC
1:00 – 2:15 p.m.	• Plant Disease Management	18A, CC
	Special Sessions	
1:00 – 3:15 p.m.	• Schroth Faces of the Future: New Frontiers in Mycology	18B, CC
1:00 – 4:00 p.m.	• Functional, Evolutionary, and Ecological Diversity of Wood Decay Systems	12B, CC
1:00 – 4:00 p.m.	• Small Noncoding RNAs: New Paradigms in Plant-Microbe Interactions	19AB, CC
1:00 – 4:00 p.m.	• Virus Intracellular Accumulation and Movement as a Target for Disease Control	18C, CC
1:30 – 2:30 p.m.	APS Office of Electronic Communication (OEC) Board Meeting	402, H
1:30 – 2:30 p.m.	PMN Oversight Committee Meeting, <i>by invitation</i>	Board Room 401, H
2:00 – 4:00 p.m.	APS Nominations Committee Meeting	414, H
2:30 – 3:30 p.m.	APS <i>Plant Health Progress</i> Editorial Board Meeting, <i>by invitation</i>	Board Room 401, H
	Technical Sessions	
2:45 – 4:00 p.m.	• Chemical Control	18D, CC
2:45 – 4:00 p.m.	• Disease Detection	16A, CC
2:45 – 4:00 p.m.	• Food Safety	16B, CC
2:45 – 4:00 p.m.	• Fungal Molecular Systematics and Evolution 2	12A, CC
2:45 – 4:15 p.m.	• Host Resistance	18A, CC

4:00 – 5:00 p.m.

University Alumni Socials

- Chesapeake Bay Tributaries
- Cornell University
- Iowa State University
- Louisiana State University
- Michigan State University
- North Carolina State University
- The Ohio State University
- Oklahoma State University
- Old West Trails
- Oregon State University
- Pennsylvania State University
- Texas A&M University
- University of Arkansas
- University of California-Davis
- University of Florida
- University of Georgia
- University of Illinois
- University of Minnesota
- Washington State University

Hall 4, CC

4:30 – 6:30 p.m.

APS PRESS Bookstore

Hall 4, CC

4:30 – 6:30 p.m.

Welcome Reception with Exhibition and Posters

Hall 4, CC

4:30 – 8:00 p.m.

Extended Time! Poster Viewing

Hall 4, CC

4:30 – 8:00 p.m.

PhytoFilms Viewing

Hall 4, CC

7:00 – 10:00 p.m.

Ornamental Virus Discussion Group

412, H

8:00 – 9:30 p.m.

NPDRS Meeting

404, H

SCHEDULE



DAILY MEETING SCHEDULE AND SESSIONS

The meetings take place in the Austin Convention Center (CC) and the Hilton Hotel (H).

MONDAY, AUGUST 12

6:30 – 8:00 a.m.	Extension Plant Pathologists' Breakfast	17A, CC
7:00 – 10:30 a.m.	APS Public Policy Board (PPB) Meeting	406, H
7:00 a.m. – 12:00 p.m.	APS Foundation Board Meeting, <i>by invitation</i>	402, H
7:00 a.m. – 5:30 p.m.	Registration	Hall 4 Foyer, CC
7:30 a.m. – 8:00 p.m.	Poster Viewing	Hall 4, CC
7:30 a.m. – 8:00 p.m.	PhytoFilms Viewing, <i>see page 21 for listings</i>	Hall 4, CC
	Technical Sessions	
8:30 – 9:45 a.m.	• Bacterial Virulence Mechanisms 1	18B, CC
8:30 – 9:45 a.m.	• Fungal Ecology 1	18D, CC
8:30 – 9:45 a.m.	• Fungal Molecular Systematics and Evolution 3	16A, CC
8:30 – 9:45 a.m.	• Virus Characterization	12B, CC
	Special Sessions	
8:30 – 11:30 a.m.	• 13th I. E. Melhus Graduate Student Symposium: What's in Our Toolbox to Minimize the Risk of Plant Disease?	19AB, CC
8:30 – 11:30 a.m.	• An Unconventional Classroom: Reaching New Students with Online and Distance Courses and Programs	18A, CC
8:30 – 11:30 a.m.	• Innovations in Microbial Forensics and Plant Biosecurity	16B, CC
8:30 – 11:30 a.m.	• New Horizons in the Cell Biology of Fungi	18C, CC
8:30 – 11:30 a.m.	• Status and Challenges in Identification and Diagnosis of Graminicolous Downy Mildews	12A, CC
9:00 – 11:00 a.m.	APS Associated Organizations Meeting	410, H
10:00 a.m. – 5:00 p.m.	APS PRESS Bookstore	Hall 4, CC
10:00 a.m. – 6:00 p.m.	Exhibits Open	Hall 4, CC
	Technical Sessions	
10:15 – 11:15 a.m.	• Bacterial Virulence Mechanisms 2	18B, CC
10:15 – 11:30 a.m.	• Ectomycorrhizal Community Ecology and Endophytes	18D, CC
10:15 – 11:30 a.m.	• Fungal Genomics and Ecology	16A, CC
10:15 – 11:30 a.m.	• Resistance to Viruses and Virus Characterization	12B, CC
10:30 a.m. – 12:00 p.m.	APS Public Policy Board Open Forum on Hot Topics	406, H
11:30 a.m. – 1:00 p.m.	APS Graduate Student & Industry Lunch	17A, CC
11:30 a.m. – 1:00 p.m.	Lunch Break	
11:30 a.m. – 1:00 p.m.	APS Past Presidents' Lunch, <i>by invitation</i>	404, H
11:30 a.m. – 1:00 p.m.	Storkan-Hanes-McCaslin Research Foundation Luncheon, <i>by invitation</i>	13A, CC
11:30 a.m. – 1:00 p.m.	Widely Prevalent Plant-Pathogenic Fungi Working Group	15, CC
12:00 – 1:00 p.m.	USDA-ARS Meeting (<i>brown bag lunch</i>)	14, CC
1:00 – 2:30 p.m.	Plenary Session I: Minding the Gaps – Yielding Tomorrows Solutions	Governor's Ballroom, H
2:30 – 3:30 p.m.	John Karling Lecture , sponsored by MSA	Governor's Ballroom, H
2:30 – 3:30 p.m.	NPDN Town Hall Meeting	412, H
3:30 – 5:00 p.m.	APS Divisional Forum	402, H
3:30 – 5:00 p.m.	APS International Society Relations Meeting	404, H
3:30 – 5:30 p.m.	Poster Viewing with Authors Present	Hall 4, CC
	3:30 – 4:30 p.m. Posters 1 – 364 (even numbers)	
	4:30 – 5:30 p.m. Posters 365– 728 (even numbers)	
5:30 – 6:30 p.m.	Early Career Professionals' Social with Employer Networking Opportunity	408, H
5:30 – 6:30 p.m.	Graduate Student Social	406, H
5:30 – 6:30 p.m.	Journals Senior Editors' Reception, <i>by invitation</i>	417, H
6:00 – 7:00 p.m.	MSA Student Mixer	Offsite; Max's Wine Dive
6:30 – 9:30 p.m.	Industry & Extension Social—The Roaring Twenties (<i>Speakeasy is located on 412 Congress Avenue, a short walk from the Convention Center, transportation is not provided</i>)	Offsite; Speakeasy

PHYTOFILMS



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Viewing available Sunday – Tuesday

- *The Future Belongs to You* – 2:08 minutes, contact: Kimberly Gwinn, University of Tennessee
- *Saving Wheat: Rusts Never Sleep* – 27 minutes, contact: Carol Ishimaru, University of Minnesota
- *Banana Bunchy Top in Hawaii* – 14:44 minutes, contact: Scot Nelson, University of Hawaii at Manoa
- *Gateau Baby – Lagotto Truffle Dog Digs Truffles in Georgia Pecan Orchard* – 3:44 minutes, contact: Jessie Uehling, Duke University
- *Super Rangers and the Legion of Bugs* – 4:44 minutes, contact: Leigh Greenwood, The Nature Conservancy
- *Trees, Pests & People* – 26:46 minutes, contact: Leigh Greenwood, The Nature Conservancy
- *Fun With Rust Life Cycle* – 4:59 minutes, contact: Naweena Thapa, University of Florida
- *Reducing the Spore Load of Venturia Inaequalis, the Causal Agent of Apple Scab, in Michigan Apple Orchards* – 6:10 minutes, contact: George W. Sundin, Michigan State University
- *Apple Rust* – 3:00 minutes, contact: Nicole Ward Gauthier, University of Kentucky
- *Grape Powdery Mildew* – 3:00 minutes, contact: Nicole Ward Gauthier, University of Kentucky
- *The Life Cycle of Wheat Stem Rust* – 7:00 minutes, contact: John Bakum, Borlaug Global Rust Initiative



Austin music scene—ACVB Photo/ Andy Schrader



West Austinskyline—ACVB Photo



Austin Fine Arts Festival—ACVB Photo

Conversations with Council

New this year

“Conversations with Council” is a unique and interactive opportunity for members to take a few minutes to chat with various members of the APS Council while at the meeting. Make sure to stop by **Booth #507**, during regular exhibit hours to learn more about the new initiatives that are underway, provide your perspectives, and offer ideas or suggestions for APS!



DAILY MEETING SCHEDULE AND SESSIONS

The meetings take place in the Austin Convention Center (CC) and the Hilton Hotel (H).

TUESDAY, AUGUST 13

7:00 – 8:30 a.m.	APS Sustaining Associates' Breakfast, <i>by invitation</i>	402, H
7:00 – 9:00 a.m.	APS Annual Meeting Board Meeting	13B, CC
7:00 a.m. – 12:00 p.m.	APS Department Heads' Breakfast and Meeting	400, H
7:00 a.m. – 5:30 p.m.	Registration	Hall 4 Foyer, CC
7:30 – 9:00 a.m.	Small Fruit Diseases Workers Discussion	17A, CC
7:30 a.m. – 6:00 p.m.	Poster Viewing	Hall 4, CC
7:30 a.m. – 6:00 p.m.	PhytoFilms Viewing, <i>see page 21 for listings</i>	Hall 4, CC
	Technical Sessions	
8:30 – 9:45 a.m.	• Fungal Biology	18A, CC
8:30 – 9:45 a.m.	• Fungal Genetics and Genomics	12A, CC
8:30 – 9:45 a.m.	• Mechanism of Host and Non-Host Resistance	16B, CC
8:30 – 9:45 a.m.	• Virology	16A, CC
	Special Sessions	
8:30 – 11:30 a.m.	• Emerging Issues of Mycotoxins in Food Safety	12B, CC
8:30 – 11:30 a.m.	• Filling in the Gaps: How Do Xanthomonads Adapt to Diverse Hosts, Tissues, and Environments?	19AB, CC
8:30 – 11:30 a.m.	• Fungal Ecology Beyond Boundaries: From Communities to the Globe	18C, CC
8:30 – 11:30 a.m.	• Invasive Threats to Palm Trees	18D, CC
8:30 – 11:30 a.m.	• New Products & Services	18B, CC
10:00 a.m. – 5:00 p.m.	APS PRESS Bookstore	Hall 4, CC
10:00 a.m. – 6:00 p.m.	Exhibits Open	Hall 4, CC
	Technical Sessions	
10:15 – 11:30 a.m.	• Diseases of Potato	18A, CC
10:15 – 11:30 a.m.	• Fungal-Host Transcriptomics	16B, CC
10:15 – 11:30 a.m.	• Fungal Population Biology, Ecology, and Biochemistry	12A, CC
10:15 – 11:30 a.m.	• Virus-Host Interactions	16A, CC
11:30 a.m. – 12:30 p.m.	APHIS Widely Prevalent Virus Committee Meeting, <i>by invitation</i>	15, CC
11:30 a.m. – 1:00 p.m.	Lunch Break	
11:30 a.m. – 1:00 p.m.	APS <i>Phytopathology News</i> Advisory Committee Meeting	Liberty Tavern, H
12:00 – 1:00 p.m.	MSA Student Section Board Meeting	401, H
12:00 – 1:00 p.m.	Orange Rust Sugarcane Meeting (<i>brown bag lunch</i>)	13B, CC
12:00 – 1:30 p.m.	APHIS Widely Prevalent Bacteria Committee Meeting, <i>by invitation</i>	13A, CC
1:00 – 2:00 p.m.	Plenary Session II: Striking a Better Balance: Balancing Stress at Work and Home	Governor's Ballroom, H
1:00 – 2:00 p.m.	MSA Presidential Address	19AB, CC
2:00 – 3:00 p.m.	2018 ICPP Planning Meeting	13B, CC
	Technical Sessions	
2:15 – 3:15 p.m.	• GenBank, Fungal Digitization, and Cell Biology	16B, CC
2:15 – 3:15 p.m.	• Pest and Disease Management	12B, CC
2:15 – 3:30 p.m.	• Biological Control	12A, CC
2:15 – 3:30 p.m.	• Fruit Tree Pathology	18D, CC
2:15 – 3:30 p.m.	• Fungal Disease Control on Monocots	18A, CC
2:15 – 3:30 p.m.	• Fungal Ecology 2	18C, CC
2:15 – 3:30 p.m.	• Fungi	18B, CC
2:15 – 3:30 p.m.	• Pathogen Resistance	16A, CC
2:30 – 4:00 p.m.	APS Office of Education (OE) Board Meeting	13A, CC
3:30 – 5:30 p.m.	Poster Viewing with Authors Present	Hall 4, CC
	3:30 – 4:30 p.m. Posters 1 – 364 (odd numbers)	
	4:30 – 5:30 p.m. Posters 365 – 728 (odd numbers)	
5:30 – 7:00 p.m.	Diagnostics Working Group	402, H
5:30 – 7:30 p.m.	Leadership Opportunity and Social —Committee for Diversity and Equality presents "Networking: Take the Lead!"	Offsite; Micheladas Restaurant
6:00 – 7:00 p.m.	MSA Volunteer Reception	Offsite; Max's Wine Dive
6:00 – 8:00 p.m.	Exhibit Take-Down	Hall 4, CC

WEDNESDAY, AUGUST 14

7:00 – 8:30 a.m.	Food Safety Interest Group	410, H
7:30 a.m. – 1:00 p.m.	Registration	Hall 4 Foyer, CC
8:00 – 9:30 a.m.	APS-CSPP Working Group Meeting, <i>by invitation</i>	412, H
8:00 – 10:00 a.m.	Poster Take-Down	Hall 4, CC
8:00 – 10:00 a.m.	APS Office of International Programs (OIP) Board Meeting	408, H
8:00 – 11:00 a.m.	APS PRESS Bookstore	Hall 4, CC
	Technical Sessions	
8:30 – 9:30 a.m.	• Endophyte Biology	16A, CC
8:30 – 9:45 a.m.	• Fungal Diversity and Dispersal	12B, CC
8:30 – 9:45 a.m.	• Liberibacter Biology	12A, CC
	Special Sessions	
8:30 – 11:00 a.m.	• Plant Pathologists of the Future: Showcasing the Top Graduate Students from APS Division Meetings	16B, CC
8:30 – 11:30 a.m.	• Counting Beans & Tooting Horns: Effective Metrics for Documenting the Impact of Research and Extension	18D, CC
8:30 – 11:30 a.m.	• Interaction Between Plants and Human Pathogens	19AB, CC
8:30 – 11:30 a.m.	• Interactions and Mechanisms of Symptomless Plant Symbioses	18B, CC
8:30 – 11:30 a.m.	• One Fungus, One Name: The Impact of Recent Changes in Fungal Nomenclature	18C, CC
9:00 – 11:00 a.m.	APS Office of Industry Relations (OIR) Board Meeting	406, H
9:30 – 11:30 a.m.	APS 2014 Annual Meeting Program Planning Meeting	18A, CC
	Technical Sessions	
10:15 – 11:30 a.m.	• Basidiomycete Molecular Systematics and Evolution	16A, CC
10:15 – 11:30 a.m.	• Fungal Diversity and Management	12B, CC
10:15 – 11:30 a.m.	• Liberibacter Biology and Detection	12A, CC
10:30 a.m. – 12:00 p.m.	APS Financial Advisory Committee Meeting	404, H
11:00 a.m. – 12:30 p.m.	CADRE Meeting for APS Professional Development Resource	408, H
11:30 a.m. – 1:00 p.m.	MSA Mycologia Editorial Meeting	410, H
11:30 a.m. – 1:00 p.m.	Lunch Break	
12:00 – 2:00 p.m.	APS Council Meeting	404, H
	Technical Sessions	
1:00 – 2:00 p.m.	• Resistance and Defense Pathway Identification	18A, CC
1:00 – 2:15 p.m.	• Fungal Genomics 1	12B, CC
1:00 – 2:15 p.m.	• Fusarium	12A, CC
1:00 – 2:15 p.m.	• Population Genetics	18D, CC
	Special Sessions	
1:00 – 4:00 p.m.	• Exploring Genomic and Molecular Mechanisms of Host-Parasite Interactions for Crop Protection	19AB, CC
1:00 – 4:00 p.m.	• Filling the Gap: Understanding Factors Driving Expanding Distributions of Plant Viruses	18C, CC
1:00 – 4:00 p.m.	• Innovations in Seed Treatments for Crop Protection and Health	16A, CC
1:00 – 4:00 p.m.	• Insect-Transmitted Bacterial Diseases: Passing the Gift	18B, CC
1:00 – 4:00 p.m.	• Responses of Plant-Symbiotic Fungi to Climate Change: Diversity, Distribution, and Function	16B, CC
1:30 – 4:00 p.m.	APS Office of Public Relations & Outreach (OPRO) Board Meeting	412, H
	Technical Sessions	
2:45 – 3:45 p.m.	• Host Resistance	18D, CC
2:45 – 4:00 p.m.	• Disease Control Alternatives	12A, CC
2:45 – 4:00 p.m.	• Fungal Genomics 2	12B, CC
2:45 – 4:00 p.m.	• Pest and Disease Management on Apple	18A, CC
5:00 – 7:00 p.m.	MSA Auction, Awards, and Social	Grand Ballroom G, CC
6:30 – 9:30 p.m.	Final Night Celebration—Final Round-Up	Ballroom D, CC

SCHEDULE

SATURDAY, AUGUST 10, 2013

■ FIELD TRIPS *Listed in chronological order.*

Ornamental and Urban Farming

7:30 a.m. – 5:00 p.m.; *Offsite*

Organizer: Kevin Ong, Texas A&M AgriLife Extension Service, College Station, TX, U.S.A.

Sponsoring Committees/Sponsors: Diseases of Ornamental Plants; Extension

Financial Sponsor: Texas Nursery and Landscaping Association
This field trip will explore various green industries that impact the urban areas of Central Texas (Austin-San Antonio). We will visit several local commercial greenhouse and nursery operations. We will also explore some aspects of food production in the urban and immediate surrounding areas.

Texas Hill Country Fruit Disease

7:30 a.m. – 5:00 p.m.; *Offsite*

Organizers: David Appel, Texas A&M University, College Station, TX, U.S.A.; Sheila McBride, Texas A&M AgriLife Extension Service, College Station, TX, U.S.A.

Sponsoring Committee/Sponsor: Extension

The field trip will consist of visits to commercial vineyards and wineries in the beautiful Texas Hill Country to highlight diseases of wine grapes, including Pierce's disease, cotton root rot, crown gall, and other challenging pathogens. Other features will be a peach orchard, where common diseases will be viewed. Alternative crops, such as pomegranate, fig, and pear, will be viewed and discussed at a Texas A&M University experimental facility in Fredericksburg, Texas.

Texas Foray

8:00 a.m. – 12:30 p.m.; *Offsite & 13A, Convention Center*

Organizers: Brian Shaw, Texas A&M University, College Station, TX, U.S.A.; Harold Keller, Botanical Research Institute of Texas, Arlington, TX, U.S.A.; Sydney Everhart, Oregon State University, Corvallis, OR, U.S.A.

Sponsoring Committees/Sponsors: APS; MSA

Get your boots dirty on this fungal foray for macro- and microfungi in natural settings. This excursion will take you to Barton Creek Greenbelt, considered one of Austin's best outdoor destinations. Novices and experts alike will have a chance to forage for fungi, and at midmorning, participants will return to the convention center to examine and identify specimens and listen to a lecture by a local expert.

Turfgrass

8:00 a.m. – 4:30 p.m.; *Offsite*

Organizers: Gerald (Lee) Miller, University of Missouri, Columbia, MO, U.S.A.; John Inguagiato, University of Connecticut, Storrs, CT, U.S.A.; Young-Ki Jo, Texas A&M University, College Station, TX, U.S.A.

Sponsoring Committee/Sponsor: Turfgrass Pathology

This field trip will highlight the challenges of maintaining aesthetic and playable turfgrass areas in the southcentral region of the United States. Possible sites include the Austin Golf Club, Barton Creek Golf Club, and the newly constructed Circuit of the Americas racetrack facility. The field trip will focus on the impact of these facilities on the economy and the particular management problems that are unique to the region, such as water management.

Current Perspectives on Abiotic and Biotic Threats to Forest and Shade Trees of Texas

9:00 a.m. – 4:30 p.m.; *Offsite*

Organizers: Matthew Kasson, Virginia Tech, Blacksburg, VA, U.S.A.; Isabel Munck, USDA Forest Service, Durham, NH, U.S.A.; Jim Houser, Texas Forest Service, Austin, TX, U.S.A.

Sponsoring Committee/Sponsor: Forest Pathology

The field trip will emphasize current abiotic and biotic threats, including oak wilt, Hypoxylon canker, leaf scorch, *Eurwallacea* ambrosia beetles and their *Fusarium* symbionts, fire, and drought, to Texas forest and shade trees. Participants will visit several locations, including the Bastrop State Park, which was devastated by wildfires in 2011. Attendees will interact with local forest health specialists and pathologists to discuss research, surveys, and long-term drought and fire and their impact on forest health planning.

■ WORKSHOPS *Listed in chronological order.*

Comparative Fungal Genomics with MycoCosm

9:00 a.m. – 12:00 p.m.; *17B, Convention Center*

Organizer: Igor Grigoriev, DOE Joint Genome Institute, Walnut Creek, CA, U.S.A.

MycoCosm is a web-based fungal genomics resource developed by the U.S. Department of Energy Joint Genome Institute integrating genomic data from more than 200 fungi with interactive analysis tools. Participants will have hands-on experience exploring genomic data in a genome-centric and comparative genomics manner.

Sampling Terms, Concepts, and Best Practices for Plant Pathologists

10:00 a.m. – 5:30 p.m.; *406, Hilton*

Organizers: Forrest Nutter, Jr., Iowa State University, Ames, IA, U.S.A.; Paul Esker, University of Costa Rica, San Jose, Costa Rica

Sponsoring Committees/Sponsors: Epidemiology; Crop Loss Assessment and Risk Evaluation (CARE); Pathogen Forensics
The processes of selecting sampling units (pathogen isolates, plants, leaves, fields, etc.) without bias is an everyday necessity in plant pathology. In this workshop, sampling terms, concepts, and best practices will be presented. Emphasis will be placed on examining relevant issues related to the power of the test, sample size estimation, hierarchical sampling, and sampling for bulk tests.

Genotyping-by-Sequencing

1:00 – 5:00 p.m.; *17A, Convention Center*

Organizers: Lance Cadle-Davidson, USDA-ARS, Geneva, NY, U.S.A.; Katie Hyma, Cornell University, Ithaca, NY, U.S.A.; Maria Jimenez-Gasco, Pennsylvania State University, University Park, PA, U.S.A.

Sponsoring Committee/Sponsor: Evolutionary Genetics and Genomics

Genotyping-by-sequencing (GBS) uses barcoding and next generation sequencing of DNA or RNA samples for high-resolution, low-cost genotyping. In this workshop, we will provide an overview of GBS theory and library preparation followed by step-by-step computational analyses of sequence data. Attendees will become familiar with resources for GBS, its limitations, and some real-world examples of its applications, including those for organisms without a reference genome.

SUNDAY, AUGUST 11, 2013

Special Sessions listed first, followed by Oral Technical Sessions. Listed in alphabetical order by session title. Find complete details on the meeting website at www.apsnet.org/meetings/annual/program/Pages/. As a courtesy to presenters, please do not take photographs during presentations.

Meeting room key: Convention Center = CC

SPECIAL SESSIONS

Functional, Evolutionary, and Ecological Diversity of Wood Decay Systems

1:00 – 4:00 p.m.; 12B, CC

Organizer/Moderator: David Hibbett, Clark University, Worcester, MA, U.S.A.

Sponsoring Committee/Sponsor: Mycology

1:00 p.m. 1-S.

Mechanisms of wood decay inferred from recent genome investigations. D. CULLEN (1), D. Floudas (2), D. Hibbett (2). (1) USDA Forest Products Laboratory, Madison, WI, U.S.A.; (2) Clark University, Worcester, MA, U.S.A.

1:30 p.m. • 2-S.

Co-expression analysis of *Phanerochaete carnosae* genes during growth on heartwood from deciduous and coniferous wood. H. Suzuki (1), P. Wong (1), Y. Gong (1), K. Chan (2), C. Y. Ho (2), E. Tillier (1), E. MASTER (1). (1) University of Toronto, Toronto, ON, Canada; (2) Mount Sinai Hospital, Toronto, ON, Canada

2:00 p.m. • 3-S.

Wood decay in the Ozark Highlands: Variation across species, space, and time. A. ZANNE (1). (1) Department of Biological Sciences, George Washington University, Washington, DC, U.S.A.

2:30 p.m. • Break

2:45 p.m. • 4-S.

Wood-rotting fungi have a dark history: Evidence from the fossil record. C. J. HARPER (1), T. N. Taylor (1), M. Krings (2). (1) Department of Ecology and Evolutionary Biology, and Natural History Museum and Biodiversity Research Center, The University of Kansas, Lawrence, KS, U.S.A.; (2) Department für Geo- und Umweltwissenschaften, Paläontologie und Geobiologie, Ludwig-Maximilians-Universität, and Bayerische Staatssammlung für Paläontologie und Geologie, Richard-Wagner-Straße; University of Kansas, Munich, Germany

3:15 p.m. • 5-S.

Wood decay in extreme environments. R. A. BLANCHETTE (1). (1) University of Minnesota, St. Paul, MN, U.S.A.

3:30 p.m. • 6-S.

Novel industrial lignocellulose-degrading enzymes. A. BERLIN (1). (1) Novozymes, Davis, CA, U.S.A.

3:45 p.m. • 7-S.

Diversification of wood decay systems in early evolution of Agaricomycotina. L. G. NAGY (1), D. Floudas (1), R. Riley (2), K. Barry (2), I. V. Grigoriev (2), D. S. Hibbett (1). (1) Biology Department, Clark University, Worcester, MA, U.S.A.; (2) U.S. Department of Energy, Joint Genome Institute, Walnut Creek, CA, U.S.A.

Schroth Faces of the Future: New Frontiers in Mycology


1:00 – 3:15 p.m.; 18B, CC

Organizers: Christopher Wallis, USDA-ARS, Parlier, CA, U.S.A.; Teresa Hughes, USDA-ARS, West Lafayette, IN, U.S.A.


Moderator: Christopher Wallis, USDA-ARS, Parlier, CA, U.S.A.

Sponsoring Committees/Sponsors: Early Career Professionals; Mycology


1:00 p.m. 8-S.

 Evolutionary informatics to wage peace with fungi for a sustainable future. J. C. SLOT (1). (1) Department of Plant Pathology, The Ohio State University, Columbus, OH, U.S.A.


1:30 p.m. • 9-S.

 Migration and evolution of *Phytophthora* plant pathogens in the age of globalization. E. M. GOSS (1). (1) University of Florida, Gainesville, FL, U.S.A.

2:00 p.m. • 10-S.

 Measuring oomycete biodiversity in aquatic, forest, and agricultural ecosystems: Culture-based and metagenomic approaches. J. E. BLAIR (1). (1) Franklin & Marshall College, Lancaster, PA, U.S.A.

2:30 p.m. • 11-S.

 Evolutionary history and genetic diversity of *Didymella bryoniae* and *Phoma caricae-papayae*, pathogens of cucurbits and papaya. M. T. BREWER (1). (1) University of Georgia, Athens, GA, U.S.A.

3:00 p.m. • Discussion

Small Noncoding RNAs: New Paradigms in Plant-Microbe Interactions

1:00 – 4:00 p.m.; 19AB, CC

Organizers/Moderators: James Bradeen, University of Minnesota, St. Paul, MN, U.S.A.; Leonardo De La Fuente, Auburn University, Auburn, AL, U.S.A.

Sponsoring Committees/Sponsors: Bacteriology; Molecular and Cellular Phytopathology; Widely Prevalent Bacteria Working Group

1:00 p.m. 12-S.

The role of small RNAs in host–fungal interactions. A. Weiberg (1), M. Wang (1), H. JIN (1). (1) University of California-Riverside, Riverside, CA, U.S.A.

1:30 p.m. • 13-S.

The role of viral siRNAs in virus infections of maize. S. Mlotshwa (1), C. Johnson (2), A. Foreman (1), G. Pruss (1), V. Sundaresan (2), K. Scheets (3), L. Bowman (1), V. VANCE (1). (1) University of South Carolina, Columbia, SC, U.S.A.; (2) University of California-Davis, Davis, CA, U.S.A.; (3) Oklahoma State University, Stillwater, OK, U.S.A.

2:00 p.m. • 14-S.

The role of sRNAs in the virulence of the plant pathogen *Xanthomonas campestris* pv. *vesicatoria*. U. BONAS (1). (1) Institute for Biology, Department of Genetics, Martin-Luther-Universität, Halle-Wittenberg, Germany

2:30 p.m. • Break

2:45 p.m. • 15-S.

Phytophthora produces RNA-silencing repressors to promote infection. Y. Qiao (1), Q. Xiong (1), J. Wong (1), W. MA (1). (1) University of California, Riverside, CA, U.S.A.

3:15 p.m. • 16-S.

Application of small RNAs and RNA-silencing mechanisms in fungi. R. DEAN (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

3:45 p.m. • Discussion

Virus Intracellular Accumulation and Movement as a Target for Disease Control

1:00 – 4:00 p.m.; 18C, CC

Organizers/Moderators: Richard Nelson, Noble Foundation, Ardmore, OK, U.S.A.; James Schoelz, University of Missouri, Columbia, MO, U.S.A.

Sponsoring Committee/Sponsor: Virology

1:00 p.m. 17-S.

Investigating a new role for the *Cauliflower mosaic virus* P6 protein: Delivery of virions to plasmodesmata. J. SCHOELZ (1), C. A. Angel (1), A. Rodriguez (1), S. Leisner (2), R. S. Nelson (3). (1) University of Missouri, Columbia, MO, U.S.A.; (2) University of Toledo, Toledo, OH, U.S.A.; (3) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

1:30 p.m. • 18-S.

Virus-vector–host interactions during movement and transmission of *Grapevine fanleaf virus*. C. RITZENTHALER (1), C. Hemmer (2), K. Hliebich (1), F. Berthold (1), C. Schmitt-Keichinger (1), O. Lemaire (3), S. Muyldermans (4), G. Demangeat (3). (1) IBMP CNRS, Strasbourg, France; (2) CNRS INRA, Strasbourg, France; (3) INRA, Colmar, France; (4) VUB VIB, Brussels, Belgium

2:00 p.m. • 19-S.

The importance of chloroplast interactions for local and systemic movement of some members of the *Alphaflexiviridae*. J. HAMMOND (1), A. M. Vaira (2), H. S. Lim (3). (1) USDA ARS, USNA, FNPRU, Beltsville, MD, U.S.A.; (2) CNR, IVV, Torino, Italy; (3) Chungnam National University, Daejeon, Korea

2:30 p.m. • Break

2:45 p.m. • 20-S.

Host membrane recruitment for replication and intercellular movement of *Turnip mosaic virus*. J. F. LALIBERTÉ (1). (1) INRS-Institut Armand-Frappier, Laval, QC, Canada

3:15 p.m. • 21-S.

Assessing vacuole trafficking and metabolizing components for their influence on tobamovirus-induced disease. X. YANG (1), H. Wang (1), B. A. Bishop (1), K. D. Cooper (1), M. Zhu (1), J. E. Schoelz (2), R. S. Nelson (1). (1) The Samuel Roberts Noble Foundation, Inc., Ardmore, OK, U.S.A.; (2) University of Missouri, Columbia, MO, U.S.A.

3:45 p.m. • 22-S.

Summary of virus accumulation and movement findings and their potential application, with Q&A. R. S. NELSON (1). (1) Samuel Roberts Noble Foundation, Inc., Ardmore, OK, U.S.A.

ORAL TECHNICAL SESSIONS

Bacterial-Host Interactions

1:00 – 2:15 p.m.; 16B, CC

Moderators: Jonathan M. Jacobs, University of Wisconsin, Madison, WI, U.S.A.; Ye Xia, University of Kentucky, Lexington, KY, U.S.A.

1:00 p.m. 1-O.

★ **APS Foundation Awardee** *Ralstonia solanacearum* requires PopS, an ancient virulence effector, to suppress SA-mediated defenses during tomato wilt. J. M. JACOBS (1), A. Milling (1), R. M. Mitra (2), F. Ailloud (3), P. Prior (3), C. Allen (1). (1) University of Wisconsin, Madison, WI, U.S.A.; (2) Carleton College, Northfield, MN, U.S.A.; (3) CIRAD-INRA, Saint-Pierre, La Réunion, France

1:15 p.m. • 2-O.

★ **APS Foundation Awardee** *Ralstonia solanacearum* T3SS activation in planta requires nitric oxide reductase. B. L. DALSING (1), J. M. Jacobs (1), A. Milling (1), C. Allen (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

1:30 p.m. • 3-O.

Diverse plant genes are targeted by TAL effectors for disease susceptibility. J. ZHANG (1), H. Yang (2), H. Jia (3), D. Sosso (4), W. Frommer (5), Y. Bing (6), N. Wang (3), J. Jones (2), F. White (1). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) University of Florida, Gainesville, FL, U.S.A.; (3) University of Florida, Lake Alfred, FL, U.S.A.; (4) Stanford University, Stanford, CA, U.S.A.; (5) Carnegie Institution of Science, Stanford, CA, U.S.A.; (6) Iowa State University, Ames, IA, U.S.A.

1:45 p.m. • 4-O.

Additional components involved in thaxtomin induction and regulation by *Streptomyces scabies*. I. FRANCIS (1), Y. Zhang (1), M. J. Kim (1), R. Loria (1). (1) University of Florida, Gainesville, FL, U.S.A.

2:00 p.m. • 5-O.

Characterization of culturable bacterial endophytes of switchgrass (*Panicum virgatum* L.) and their capacity to effect plant growth. Y. XIA (1), C. W. Mucci (1), M. A. Williams (1), S. Debolt (1). (1) University of Kentucky, Lexington, KY, U.S.A.

Disease Diagnosis and Detection

1:00 – 2:15 p.m.; 16A, CC

Moderators: Janna Beckerman, Purdue University, West Lafayette, IN, U.S.A.; Erika Saalau-Rojas, Iowa State University, Ames, IA, U.S.A.

1:00 p.m. 6-O.

Identification and detection of wheat pathogens through volatile organic compound analysis. A. FICKE (1), B. Asalf (1), H. R. Norli (1), G. K. Knudsen (1). (1) Bioforsk Plant Health, Ås, Norway

1:15 p.m. • 7-O.

Real-time detection of airborne *Erysiphe necator* (grape powdery mildew) inoculum with loop-mediated isothermal amplification (LAMP). L. D. THIESEN (1), W. Mahaffee (2), J. A. Keune (1), G. Grove (3). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) USDA-ARS, Corvallis, OR, U.S.A.; (3) Washington State University, Prosser, WA, U.S.A.

1:30 p.m. • 8-O.

SCAR assay as a versatile diagnostic tool for detection of *Macrophomina phaseolina* in cluster bean. A. CHAUDHURY (1). (1) Department of Bio & Nano Technology, GJUS&T Hisar, Hisar, India

1:45 p.m. • 9-O.

Estimation of 'Candidatus Liberibacter asiaticus' populations in Texas citrus trees. M. KUNTA (1), C. de la Garza (1), J. V. da Graça (1), C. C. Parra (1), M. Sétamou (1), E. S. Louzada (1). (1) Texas A&M University-Kingsville, Weslaco, TX, U.S.A.

2:00 p.m. • 10-O.

Live bacterial population dynamics of 'Candidatus Liberibacter asiaticus', the bacterial agent associated with citrus huanglongbing, in two plant hosts. H. HU (1), R. H. Brlansky (1). (1) CREC, IFAS, University of Florida, Lake Alfred, FL, U.S.A.

Fruit Pathogen Epidemiology

1:00 – 2:15 p.m.; 18D, CC

Moderator: Laura Williford, University of Georgia, Athens, GA, U.S.A.

1:00 p.m. • 11-O.

Effect of inoculum concentration on development of anthracnose fruit rot of strawberry cultivars in detached fruit and field experiments. B. B. FORCELINI (1), N. A. Peres (1), F. P. Goncalves (2). (1) University of Florida, Wimauma, FL, U.S.A.; (2) Instituto Agronomico do Parana, Londrina, Brazil

1:15 p.m. • 12-O.

★ **APS Foundation Awardee** Fine-scale genetic structuring and reproductive biology of the blueberry pathogen *Monilinia vaccinii-corymbosi*. K. M. BURCHHARDT (1), M. A. Cubeta (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

1:30 p.m. • 13-O.

Blueberry silverleaf: Morpho genetic diversity of *Chondrostereum purpureum* isolates that are affecting blueberries. R. A. FRANCE (1), V. Becerra (1). (1) INIA, Chillan, Chile

1:45 p.m. • 14-O.

Comparing the effects of southeastern U.S. strains of *Xylella fastidiosa* subsp. *fastidiosa* and *multplex* on blueberry and tobacco. J. E. OLIVER (1), J. M. Brannon (1), P. A. Cobine (1), L. De La Fuente (1). (1) Auburn University, Auburn, AL, U.S.A.

2:00 p.m. • 15-O.

Effects of rootstock on *Xylella fastidiosa* infection and grapevine sap phenolics. A. K. Wallingford (1), C. M. Wallis (1), J. CHEN (1). (1) USDA ARS, Parlier, CA, U.S.A.

Fungal Molecular Systematics and Evolution 1

1:00 – 2:00 p.m.; 12A, CC

Moderator: Vincent Hustad, University of Illinois, Champaign, IL, U.S.A.

1:00 p.m. 16-O.

A survey of ballistosporic phylloplane yeasts in Baton Rouge, Louisiana. S. ALBU (1), M. C. Aime (2). (1) Louisiana State University, Baton Rouge, LA, U.S.A.; (2) Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN, U.S.A.

1:15 p.m. • 17-O.

Species concepts in Geoglossomycetes. V. P. HUSTAD (1), A. N. Miller (2). (1) University of Illinois, Champaign, IL, U.S.A.; (2) Illinois Natural History Survey, Champaign, IL, U.S.A.

1:30 p.m. • 18-O.

A new species of *Paratritirachium* isolated from flare pit soils and the addition of a teleomorph to the generic concept. H. D. T. NGUYEN (1), J. Tanney (1), D. Chabot (1), N. L. Nickerson (2), K. A. Seifert (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON, Canada; (2) Agriculture and Agri-Food Canada, Port Williams, NS, Canada

1:45 p.m. • 19-O.

Comparative genomic analyses of *Rhizoctonia solani*: Insights on evolution and pathogenesis. I. MISNER (1), R. Pandey (2), P. D. (3), N. Alkharouf (4), A. Pain (5), D. K. Lakshman (2). (1) USDA ARS, Towson University, Beltsville, MD, U.S.A.; (2) USDA ARS, Floral & Nursery Plants Research Unit, Beltsville, MD, U.S.A.; (3) USDA ARS, Sustainable Agricultural Systems Laboratory, Beltsville, MD, U.S.A.; (4) Town University, Department of Computer and Information Sciences, Towson, MD, U.S.A.; (5) King Abdullah University of Science and Technology, Thuwal, Saudi Arabia

Plant Disease Management

1:00 – 2:15 p.m.; 18A, CC

Moderators: Kendra Baumgartner, USDA ARS, Davis, CA, U.S.A.; Margaret Lloyd, University of California, Davis, CA, U.S.A.

1:00 p.m. 20-O.

Attachment and germination of *Phytophthora capsici* zoospores on roots of susceptible and resistant peppers. A. R. DUNN (1), C. D. Smart (1). (1) Cornell University, Geneva, NY, U.S.A.

1:15 p.m. • 21-O.

Effect of amended media, temperature, and light on the growth and development of *Cercospora janseana*. K. KAUR (1), C. Hollier (1). (1) Louisiana AgCenter, Baton Rouge, LA, U.S.A.

1:30 p.m. • 22-O.

Effect of watering regime and *Fusarium virguliforme* (Fv) infection on location of soybean cyst nematode (SCN) syncytia in soybean roots. N. TATALOVIC (1), G. L. Tylka (1), L. F. Leandro (1). (1) Iowa State University, Ames, IA, U.S.A.

1:45 p.m. • 23-O.

Defining the stages of infection of grapevine stems with the trunk disease Botryosphaeria dieback. K. BAUMGARTNER (1), R. Travadon (2), E. Galarneau (1), A. McElrone (1). (1) USDA ARS, Davis, CA, U.S.A.; (2) University of California, Davis, CA, U.S.A.

2:00 p.m. • 24-O.

Geostatistics analysis of the relationship between plant nutrition and coffee rust. G. B. Vasco (1), E. A. POZZA (2), G. Dornelas (1), P. V. A. Paula (1), M. L. O. Silva (1), M. C. Alves (3), P. E. Souza (1). (1) Federal University of Lavras, Lavras, Brazil; (2) Department of Plant Pathology, Federal University of Lavras, Lavras, Brazil; (3) Federal University of Mato Grosso, Cuiabá, Brazil

Chemical Control

2:45 – 4:00 p.m.; 18D, CC

Moderators: J. Bradly R. Shaver, Clemson University, Clemson, SC, U.S.A.; Megan Kennelly, Kansas State University, Manhattan, KS, U.S.A.

2:45 p.m. • 25-O.

The importance of fungicides for feeding the world. L. GIANESSI (1). (1) Crop Life Foundation, Washington, DC, U.S.A.

3:00 p.m. • 26-O.

Effects of quinone outside inhibitor fungicides on *Fusarium head blight*, deoxynivalenol, and *Fusarium graminearum* biomass in soft red winter wheat. D. D'ANGELO (1), K. Willyerd (1), A. Cabrera (1), L. Madden (1), P. Paul (1). (1) The Ohio State University, Wooster, OH, U.S.A.

3:15 p.m. • 27-O.

Are foliar fungicides a viable integrated pest management option for hybrid corn? S. O. MALLOWA (1), P. D. Esker (2), P. A. Paul (3), C. A. Bradley (4), A. E. Robertson (1). (1) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.; (2) Escuela de Agronomia Universidad de Costa Rica, San Pedro Montes de Oca, Costa Rica; (3) Ohio State University, Wooster, OH, U.S.A.; (4) Department of Crop Sciences, University of Illinois, Urbana, IL, U.S.A.

3:30 p.m. • 28-O.

Tank mix and alternation of acibenzolar-S-methyl with reduced rates of mandipropamid for control of downy mildew on basil in the greenhouse. Z. MERSHA (1), S. Zhang (2). (1) Lincoln University in Missouri, Cooperative Research and Extension, Jefferson City, MO, U.S.A.; (2) TREC, University of Florida, Homestead, FL, U.S.A.

3:45 p.m. • 29-O.

Impatiens downy mildew: Management options for the greenhouse, nursery, and landscape industries. A. J. PALMATEER (1), I. J. Maguire (1), S. N. Suarez (1), P. N. Lopez (1). (1) University of Florida, Homestead, FL, U.S.A.


Disease Detection**2:45 – 4:00 p.m.; 16A, CC**

Moderators: Richard Lee, National Clonal Repository for Citrus and Dates, USDA ARS, Riverside, CA, U.S.A.; Zachary Snipes, Clemson University, Clemson, SC, U.S.A.

2:45 p.m. • 30-O.

Detection of *Xanthomonas oryzae* pathovars from rice seeds: An assay potentially viable for use in seed trade and germplasm exchange. C. M. VERA CRUZ (1), M. H. R. Nguyen (1), J. M. Lang (2), M. R. G. Burgos (1), B. Cottyn (3), V. Verdier (4), D. Mishra (5), Y. Raj (5), J. E. Leach (6). (1) International Rice Research Institute, Metro Manila, Philippines; (2) Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins, CO, U.S.A.; (3) Institute for Agricultural and Fisheries Research, Merelbeke, Belgium; (4) Institut de Recherche pour le Developpement, Montpellier, France; (5) Bayer CropScience, Hyderabad, India; (6) Colorado State University, Fort Collins, CO, U.S.A.

3:00 p.m. • 31-O.

 Detection of *Xanthomonas oryzae* by loop-mediated isothermal amplification. J. M. LANG (1), P. Langlois (1), H. Nguyen (2), C. M. Vera Cruz (3), L. Purdie (4), T. Holton (4), A. Djikeng (4), V. Verdier (5), J. E. Leach (1). (1) Colorado State University, Fort Collins, CO, U.S.A.; (2) International Rice Research Institute, Los Banos, Philippines; (3) International Rice Research Institute, Metro Manila, Philippines; (4) Biosciences Eastern and Central Africa, Nairobi, Kenya; (5) Institut de Recherche pour le Developpement, Montpellier, France

3:15 p.m. • 32-O.

A method for detecting *Xanthomonas cucurbitae* in pumpkin seed. A. RAVANLOU (1). (1) University of Illinois, Urbana, IL, U.S.A.

3:30 p.m. • 33-O.

Improvement of current detection and identification methods for select agent strains of *Ralstonia solanacearum* via multiplex PCR and qPCR. M. J. STULBERG (1), J. Shao (1), Q. Huang (1). (1) USDA ARS, Beltsville, MD, U.S.A.

3:45 p.m. • 34-O.

Surprising results and implications of the Florida psyllid testing project. S. E. HALBERT (1), M. L. Keremane (2), C. Ramadugu (3), J. A. Lee (4), J. E. Keesling (5), C. Robertson (6), W. O. Dawson (6), R. F. Lee (2). (1) Florida Department of Agriculture & Consumer Services, Division of Plant Industry, Gainesville, FL, U.S.A.; (2) USDA National Clonal Germplasm Repository for Citrus and Dates, Riverside, CA, U.S.A.; (3) University of California-Riverside, Riverside, CA, U.S.A.; (4) Department of Mathematics, University of Florida, Gainesville, FL, U.S.A.; (5) University of Florida, Gainesville, FL, U.S.A.; (6) Citrus Research and Education Center, Lake Alfred, FL, U.S.A.

Food Safety**2:45 – 4:00 p.m.; 16B, CC**

Moderators: Kameka Johnson, Cornell University/NYSAES, Geneva, NY, U.S.A.; Lisa Jones, Cornell University, Geneva, NY, U.S.A.

2:45 p.m. 35-O.

Occurrence and distribution of pathogenic and indicator bacteria on conventionally and organically grown tomatoes and leafy greens

in the mid-Atlantic. S. C. MARINE (1), S. A. Micallef (2), S. Pagadala (2), F. Wang (2), D. M. Pahl (2), M. V. Melendez (3), R. A. Oni (2), C. S. Walsh (2), W. L. Kline (4), K. L. Everts (1), R. L. Buchanan (2). (1) University of Maryland, Salisbury, MD, U.S.A.; (2) University of Maryland, College Park, MD, U.S.A.; (3) Rutgers University, Trenton, NJ, U.S.A.; (4) Rutgers University, Millville, NJ, U.S.A.

3:00 p.m. • 36-O.

Ultraviolet treatment of surface irrigation water for improved plant health and food safety. L. JONES (1), C. D. Smart (1), R. W. Worobo (1). (1) Cornell University, Geneva, NY, U.S.A.

3:15 p.m. • 37-O.

Differential interaction of human pathogens with plants. D. ROY (1), S. Panchal (1), M. Melotto (1). (1) University of Texas-Arlington, Arlington, TX, U.S.A.

3:30 p.m. • 38-O.

Salmonella colonization activates the plant immune system and benefits from association with plant-pathogenic bacteria. F. MENG (1), C. Altier (2), G. B. Martin (2). (1) Boyce Thompson Institute for Plant Research, Ithaca, NY, U.S.A.; (2) Cornell University, Ithaca, NY, U.S.A.

3:45 p.m. • 39-O.

Transgenic approaches to control aflatoxins in maize. R. SAYLER (1), B. Bluhm (1), J. Cary (2), K. Rajasekaran (3), J. Jaynes (4). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Food and Feed Safety Research Unit, USDA, New Orleans, LA, U.S.A.; (3) Food and Feed Safety Research Unit, USDA, New Orleans, AR, U.S.A.; (4) Tuskegee University, Tuskegee, AL, U.S.A.

Fungal Molecular Systematics and Evolution 2**2:45 – 4:00 p.m.; 12A, CC**

Moderator: Tanay Bose, University of British Columbia, Vancouver, BC, Canada

2:45 p.m. 40-O.

Phylogeny of mitosporic Capnodiales and description of a new sooty mold species *Fumiglobus pierisiculus* from British Columbia, Canada. T. BOSE (1), D. R. Reynolds (2), M. L. Berbee (3). (1) University of British Columbia, Vancouver, BC, Canada; (2) Jepson Herbaria, University of California, Berkeley, CA, U.S.A.; (3) Department of Botany, University of British Columbia, Vancouver, BC, Canada


3:00 p.m. • 41-O.

Phylogenetic relationships of endophytic and endolichenic fungi reveal a new order within the class Eurotiomycetes. K. H. CHEN (1), J. Miadlikowska (1), K. Molnár (1), E. A. Arnold (2), J. M. U'Ren (2), E. Gaya (1), F. Lutzoni (1). (1) Department of Biology, Duke University, Durham, NC, U.S.A.; (2) School of Plant Sciences, University of Arizona, Tucson, AZ, U.S.A.

3:15 p.m. • 42-O.

Phylogenetic analyses place *Paranectria* in the Nectriaceae. C. S. HERRERA (1), A. Y. Rossman (2), G. J. Samuels (2), P. Chaverri (1). (1) University of Maryland-College Park, College Park, MD, U.S.A.; (2) USDA ARS, Systematic Mycology and Microbiology Laboratory, Beltsville, MD, U.S.A.

3:30 p.m. • 43-O.

 Molecular phylogeny of fungi in the genus *Thelonectria* (Hypocreales, Nectriaceae): Are they really monophyletic? C. SALGADO-SALAZAR (1), A. Y. Rossman (2), P. Chaverri (3). (1) University of Maryland, College Park, MD, U.S.A.; (2) USDA-ARS, Beltsville, MD, U.S.A.; (3) Department of Plant Science and Landscape Architecture, University of Maryland, College Park, MD, U.S.A.

3:45 p.m. • 44-O.

Phylogenetic lineages within *Alternaria* and allied genera. J. H. C. WOUDEMBERG (1), J. Z. Groenewald (1), P. W. Crous (1). (1) CBS-KNAW Fungal Biodiversity Centre, Utrecht, Netherlands

Host Resistance

2:45 – 4:15 p.m.; 18A, CC

Moderators: Imana Power, University of Georgia, Athens, GA, U.S.A.; Margaret L. Ellis, Iowa State University, Ames, IA, U.S.A.

2:45 p.m. • 45-O.

Genotypic and phenotypic characterization of isolates in the *Fusarium oxysporum* species complex from soybean roots. M. L. ELLIS (1), D. R. Cruz Jimenez (1), B. F. Linn (1), L. F. Leandro (1), G. P. Munkvold (1). (1) Iowa State University, Ames, IA, U.S.A.

3:00 p.m. 46-O.

Characterization of ectotrophic root-infecting fungi isolated from ultradwarf bermudagrass (*Cynodon dactylon* × *C. transvaalensis*) root materials. P. L. VINES (1), M. Tomaso-Peterson (1), T. Allen (1), B. Stewart (1), F. Meyer (1), J. Dubien (1). (1) Mississippi State University, Mississippi State, MS, U.S.A.

3:15 p.m. • 47-O.

Systemic infection in chrysanthemum plants by *Puccinia horiana*, causal agent of chrysanthemum white rust. M. R. BONDE (1), C. A. Murphy (2), G. R. Bauchan (2), D. G. Luster (1), C. L. Palmer (3), S. E. Nester (1), D. K. Berner (1). (1) USDA ARS, Frederick, MD, U.S.A.; (2) USDA ARS, Beltsville, MD, U.S.A.; (3) Rutgers University, Princeton, NJ, U.S.A.

3:30 p.m. 48-O.

Temporal dynamics of soybean root colonization by *Fusarium virguliforme*. J. WANG (1), J. L. Jacobs (1), M. I. Chilvers (1). (1) Michigan State University, East Lansing, MI, U.S.A.

3:45 p.m. • 49-O.

Histological characterization of wheat leaf rust resistance components in Thatcher isolines carrying race specific and race non-specific genes. S. Dugyala (1), P. Borowicz (1), R. Brueggeman (1), M. ACEVEDO (1). (1) North Dakota State University, Fargo, ND, U.S.A.

4:00 p.m. • 50-O.

Analysis of rice PDR-like ABC transporter genes in sheath blight resistance. S. Lee (1), P. Singh (2), M. H. Jia (3), Y. JIA (3). (1) University of Arkansas, Rice Research and Extension Center, Stuttgart, AR, U.S.A.; (2) Technology Advancement Unit (TAU), Department of Biotechnology, Government of India, Lausanne, Switzerland; (3) USDA ARS, Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.




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MONDAY, AUGUST 12, 2013

Special Sessions listed first, followed by Oral Technical Sessions. Listed in alphabetical order by session title. Find complete details on the meeting website at www.apsnet.org/meetings/annual/program/Pages/. As a courtesy to presenters, please do not take photographs during presentations.

Meeting room key: Convention Center = CC

SPECIAL SESSIONS


13th I. E. Melhus Graduate Student Symposium: What's in Our Toolbox to Minimize the Risk of Plant Disease?

8:30 – 11:30 a.m.; 19AB, CC


Organizer/Moderator: Kira Bowen, Auburn University, Auburn, AL, U.S.A.

Sponsoring Committees/Sponsors: Crop Loss Assessment and Risk Evaluation (CARE); APS Foundation


8:30 a.m. 23-S.

 Soft red winter wheat yield and quality as influenced by the Fusarium head blight-Stagonospora leaf blotch complex and disease management strategies. J. D. SALGADO (1), L. V. Madden (1), P. A. Paul (1). (1) Ohio State University, Wooster, OH, U.S.A.

9:00 a.m. • 24-S.


 Factors affecting the timing of abscission of peach and nectarine leaves infected with *Xanthomonas arboricola* pv. *pruni*. S. BARDSLEY (1), H. Ngugi (1), M. D. Jimenez-Gasco (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.

9:30 a.m. • 25-S.


 Environmental and management factors associated with bacterial rots of onion in Pennsylvania. E. E. PFEUFER (1), M. A. Mansfield (1), B. K. Gugino (1). (1) Pennsylvania State University, University Park, PA, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 26-S.

 Integrated control of Allium white rot. A. E. FERRY (1), R. M. Davis (2). (1) University of California-Davis, Woodland, CA, U.S.A.; (2) University of California-Davis, Davis, CA, U.S.A.

10:45 a.m. • 27-S.

 An integrated approach to understanding tomato sour rot and improving disease management. K. FIEDLER (1), S. Rideout (1). (1) Virginia Tech Eastern Shore AREC, Painter, VA, U.S.A.

11:15 a.m. Discussion

An Unconventional Classroom: Reaching New Students with Online and Distance Courses and Programs

8:30 – 11:30 a.m.; 18A, CC

Organizers: Maya Hayslett, University of Wisconsin, Madison, WI, U.S.A.; Anissa Poleatewich, Vineland Research & Innovation Center, Vineland Station, ON, Canada

Moderators: Anissa Poleatewich, Vineland Research & Innovation Center, Vineland Station, ON, Canada; Darin Eastburn, University of Illinois, Urbana, IL, U.S.A.

Sponsoring Committees/Sponsors: Office of Education; Teaching

8:30 a.m. 28-S.

Selection and use of technology for offering a distance course in plant pathology. D. SHEW (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

9:00 a.m. • 29-S.

The challenges and opportunities of teaching plant pathology at a distance. E. LITTLE (1). (1) Department of Plant Pathology, University of Georgia, Athens, GA, U.S.A.

9:30 a.m. • 30-S.

Teaching tropical plant pathology to a global audience. J. B. RISTAINO (1), M. Daub (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 31-S.

Masters-level agricultural biosecurity education for location-bound adult learners. G. KULDAU (1). (1) Pennsylvania State University, State College, PA, U.S.A.

10:45 a.m. • 32-S.

What's in it for us? Creating financial and academic incentives for faculty in an online degree program. D. G. PFEIFFER (1). (1) Virginia Tech, Blacksburg, VA, U.S.A.

11:15 a.m. Discussion

Innovations in Microbial Forensics and Plant Biosecurity

8:30 – 11:30 a.m.; 16B, CC

Organizers: Jacqueline Fletcher, Oklahoma State University, Stillwater, OK, U.S.A.; James Stack, Kansas State University, Manhattan, KS, U.S.A.; Russ Bulluck, USDA APHIS PPQ CPHST, Raleigh, NC, U.S.A.; Forrest Nutter, Iowa State University, Ames, IA, U.S.A.; Carla Thomas, University of California-Davis, Davis, CA, U.S.A.; William Schneider, USDA-ARS, Fort Detrick, MD, U.S.A.

Moderators: Jacqueline Fletcher, Oklahoma State University, Stillwater, OK, U.S.A.; William Schneider, USDA-ARS, Fort Detrick, MD, U.S.A.

Sponsoring Committees/Sponsors: Microbial Forensics Interest Group; Emerging Diseases and Pathogens; Crop Loss Assessment and Risk Evaluation (CARE); Epidemiology

8:30 a.m. 33-S.

New strategy, ongoing operations, and innovative projects at the National Biosurveillance Integration Center. T. QUITUGUA (1). (1) Department of Homeland Security, Washington, DC, U.S.A.

9:00 a.m. • 34-S.

Forensic epidemiology: New sensor-based plant pathogen detection: Where to look for evidence in a 300-acre crop. F. NUTTER (1). (1) Iowa State University, Ames, IA, U.S.A.

9:30 a.m. 35-S.

Advances in pathogen detection for forensic plant pathology. N. BERGMAN (1). (1) National Bioforensic Analysis Center, Fort Detrick, MD, U.S.A.

10:00 a.m. Break

10:15 a.m. 36-S.

Forensic methods for pathogen strain typing. J. BURANS (1). (1) National Bioforensic Analysis Center, Fort Detrick, MD, U.S.A.

10:45 a.m. 37-S.

Bioinformatics strategies for microbial forensics. W. SCHNEIDER (1), R. Verma (2), A. Stobbe (2), J. Daniels (2), A. Espindola (2), T. Blagden (2), J. Fletcher (2), F. M. Ochoa-Corona (2), C. Garzon (2), U. Melcher (2). (1) USDA ARS, Fort Detrick, MD, U.S.A.; (2) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.

11:15 a.m. Discussion

New Horizons in the Cell Biology of Fungi

8:30 – 11:30 a.m.; 18C, CC

Organizers/Moderators: Rosa Mourifié-Pérez and Rufina Hernández-Martínez, CICESE, Ensenada, Mexico

8:30 a.m. • 38-S.

The glowing guts of *Neurospora crassa* hyphae. M. RIQUELME (1), R. Fajardo-Somera (1). (1) CICESE, Ensenada, Mexico

9:00 a.m. • 39-S.

Live cell imaging of the dynamic actin cytoskeleton during growth and development in *Aspergillus nidulans*. B. D. SHAW (1), L. Quintanilla (1), A. Hilton (1), D. Moncada-Monsivais (1). (1) Texas A&M University, College Station, TX, U.S.A.

9:30 a.m. • 40-S.

Revealing fungal communication modules by genomics, population genomics, and genome wide association studies in *Neurospora crassa*. N. L. GLASS (1), J. Palma-Guerrero (1), W. Jonkers (1), A. Leeder (1), C. Hall (1), D. Kowbel (1), J. W. Taylor (1), R. Brem (1). (1) University of California, Berkeley, CA, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 41-S.

Role of the small RNA machinery in the physiology and antagonistic potential of the biocontrol agent *T. atroviride*. A. HERREIRA-ESTRELLA (1). (1) LANGE BIO-CINVESTAV, Irapuato, Mexico

10:45 a.m. • 42-S.

Following the compartmentalization of filamentous fungus. R. R. MOURIÑO-PÉREZ (1). (1) CICESE, Ensenada, Mexico

11:15 a.m. Discussion

Status and Challenges in Identification and Diagnosis of Graminicolous Downy Mildews

8:30 – 11:30 a.m.; 12A, CC

Organizers: Z. Gloria Abad, USDA-APHIS-CPHST, Beltsville, MD, U.S.A.; Patricia De Sa Snow, USDA-APHIS-BRS, Riverdale, MD, U.S.A.

Moderator: Z. Gloria Abad, USDA-APHIS-CPHST, Beltsville, MD, U.S.A.

Sponsoring Committees/Sponsors: Regulatory Plant Pathology; Emerging Diseases and Pathogens; Diagnostics

8:30 a.m. • 43-S.

Biology of downy mildews from gramineaceous crops. G. L. PETERSON (1). (1) USDA ARS, Fort Detrick, MD, U.S.A.

9:00 a.m. • 44-S.

Downy mildews from gramineaceous crops in North America and those of regulatory concern. C. W. MAGILL (1). (1) Texas A&M University, College Station, TX, U.S.A.

9:30 a.m. • 45-S.

Environmental metagenomics of oomycetes and downy mildews. A. LÉVESQUE (1), C. Lewis (1), W. Chen (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON, Canada

10:00 a.m. • Break

10:15 a.m. • 46-S.

Taxonomy and phylogeny of graminicolous downy mildews. M. Thines (1), S. TELLE (1). (1) Biodiversity and Climate Research Centre (BiK-F), Frankfurt am Main, Germany

10:45 a.m. • 47-S.

Status, challenges and tools for identification and diagnosis of *Peronosclerospora* and *Sclerophthora* of regulatory concern for graminicolous crops. Z. G. ABAD (1), J. Bienapfl (1), D. G. Luster (2), M. Carter (2), M. Thines (3), S. Telle (4), M. J. J. Riley (5),

A. Levesque (6), R. G. Shivas (5), F. M. Dela Cueva (7), J. A. Crouch (8), M. K. Nakhla (1). (1) USDA-APHIS-PPQ-CPHST Beltsville Laboratory, Beltsville, MD, U.S.A.; (2) USDA-ARS, Fort Detrick, Frederick, MD, U.S.A.; (3) Dept. Biol. Sci., Inst. Ecol. Evol. and Div., J. W. Goethe University, Frankfurt, Germany; (4) Frankfurt, Germany; (5) Plant Pathology Herbarium, Agri-Science Queensland, Queensland, Australia; (6) Agriculture and Agri-Food Canada, Ottawa, ON, Canada; (7) The University of Philippines, Laguna, Philippines; (8) Systematic Mycology & Microbiology Laboratories, USDA-ARS, Beltsville, MD, U.S.A.

11:15 a.m. Discussion

ORAL TECHNICAL SESSIONS

Bacterial Virulence Mechanisms 1

8:30 – 9:45 a.m.; 18B, CC

Moderator: Tiffany Lowe, University of Wisconsin, Madison, WI, U.S.A.

8:30 a.m. • 51-O.

Zinc regulates biofilm and exopolysaccharide production in *Xylella fastidiosa*. F. NAVARRETE (1), L. De La Fuente (2). (1) Auburn University, Auburn, AL, U.S.A.; (2) Auburn university, Auburn, AL, U.S.A.

8:45 a.m. • 52-O.

Identification of a *Xylella fastidiosa* *pilY1* homolog responsible for twitching motility response to calcium. L. F. CRUZ (1), L. De La Fuente (1). (1) Auburn University, Auburn, AL, U.S.A.

9:00 a.m. • 53-O.

Role of a thioredoxin family protein in *Xylella fastidiosa* virulence. K. L. JOHNSON (1), P. Mowery (2), T. J. Burr (1). (1) Cornell University, Geneva, NY, U.S.A.; (2) Hobart and Williams Smith Colleges, Geneva, NY, U.S.A.

9:15 a.m. • 54-O.

★ **APS Foundation Awardee** Siderophore-mediated iron uptake is important for planta growth of *Pantoea stewartii* subsp. *stewartii*. L. BURBANK (1), M. Mohammadi (1), C. Roper (1). (1) University of California-Riverside, Riverside, CA, U.S.A.

9:30 a.m. • 55-O.

★ **APS Foundation Awardee** Extracellular DNases contribute to virulence of *Ralstonia solanacearum*. T. M. TRAN (1), M. C. Hawes (2), C. Allen (1). (1) Department of Plant Pathology, University of Wisconsin-Madison, Madison, WI, U.S.A.; (2) Department of Plant Sciences, Division of Plant Pathology and Microbiology, University of Arizona, Tucson, AZ, U.S.A.

Fungal Ecology 1

8:30 – 9:45 a.m.; 18D, CC

Moderator: Shawn Brown, Kansas State University, Manhattan, KS, U.S.A.

8:30 a.m. • 56-O.

Fungal community investigation across a deglaciated forefront using ITS and LSU analyses reveals strong successional trajectories. S. P. BROWN (1), A. Jumpponen (1). (1) Kansas State University, Manhattan, KS, U.S.A.

8:45 a.m. • 57-O.

Effects of environment and host on endophyte communities of coastal dune grasses. A. S. DAVID (1), E. W. Seabloom (1), G. May (1). (1) University of Minnesota, St. Paul, MN, U.S.A.

9:00 a.m. • 58-O.

Plant-microbe relationships determine winners and losers in response to nitrogen pollution. S. HICKS (1), E. Farrer (2), D. L. Taylor (1), A. P. Alfaro (3), K. Suding (2), R. Sinsabaugh (1). (1) University of New Mexico, Albuquerque, NM, U.S.A.; (2) University of California-Berkeley, Berkeley, CA, U.S.A.; (3) Western Illinois University, Macomb, IL, U.S.A.

9:15 a.m. • 59-O.

Marram grass and dune fungi: Hunting for hidden change. R. B. JOHANSEN (1). (1) The University of Auckland, Auckland, New Zealand

9:30 a.m. • 60-O.

Alkaloids produced by a defensive symbiont may have evolved from a plant stress metabolite. J. PAN (1), M. Bhardwaj (1), R. B. Grossman (1), C. L. Schardl (1). (1) University of Kentucky, Lexington, KY, U.S.A.

Fungal Molecular Systematics & Evolution 3**8:30 – 9:45 a.m.; 16A, CC**

Moderator: Ulrike Damm, CBS-KNAW Fungal Biodiversity Centre, Utrecht, Netherlands

8:30 a.m. • 61-O.

Problems in ITS-rDNA taxonomy: Hypervariable ITS sequences among isolates and within single-ascospore strains of *Ceratocystis fimbriata sensu stricto*. T. HARRINGTON (1). (1) Iowa State University, Ames, IA, U.S.A.

8:45 a.m. • 62-O.

Revisiting the phylogeny of Teratosphaeriaceae using established and novel markers. M. BINDER (1), B. Stielow (1), J. Z. Groenewald (1), P. W. Crous (1). (1) CBS Knaw, Utrecht, Netherlands

9:00 a.m. • 63-O.

Unraveling legume anthracnose pathogens. U. DAMM (1), F. Liu (2), P. F. Cannon (3), P. W. Crous (1). (1) CBS-KNAW Fungal Biodiversity Centre, Utrecht, Netherlands; (2) State Key Laboratory of Mycology, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China; (3) CABI Europe-UK and Royal Botanic Gardens, Kew, United Kingdom

9:15 a.m. • 64-O.

Fusarium solani f. sp. *piperis* the causal agent of fusariosis of black pepper in Brazil is a distinct phylogenetic and biological species in the FSSC. L. H. PFENNING (1), A. B. Vaz (1), S. S. Costa (1), L. M. Abreu (1), J. A. Ventura (2). (1) Universidade Federal de Lavras, Lavras, Brazil; (2) Instituto Capixaba de Pesquisa, Assistencia Tecnica e Extensao Rural INCAPER, Vitoria, Brazil

9:30 a.m. • 65-O.

Shotgun poplar disease diagnostic using next gen sequencing. B. DHILLON (1), N. Feau (1), R. C. Hamelin (1). (1) University of British Columbia, Vancouver, BC, Canada

Virus Characterization**8:30 – 9:45 a.m.; 12B, CC**

Moderator: Sudarsana Poojari, Washington State University, Prosser, WA, U.S.A.

8:30 a.m. • 66-O.

Molecular diversity of *Citrus tristeza virus* in California. J. WANG (1), R. Yokomi (2), R. Lee (3), S. Y. Folimonova (4), G. Vidalakis (1). (1) University of California, Riverside, CA, U.S.A.; (2) USDA ARS, Parlier, CA, U.S.A.; (3) USDA ARS, Riverside, CA, U.S.A.; (4) University of Florida, Gainesville, FL, U.S.A.

8:45 a.m. • 67-O.

The quantity and genetic diversity analysis of *Grapevine vein clearing virus* in four types of grapevine tissues. S. HONESTY (1), Q. Guo (2). (1) Missouri State University, Hazelwood, MO, U.S.A.; (2) Missouri State University, Mountain Grove, MO, U.S.A.

9:00 a.m. • 68-O.

Molecular biodiversity of tomato yellow leaf curl disease associated viruses in Saudi Arabia. K. ALHUDAIB (1), A. Rezk (1), W. Alaraby (1). (1) King Faisal University, Hofuf, Saudi Arabia

9:15 a.m. • 69-O.

★ APS Foundation Awardee Next-generation sequencing of grapevines showing redleaf symptoms implicates a leafhopper-transmissible DNA virus in the family *Geminiviridae*. S. POOJARI (1), O. J. Alabi (1), V. Y. Fofanov (2), R. A. Naidu (1). (1) Washington State University, Prosser, WA, U.S.A.; (2) Eureka Genomics, Hercules, CA, U.S.A.

9:30 a.m. • 70-O.

Genome analysis and biological characterization of *Moroccan pepper virus* (MPV), and reclassification of Lettuce necrotic stunt virus as MPV. W. M. WINTERMANTEL (1). (1) USDA ARS, Salinas, CA, U.S.A.

Bacterial Virulence Mechanisms 2**10:15 – 11:15 a.m.; 18B, CC**

Moderators: Carolee Bull, USDA ARS, Salinas, CA, U.S.A.; Beth Lynn Dalsing, University of Wisconsin, Madison, WI, U.S.A.

71-O. WITHDRAWN

10:15 a.m. • 72-O.

★ APS Foundation Awardee Do JAZs restrict/assist pathogen entry via stomata? N. OBULAREDDY (1), M. Melotto (1). (1) University of Texas-Arlington, Arlington, TX, U.S.A.

10:30 a.m. • 73-O.

Characterizing DAMP induced innate immune responses in rice. A. RANJAN (1), H. K. Patel (2), R. V. Sonti (2). (1) Centre for Cellular & Molecular Biology, Hyderabad, India; (2) Centre for Cellular and Molecular Biology, Hyderabad, India

10:45 a.m. • 74-O.

★ APS Foundation Awardee *Ralstonia solanacearum* degrades hydroxycinnamic acids, a class of plant defense molecules. T. M. LOWE (1), R. M. Mitra (2), A. Milling (1), M. Mustful (1), C. Allen (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.; (2) Carleton College, Northfield, MN, U.S.A.

11:00 a.m. • 75-O.

Internal colonization of lettuce leaves by *Xanthomonas campestris* pv. *vitians* is influenced by lettuce cultivar. C. T. BULL (1), M. A. Trent (1), R. J. Hayes (1). (1) USDA ARS, Salinas, CA, U.S.A.

Ectomycorrhizal Community Ecology and Endophytes**10:15 – 11:30 a.m.; 18D, CC**

Moderator: Gwendolyn Williams, Duke University, Durham, NC, U.S.A.

10:15 a.m. • 76-O.

Variation in ectomycorrhizal community composition along a soil nutrient gradient in montane forest in western Panama. A. CORRALES OSORIO (1), J. Dalling (1), A. E. Arnold (2), K. McGuire (3). (1) University of Illinois Urbana-Champaign, Urbana, IL, U.S.A.; (2) University of Arizona, Tucson, AZ, U.S.A.; (3) Columbia University, New York, NY, U.S.A.

10:30 a.m. • 77-O.

Examining ectomycorrhizal communities in *Pinus ponderosa* and *Pinus contorta* in the Deschutes National Forest. M. O. GARCIA (1), D. L. Luoma (1), J. E. Smith (2). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) Pacific Northwest Research Station, USDA Forest Service, Corvallis, OR, U.S.A.

10:45 a.m. • 78-O.

Ectomycorrhizal community responses to recurring prescribed fires in yellow pine forests: Effects of fire intervals and season. A. K. OLIVER (1), S. P. Brown (1), M. Callahan (2), A. Jumpponen (3). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) USDA Forest Service, Athens, GA, U.S.A.; (3) Division of Biology, Kansas State University, Manhattan, KS, U.S.A.

11:00 a.m. • 79-O.

Ectomycorrhizal communities on pine and oak seedlings converge in the absence of canopy tree influence. G. C. WILLIAMS (1), R. Vilgalys (1). (1) Duke University, Durham, NC, U.S.A.

11:15 a.m. • 80-O.

Foliar fungal endophytes associated with *Cornus* (dogwood) species in Japan and North America. S. J. MILLER (1), H. Masuya (2), J. Luo (1), N. Zhang (1). (1) Rutgers University, New Brunswick, NJ, U.S.A.; (2) Forestry and Forest Products Research Institute, Matsunosato, Tsukuba, Ibaraki, Japan

Fungal Genomics and Ecology

10:15 – 11:30 a.m.; 16A, CC

Moderator: Gregory Bonito, Duke University, Durham, NC, U.S.A.

10:15 a.m. • 81-O.

Transcriptional profiling of sclerotia formation in the soil fungus *Rhizoctonia solani*. E. Thomas (1), S. Pakala (2), V. Joardar (2), W. C. Nierman (2), M. A. CUBETA (1). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) J. Craig Venter Institute, Rockville, MD, U.S.A.

10:30 a.m. • 82-O.

Co-evolution of *Mortierella elongata* and its endosymbiotic bacterium. G. BONITO (1), A. Gryganskyi (1), K. Hameed (1), C. Schadt (2), D. Pelletier (2), A. Schaefer (3), G. Tuskan (2), J. Labbe (2), F. Martin (4), M. Doktycz (2), K. LaButti (5), R. Ohm (6), I. Grigoriev (6), R. Vilgalys (1). (1) Duke University, Durham, NC, U.S.A.; (2) Oak Ridge National Laboratory, Oak Ridge, TN, U.S.A.; (3) University of Washington, Seattle, WA, U.S.A.; (4) INRA, Nancy, France; (5) Department of Energy - LBL, Berkeley, CA, U.S.A.; (6) Joint Genome Institute, Walnut Creek, CA, U.S.A.

10:45 a.m. • 83-O.

Genomic comparison of closely related boreal endophytes. V. L. WONG (1), J. M. U'Ren (2), J. Miadlikowska (3), J. T. Monacell (4), K. Arendt (2), J. P. Shaffer (2), A. E. Arnold (2), F. Lutzoni (5), I. Carbone (4), G. May (1). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) University of Arizona, Tucson, AZ, U.S.A.; (3) Department of Biology, Duke University, Durham, NC, U.S.A.; (4) North Carolina State University, Raleigh, NC, U.S.A.; (5) Duke University, Durham, NC, U.S.A.

11:00 a.m. • 84-O.

Mosquito midguts and the trichomycete fungi that don't live there. C. E. BEARD (1). (1) Clemson University, Clemson, SC, U.S.A.

11:15 a.m. • 85-O.

Sequential utilization of hosts from different fly families by the fungal pathogen *Entomophthora muscae*. A. GRYGANSKYI (1), H. L. Liao (1), R. A. Humber (2), J. E. Stajich (3), B. Mullens (3), I. M. Anishchenko (4), R. Vilgalys (1). (1) Duke University, Durham, NC, U.S.A.; (2) USDA ARS BioIPM Research, Ithaca, NY, U.S.A.; (3) University of California-Riverside, Riverside, CA, U.S.A.; (4) M. Kholodny Institute of Botany, Kyiv, Ukraine

Resistance to Viruses and Virus Characterization

10:15 – 11:30 a.m.; 12B, CC

Moderators: Steve Lommel, North Carolina State University, Raleigh, NC, U.S.A.; Godwill Chewachong, Ohio State University, Wooster, OH, U.S.A.

10:15 a.m. • 86-O.

Efficient “vaccination” of *Nicotiana benthamiana* and tomato plants using a lab-attenuated strain of *Pepino mosaic virus*. G. M. CHEWACHONG (1), J. J. Blakeslee (2), M. A. Ellis (1), S. A. Miller (1), F. Qu (1). (1) Department of Plant Pathology, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH, U.S.A.; (2) Department of Horticulture and Crop Science, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster, OH, U.S.A.

10:30 a.m. • 87-O.

Implications of host plant resistance against whitefly-transmitted *Tomato yellow leaf curl virus* in tomato for virus epidemics and management. R. SRINIVASAN (1), A. Barman (1), D. Riley (1), S. Adkins (2). (1) University of Georgia, Tifton, GA, U.S.A.; (2) U.S. Horticultural Research Laboratory, Fort Pierce, FL, U.S.A.

10:45 a.m. • 88-O.

Resistance to infection by *Potato virus Y* among selected varieties for improved seed potato production. C. ZHANG (1), R. L. Groves (2). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.; (2) Department of Entomology, University of Wisconsin-Madison, Madison, WI, U.S.A.

11:00 a.m. • 89-O.

Complete genome sequence of nuclear citrus leprosis utilizing small RNA deep sequencing. A. ROY (1), N. Choudhary (1), G. Otero-Colina (2), G. Wei (3), A. Stone (4), D. Achor (1), J. Shao (5), L. Levy (6), M. K. Nakhla (3), C. R. Hollingsworth (7), J. S. Hartung (5), W. Schneider (4), R. H. Brlansky (1). (1) University of Florida, Lake Alfred, FL, U.S.A.; (2) Colegio de Postgraduados, Montecillo, Texcoco, Mexico; (3) USDA-APHIS-PPQ-CPHST, Beltsville, MD, U.S.A.; (4) USDA-ARS, FDWSRU, Fort Detrick, MD, U.S.A.; (5) USDA-ARS, MPPL, Beltsville, MD, U.S.A.; (6) USDA-APHIS-PPQ-CPHST, Riverdale, MD, U.S.A.; (7) USDA-APHIS-PPQ-CPHST, Raleigh, NC, U.S.A.

11:15 a.m. • 90-O.

Molecular characterization and detection of *Mexican papita viroid*. R. LI (1), K. S. Ling (1). (1) USDA-ARS, U.S. Vegetable Laboratory, Charleston, SC, U.S.A.

TUESDAY, AUGUST 13, 2013 (morning)

Special Sessions listed first, followed by Oral Technical Sessions. Listed in alphabetical order by session title. Find complete details on the meeting website at www.apsnet.org/meetings/annual/program/Pages/. As a courtesy to presenters, please do not take photographs during presentations.

Meeting room key: Convention Center = CC

■ SPECIAL SESSIONS

Emerging Issues of Mycotoxins in Food Safety

8:30 – 11:30 a.m.; 12B, CC

Organizers/Moderators: Ramon Jaime, University of Arizona, Tucson, AZ, U.S.A.; Themis Michailides, University of California-Davis, Parlier, CA, U.S.A.

Sponsoring Committees/Sponsors: Mycotoxicology; Seed Pathology

8:30 a.m. • 48-S.

Impacts of the Midwest 2012 drought on aflatoxin contamination of maize. A. E. ROBERTSON (1), C. A. Bradley (2), C. Hurburgh (3), D. Jardine (4), R. Pruisner (5), K. Wise (6). (1) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.; (2) Department of Crop Sciences, University of Illinois, Urbana, IL, U.S.A.; (3) Department of Agriculture and Biosystems Engineering, Iowa State University, Ames, IA, U.S.A.; (4) Department of Plant Pathology, Kansas State University, Manhattan, KS, U.S.A.; (5) Iowa Department of Agriculture and Land Stewardship, Ankeny, IA, U.S.A.; (6) Department of Plant Pathology, Purdue University, West Lafayette, IN, U.S.A.

9:00 a.m. • 49-S.

Influences of weather on aflatoxin-producing fungi and aflatoxin concentrations in crops. P. J. COTTY (1), A. Ortega-Beltran (2), R. Jaime (2). (1) USDA ARS, Tucson, AZ, U.S.A.; (2) University of Arizona, Tucson, AZ, U.S.A.

9:30 a.m. • 50-S.

Challenges in using the biopesticide AF36 in pistachio orchards to reduce aflatoxin contamination. M. A. Doster (1), P. J. Cotty (2), R. D. Puckett (1), D. P. Morgan (1), T. J. MICHAILIDES (1). (1) University of California, Parlier, CA, U.S.A.; (2) USDA ARS, University of Arizona, Tucson, AZ, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 51-S.

Fumonisin production by black *Aspergillus* species in maize. G. MUNKVOLD (1), A. Logrieco (2), A. Susca (2), M. Sul yok (3), R. Krska (3), G. Mulè (2), A. Moretti (2). (1) Iowa State University, Ames, IA, U.S.A.; (2) CNR Institute for Food Production Science, Bari, Italy; (3) BOKU-University of Natural Resources and Life Sciences, Vienna, Tulln, Austria

10:45 a.m. • 52-S.

When mycotoxins come in bunches: Fumonisin production by *Aspergillus niger* in grapes. J. D. PALUMBO (1), T. L. O'Keefe (1). (1) USDA ARS WRRC, Albany, CA, U.S.A.

11:00 a.m. • 53-S.

Aflatoxin and fumonisin contamination in corn smut (*Ustilago maydis*) galls in the field and in the grocery store. H. K. ABBAS (1), M. A. Weaver (1), W. T. Shier (2), R. M. Zablotowicz (3), J. D. Plasencia (4). (1) USDA ARS, Biological Control of Pests Research Unit, Stoneville, MS, U.S.A.; (2) University of Minnesota, Department of Medicinal Chemistry, College of Pharmacy, Minneapolis, MN, U.S.A.; (3) USDA ARS, Crop Production Systems Research Unit, Stoneville, MS, U.S.A.; (4) University of Mexico, Mexico City, Mexico

11:15 a.m. Discussion

Filling in the Gaps: How Do Xanthomonads Adapt to Diverse Hosts, Tissues, and Environments?

8:30 – 11:30 a.m.; 19AB, CC

Organizers/Moderators: Valerie Verdier, Institut de Recherche pour le Développement, Montpellier, France; Lindsay Triplett, Colorado State University, Fort Collins, CO, U.S.A.

8:30 a.m. • 54-S.

The xylan utilization system of *Xanthomonas campestris* controls epiphytic life and reveals common features with animal gut symbionts. M. ARLAT (1), G. Déjean (1), S. Blanvillain (1), E. Lauber (2). (1) INRA/CNRS University Toulouse 3, Castanet Tolosan, France; (2) INRA/CNRS, Castanet Tolosan, France

9:00 a.m. • 55-S.

Contribution of type III/TAL effectors to pathogenicity. J. Boch (1), T. Boureau (2), C. Brin (2), S. Cunnac (3), P. David (2), J. X. Feng (4), A. Hajri (2), M. Hutin (3), R. KOEBNIK (3), W. L. Mo (4), C. Pesce (3), S. Poussier (5), J. Streubel (1), B. Szurek (3), J. L. Tang (4), W. Tang (4), T. T. Tran (3), V. Verdier (6), F. Wu (4), S. Zhao (4). (1) Martin Luther University, Halle (Saale), Germany; (2) Institut de Recherche en Horticulture et Semences, Beaucaouzé, France; (3) Institut de Recherche pour le Développement, Montpellier, France; (4) Guangxi University, Nanning, China; (5) Université de la Réunion, Saint-Denis, La Réunion, France; (6) Colorado State University, Fort Collins, CO, U.S.A.

9:30 a.m. • 56-S.

Genome and transcriptome analysis to reveal adaptation to new environments and hosts. L. GAGNEVIN (1), B. Roux (2), S. Bolot (2), S. Carrère (2), E. Charbit (3), S. Cunnac (4), M. A. Jacques (3), L. D. Noël (5), M. Arlat (6), R. Koebnik (4). (1) UMR PVBMT, CIRAD, Saint-Pierre, La Réunion, France; (2) Laboratoire des Interactions Plantes Micro-organismes (LIPM), INRA, UMR 441, Castanet-Tolosan, France; (3) UMR1345 IRHS, INRA, Beaucaouzé, France; (4) UMR186 RPB, IRD, Montpellier, France; (5) Laboratoire des Interactions Plantes Micro-organismes (LIPM), CNRS, UMR 2594, Castanet-Tolosan, France; (6) Université Paul Sabatier, Toulouse, France

10:00 a.m. • Break

10:15 a.m. • 57-S.

Differences in patterns of host transcriptome modulation as a measure of diversity and adaptation of TAL effector-wielding *Xanthomonas* populations. K. E. Wilkins (1), L. Wang (1), N. J. Booher (1), C. Du (2), D. S. Nettleton (2), A. J. BOGDANOVE (1). (1) Department of Plant Pathology and Plant-Microbe Biology, Cornell University, Ithaca, NY, U.S.A.; (2) Department of Statistics, Iowa State University, Ames, IA, U.S.A.

10:45 a.m. • 58-S.

Flagellar motility and fitness in xanthomonads. M. A. JACQUES (1), A. Indiana (1), J. F. Guimbaud (1), A. Darrasse (1). (1) UMR1345 IRHS, Beaucaouzé, France

11:15 a.m. Discussion

Fungal Ecology Beyond Boundaries: From Communities to the Globe

8:30 – 11:30 a.m.; 18C, CC

Organizer/Moderator: Nicole Hynson, University of Hawaii-Manoa, Honolulu, HI, U.S.A.

Financial Sponsors: New Phytologist Trust; Fungal Ecology/Elsevier Publishing; MSA Ecology Committee

8:30 a.m. 59-S.

An experimental test of the functioning of arbuscular mycorrhizal symbioses across scale. J. KLIRONOMOS (1). (1) University of British Columbia Okanagan, Kelowna, BC, Canada

9:00 a.m. • 60-S.

Fungal ecology in a community context: Nectar microfungi interacting with bacteria, plants, and birds. T. FUKAMI (1). (1) Stanford University, Stanford, CA, U.S.A.

9:30 a.m. • 61-S.

Does nitrogen availability affect ectomycorrhizal fungal communities at the regional scale? F. COX (1), N. Barsoum (2), E. Lilleskov (3), M. Bidartondo (4). (1) University of Manchester, Manchester, United Kingdom; (2) Forest Research, Alice Holt, Farnham, United Kingdom; (3) USDA Forest Service, Houghton, MI, U.S.A.; (4) Royal Botanic Gardens Kew and Imperial College London, London, United Kingdom

10:00 a.m. • Break

10:15 a.m. • 62-S.

Modeling fungal decomposition pathways across scales. J. M. TALBOT (1), K. G. Peay (1). (1) Boston University, Boston, MA, U.S.A.

10:30 a.m. • 63-S.

Aboveground-belowground linkages: Extrapolating local to global fungal biodiversity. L. TAYLOR (1), T. Hollingsworth (2), J. McFarland (3), R. Ruess (4), I. Timling (4), D. Walker (4). (1) University of New Mexico, Albuquerque, NM, U.S.A.; (2) USDA Forest Service, PNW Research Station, Boreal Ecology Cooperative Research Unit, Fairbanks, AK, U.S.A.; (3) U.S. Geological Survey, Menlo Park, CA, U.S.A.; (4) University of Alaska, Fairbanks, AK, U.S.A.

10:45 a.m. • 64-S.

Strangers in a new land: Do *Alnus* and *Salix* trees associate with different ectomycorrhizal fungi outside their native ranges? P. KENNEDY (1), L. Bogar (1), I. Dickie (2), D. Peltzer (2). (1) Lewis & Clark College, Portland, OR, U.S.A.; (2) Landcare Research, Christchurch, New Zealand

11:00 a.m. • 65-S.

The relative influence of evolutionary history, climate, and space on current distributions of arbuscular mycorrhizal fungi at the global scale. S. N. KIVLIN (1), C. V. Hawkes (1). (1) University of Texas-Austin, Austin, TX, U.S.A.

11:15 a.m. • 66-S.

From the rhizosphere to the biosphere: A continental-scale look at fungal diversity in North American pine forests. K. G. PEAY (1), J. M. Talbot (1), R. Vilgalys (2), J. Taylor (3), T. D. Bruns (3). (1) Stanford University, Stanford, CA, U.S.A.; (2) Duke University, Durham, NC, U.S.A.; (3) University of California-Berkeley, Berkeley, CA, U.S.A.

Invasive Threats to Palm Trees

8:30 – 11:30 a.m.; 18D, CC

Organizers/Moderators: Richard Lee, USDA ARS NCGRCD, Riverside, CA, U.S.A.; Carlos Angel, University of Missouri, Columbia, MO, U.S.A.

Sponsoring Committees/Sponsors: Tropical Plant Pathology; Diseases of Ornamental Plants; Vector-Pathogen Complexes

8:30 a.m. 67-S.

Molecular characterization of lethal yellows and other phytoplasmas. B. BEXTINE (1), S. E. Halbert (2), G. Schuster (3). (1) University of Texas-Tyler, Tyler, TX, U.S.A.; (2) Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Gainesville, FL, U.S.A.; (3) Texas A&M-Kingsville, Kingsville, TX, U.S.A.

9:00 a.m. • 68-S.

Texas Phoenix palm decline and potential vectors. S. E. HALBERT (1), B. Bextine (2), S. B. Youngblood (3), A. A. Dickens (1). (1) Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Gainesville, FL, U.S.A.; (2) University of Texas-Tyler, Tyler, TX, U.S.A.; (3) Florida Department of Agriculture and Consumer Services, Division of Plant Industry, Bradenton, FL, U.S.A.

9:30 a.m. • 69-S.

Cadang-cadang disease of palm and other diseases. R. F. LEE (1). (1) USDA ARS, Riverside, CA, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 70-S.

Perspective of palm phytoplasma detection from a NPDN member lab in Texas. K. ONG (1), G. Schuster (2). (1) Texas A&M AgriLife Extension Service, College Station, TX, U.S.A.; (2) Texas A&M-Kingsville, Kingsville, TX, U.S.A.

10:45 a.m. • 71-S.

Palm diseases in Central America. M. M. ROCA (1). (1) Zamorano University, Tegucigalpa, Honduras

11:15 a.m. Discussion

New Products & Services

8:30 – 11:30 a.m.; 18B, CC

Organizer/Moderator: Rubella S. Goswami, DuPont Crop Protection, Newark, DE, U.S.A.

Sponsoring Committee/Sponsor: Industry

8:30 a.m. • 72-S.

Fracture fungicide. H. JOOST, FMC Corporation, Greenbrae, CA, U.S.A.

8:45 a.m. • 73-S.

Tolfenpyrad. J. ADAMS, Nichino America Inc., Wilmington, DE, U.S.A.

9:00 a.m. • 74-S.

OSO/TAVANO 5%SC fungicide. S. OCKEY, Certis USA, Yakima, WA, U.S.A.

9:15 a.m. • 75-S.

DuPont Aproach Prima fungicide. M. MARTIN, DuPont Crop Protection, Columbus, OH, U.S.A.

9:30 a.m. • 76-S.

FORTIX fungicide. B. JACOBSON, Cheminova Inc., Tifton, GA, U.S.A.

9:45 a.m. • 77-S.

Solatenol fungicide—A new SDHI fungicide from Syngenta. A. TALLY, Syngenta Crop Protection, Greensboro, NC, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 78-S.

New Xemium turfgrass fungicides from BASF. R. KEESE, BASF Corporation, Research Triangle Park, NC, U.S.A.

10:30 a.m. • 79-S.

Systiva XS: A new seed treatment from BASF. K. LIBERATOR, BASF Corporation, Durham, NC, U.S.A.

10:45 a.m. • 80-S.

Periodic table of fungicides 3.2 app. B. OLSON, Dow AgroSciences LLC, Geneva, NY, U.S.A.

11:00 a.m. • 81-S.

Rapid detection of FOV4 in cotton. S. ZHANG, Agdia Inc., Elkhart, IN, U.S.A.

11:15 a.m. Discussion**ORAL TECHNICAL SESSIONS****Fungal Biology****8:30 – 9:45 a.m.; 18A, CC**

Moderators: Marc Cubeta, North Carolina State University, Raleigh, NC, U.S.A.; Shashika Hewavitharana, Washington State University, Wenatchee, WA, U.S.A.

8:30 a.m. • 91-O.

★ **APF Foundation Awardee** Geographic and climatic discontinuity in production of cleistothecia in *Podosphaera aphanis*. K. A. BEKOSCKE (1), B. Asalf (2), A. Stensvand (2), A. M. Tronsmo (2), R. Seem (1), N. Peres (3), L. Cadle-Davidson (4), M. T. Brewer (5), D. Gadoury (1). (1) Cornell University, Geneva, NY, U.S.A.; (2) Bioforsk, Aas, Norway; (3) University of Florida, Wimauma, FL, U.S.A.; (4) USDA-ARS GGRU, Geneva, NY, U.S.A.; (5) University of Georgia, Athens, GA, U.S.A.

8:45 a.m. • 92-O.

Phytophthorapocalypse: Expanding host range of a *Phytophthora* hybrid threatens Midwest wildflowers. A. Leonberger (1), J. BECKERMAN (2), K. Gerberich (3). (1) University of Kentucky, Lexington, KY, U.S.A.; (2) Purdue University, West Lafayette, IN, U.S.A.; (3) Purdue University, Hartsville, SC, U.S.A.

9:00 a.m. • 93-O.

Mating of *Aspergillus flavus* x *Aspergillus minisclerotigenes* hybrids: Are they functionally mules? K. DAMANN (1), C. DeRobertis (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.

9:15 a.m. • 94-O.

Identification and characterization of mating type (*MAT*) alleles in *Sclerotinia minor*. P. CHITRAMPALAM (1), B. Pryor (2). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) University of Arizona, Tucson, AZ, U.S.A.

9:30 a.m. • 95-O.

Mating type distribution and the absence of cleistothecia of *Podosphaera macularis* in the Pacific Northwest. S. WOLFENBARGER (1), D. Gadoury (2), M. Twomey (1), M. J. Welser (2), D. Gent (3). (1) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.; (2) Department of Plant Pathology and Plant-Microbe Biology, Cornell University, Geneva, NY, U.S.A.; (3) USDA-ARS, Forage Seed and Cereal Research Unit, and Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.

Fungal Genetics and Genomics**8:30 – 9:45 a.m.; 12A, CC**

Moderator: Thomas Jenkinson, Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, MI, U.S.A.

8:30 a.m. • 96-O.

Pandemic, novel, and hybrid genotypes of the amphibian pathogen *Batrachochytrium dendrobatidis* in the southern Atlantic Rainforest

of Brazil. T. S. JENKINSON (1), C. M. Betancourt-Román (1), C. Lambertini (2), C. H. L. N. Almeida (3), J. Ruggeri-Gomes (4), D. Rodriguez (5), D. da Silva Leite (2), K. R. Zamudio (5), J. E. Longcore (6), L. F. Toledo (3), T. Y. James (1). (1) Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, MI, U.S.A.; (2) Departamento Genética, Evolução e Bioagentes, Instituto de Biologia, Universidade Estadual de Campinas, Campinas, Brazil; (3) Museu de Zoologia “Prof. Adão José Cardoso,” Instituto de Biologia, Universidade Estadual de Campinas, Campinas, Brazil; (4) Departamento de Zoologia, Instituto de Biologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; (5) Department of Ecology and Evolutionary Biology, Cornell University, Ithaca, NY, U.S.A.; (6) School of Biology and Ecology, University of Maine, Orono, ME, U.S.A.

8:45 a.m. • 97-O. WITHDRAWN

9:00 a.m. • 98-O.

Comparative transcriptomics gives insights into mechanisms underlying mycoparasitism in the genus *Elaphocordyceps*. C. A. OWENSBY (1), J. Spatafora (1). (1) Oregon State University, Corvallis, OR, U.S.A.

9:15 a.m. • 99-O.

Epidemiology and ecology of the sudden oak death epidemic: Disease progression and the population genetics of *P. ramorum* within a CA watershed. M. KOZANITAS (1), T. Osmundson (2), M. Garbelotto (2). (1) University of California-Berkeley, Oakland, CA, U.S.A.; (2) University of California-Berkeley, Berkeley, CA, U.S.A.

9:30 a.m. • 100-O.

★ **APF Foundation Awardee** Genome-wide patterns of diversity in four lineages of the sudden oak death pathogen, *Phytophthora ramorum*. A. L. DALE (1), S. E. Everhart (2), N. Feau (1), G. J. Bilodeau (3), N. J. Grunwald (4), R. C. Hamelin (1). (1) University of British Columbia, Vancouver, BC, Canada; (2) Oregon State University, Corvallis, OR, U.S.A.; (3) Canadian Food Inspection Agency, Ottawa, ON, Canada; (4) Horticultural Crops Research Laboratory, USDA ARS, Corvallis, OR, U.S.A.

Mechanism of Host and Non-Host Resistance**8:30 – 9:45 a.m.; 16B, CC**

Moderators: Junli Zhang, Kansas State University, Manhattan, KS, U.S.A.; Yurong Li, Texas A&M University, College Station, TX, U.S.A.

8:30 a.m. • 101-O.

Arabidopsis nonhost resistance genes to defeat Asian soybean rust. C. LANGENBACH (1), R. Campe (1), N. Tresch (2), H. Schultheiss (2), U. Conrath (1), K. Goellner (1). (1) RWTH Aachen University, Aachen, Germany; (2) BASF Plant Science Company GmbH, Limburgerhof, Germany

8:45 a.m. • 102-O.

Arabidopsis CRT1 dimerizes with itself and some of its family members through the C-terminal domain carrying a coiled-coil motif. H. G. KANG (1), R. W. Bullock (1), H. G. Mang (1), Y. Bordiya (1), P. M. Manosalva (2), C. Dharmasiri (3), Z. Fei (2), S. von Einem (4), K. H. Kogel (4), D. F. Klessig (2). (1) Texas State University, San Marcos, TX, U.S.A.; (2) Boyce Thompson Institute for Plant Research, Ithaca, NY, U.S.A.; (3) Wimberley High School, Wimberley, TX, U.S.A.; (4) Justus Liebig University, Giessen, Germany

9:00 a.m. • 103-O.

Role of humidity and light in the initial stage of *Arabidopsis-Pseudomonas* interaction. S. PANCHAL (1), M. Melotto (1). (1) University of Texas-Arlington, Arlington, TX, U.S.A.

9:15 a.m. • 104-O.

The role of AtBAG6 as a positive regulator of autophagy in fungal pathogen resistance. Y. LI (1), M. Kabbage (2), M. Dickman (1). (1) Texas A&M University, College Station, TX, U.S.A.; (2) University of Wisconsin, Madison, WI, U.S.A.

9:30 a.m. • 105-O.

Host-derived RNA interference targeted to the root-knot nematode parasitism gene 16D10 in tobacco. K. SCHWERI (1), G. Huang (2), B. Xue (1), M. G. Mitchum (3), T. J. Baum (4), R. S. Hussey (2), R. Lewis (1), E. L. Davis (1). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) University of Georgia, Athens, GA, U.S.A.; (3) University of Missouri, Columbia, MO, U.S.A.; (4) Iowa State University, Ames, IA, U.S.A.

Virology**8:30 – 9:45 a.m.; 16A, CC**

Moderators: Christie Almeyda, North Carolina State University, Raleigh, NC, U.S.A.; Sally Mallowa, Iowa State University, Ames, IA, U.S.A.

8:30 a.m. • 106-O.

Evolutionary trends and inferences for viruses of the Secoviridae: Evidence of an ancient modular evolution. J. R. THOMPSON (1), K. L. Perry (1), N. Kamath (1). (1) Cornell University, Ithaca, NY, U.S.A.

8:45 a.m. • 107-O.

Eight new viruses identified in bioenergy switchgrass. B. O. AGINDOTAN (1), L. L. Domier (1), M. E. Gray (1), C. A. Bradley (1). (1) University of Illinois, Urbana, IL, U.S.A.

9:00 a.m. • 108-O.

Occurrence and distribution of soybean viruses in Oklahoma. A. ALI (1). (1) Department of Biological Science, The University of Tulsa, Tulsa, OK, U.S.A.

9:15 a.m. • 109-O.

Detection and identification of sweetpotato viruses in North Carolina. C. V. ALMEYDA (1), J. A. Abad (2), Z. Pestic-VanEsbroeck (1). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) USDA, APHIS PPQ FO PGQP, Beltsville, MD, U.S.A.

9:30 a.m. • 110-O.

Analysis of 3'-terminal region of *Papaya ringspot virus-W* isolates from southern United States. O. Abdalla (1), A. ALI (1). (1) University of Tulsa, Tulsa, OK, U.S.A.

Diseases of Potato**10:15 – 11:30 a.m.; 18A, CC**

Moderators: Ian Small, Cornell University, Ithaca, NY, U.S.A.; Stephen B. Goodwin, USDA ARS, Purdue University, West Lafayette, IN, U.S.A.

10:15 a.m. • 111-O.

Verticillium dahliae in soil, roots and stems of green manure crops. D. L. WHEELER (1), D. A. Johnson (1). (1) Washington State University, Pullman, WA, U.S.A.

10:30 a.m. • 112-O.

Genetic differentiation between *Verticillium dahliae* populations from asymptomatic and symptomatic hosts. M. d. JIMENEZ-GASCO (1), G. M. Malcolm (1), L. d. Bautista-Jalon (1), B. K. Gugino (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.

10:45 a.m. • 113-O.

Pathogenicity and aggressiveness of *Alternaria solani*, *A. alternata*, and *A. triticina* on potato. L. TYMON (1), T. F. Cummings (1), D. A. Johnson (1). (1) Washington State University, Pullman, WA, U.S.A.

11:00 a.m. • 114-O.

Effect of composted cattle manure and separated hog slurry solids on potato early dying and potato yield and tuber quality in Manitoba. O. I. MOLINA (1), M. Tenuta (1), F. Daayf (1). (1) University of Manitoba, Winnipeg, MB, Canada

11:15 a.m. • 115-O.

★ APS Foundation Award Evaluation of the blight decision support system for the integrated management of potato and tomato late blight. I. M. SMALL (1), L. Joseph (1), W. Fry (1). (1) Department of Plant Pathology & Plant-Microbe Biology, Cornell University, Ithaca, NY, U.S.A.

Fungal-Host Transcriptomics**10:15 – 11:30 a.m.; 16B, CC**

Moderators: Xiaoqing Rong, The Ohio State University, OARDC, Wooster, OH, U.S.A.; Sandra Mathioni, The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A. and Federal University of Lavras, Lavras, MG, Brazil

10:15 a.m. • 116-O.

Gene regulatory network reconstruction in wheat pathogen *Fusarium graminearum*. L. GUO (1), G. Zhao (1), X. Zhou (2), W. Jonkers (3), C. H. Kistler (4), J. R. Xu (2), L. Gao (1), L. J. Ma (1). (1) University of Massachusetts, Amherst, MA, U.S.A.; (2) Purdue University, West Lafayette, IN, U.S.A.; (3) University of California-Berkeley, Berkeley, CA, U.S.A.; (4) USDA-ARS, St. Paul, MN, U.S.A.

10:30 a.m. • 117-O.

Comparative analysis of *Fusarium graminearum* on two hosts using next generation sequencing. H. E. SIMMONS (1), J. P. Dunham (2), G. P. Munkvold (1). (1) Iowa State University, Ames, IA, U.S.A.; (2) University of Southern California, Los Angeles, CA, U.S.A.

10:45 a.m. • 118-O.

★ APS Foundation Award Histology and transcriptional changes of maize seed infected by *Aspergillus flavus* and *Fusarium verticillioides*. X. SHU (1), D. Livingston (1), R. G. Franks (1), G. A. Payne (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

11:00 a.m. • 119-O.

Transcriptome analysis of the snow rot pathogen *Pythium iwayamai*. J. R. IBARRA CABALLERO (1), N. Tisserat (1). (1) Colorado State University, Fort Collins, CO, U.S.A.

11:15 a.m. • 120-O.

Improved biomass and altered transcriptome in *Medicago truncatula* as a result of intra/intercellular colonization by the mycorrhiza *Sebacina vermifera*. S. M. MATHIONI (1), J. Shoji (1), S. L. Webb (1), I. Kryvoruchko (1), C. Pislariu (1), M. Udvardi (1), E. Blancaflor (1), Y. Tang (1), K. D. Craven (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

Fungal Population Biology, Ecology, and Biochemistry**10:15 – 11:30 a.m.; 12A, CC**

Moderators: Kathryn Picard, Duke University, Durham, NC, U.S.A.; Richard Hung, Rutgers, The State University of New Jersey, New Brunswick, NJ, U.S.A.

10:15 a.m. • 121-O.

Phylogenetic affiliations of marine fungi detected with pyrosequencing and ion semiconductor targeted amplicon sequencing. K. T. PICARD (1), R. F. Stern (2), F. Lutzoni (1). (1) Duke University, Durham, NC, U.S.A.; (2) Sir Alistair Hardy Foundation for Ocean Science, Plymouth, United Kingdom

10:30 a.m. • 122-O.

Testing the effect of *Trichoderma* volatile organic compounds on *Arabidopsis thaliana*. R. HUNG (1), S. Lee (1), J. W. Bennett (1). (1) Rutgers, The State University of New Jersey, New Brunswick, NJ, U.S.A.

10:45 a.m. • 123-O.

Microbial diversity associated with Saharan dust storms: A developing tale of emerging pathogens. S. LINARES (1). (1) University of Maryland, College Park, MD, U.S.A.

11:00 a.m. • 124-O.

Population structure of *Aspergillus flavus* before and after biocontrol treatment. R. A. OLARTE (1), B. W. Horn (2), C. J. Worthington (1), R. W. Heiniger (1), M. H. Lewis (1), P. S. Ojiambo (1), R. Singh (1), I. Carbone (1). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) National Peanut Research Laboratory, USDA ARS, Dawson, GA, U.S.A.

11:15 a.m. • 125-O.

Production of cell wall degrading enzymes and melanin in response to changes in temperature by *Lasioidiplodia theobromae*. M. PAOLINELLI-ALFONSO (1), R. Hernández-Martínez (1). (1) Center for Scientific Research and Higher Education of Ensenada (CICESE), Ensenada, Mexico

Virus-Host Interactions**10:15 – 11:30 a.m.; 16A, CC**

Moderators: Herman Scholthof, Texas A&M University, College Station, TX, U.S.A.; Christopher W. P. Lyons, Texas A&M University, College Station, TX, U.S.A.

10:15 a.m. • 126-O.

Deletions in the coat protein cistron of *Wheat streak mosaic virus* induced more severe symptoms than the wild-type virus. S.

TATINENI (1), R. French (1). (1) USDA ARS, University of Nebraska-Lincoln, Lincoln, NE, U.S.A.

10:30 a.m. • 127-O.

RNA-hairpin mediated targeting of AGO2 in *Nicotiana benthamiana* compromises antiviral silencing of a tombusvirus. D. Odokonyero (1), M. R. Mendoza (1), V. Y. Alvarado (2), J. Zhang (3), X. Wang (3), H. B. SCHOLTHOF (1). (1) Texas A&M University, College Station, TX, U.S.A.; (2) Stoller USA, College Station, TX, U.S.A.; (3) Virginia Tech University, Blacksburg, VA, U.S.A.

10:45 a.m. • 128-O.

Subcellular localization of *Panicum mosaic virus* proteins reflects the altered host transcriptional profiles in *Brachypodium distachyon*. C. W. P. LYONS (1), K. K. Mandadi (1), K. B. G. Scholthof (1). (1) Texas A&M University, College Station, TX, U.S.A.

11:00 a.m. • 129-O.

Mutations in the *Potato leafroll virus* non-structural protein p17 impair aphid transmission but do not affect virion assembly. S. G. EID (1), A. R. Poplawsky (1), A. Karasev (1). (1) University of Idaho, Moscow, ID, U.S.A.

11:15 a.m. • 130-O.

Cauliflower mosaic virus P6 inclusion bodies at the door: Their association with plasmodesmata during expression in *Nicotiana benthamiana*. A. RODRIGUEZ (1), C. Angel (1), L. Lutz (2), S. Leisner (2), R. Nelson (3), J. E. Scholthof (1). (1) University of Missouri-Columbia, Columbia, MO, U.S.A.; (2) University of Toledo, Toledo, OH, U.S.A.; (3) Noble Foundation, Ardmore, OK, U.S.A.

TUESDAY, AUGUST 13, 2013 (afternoon)

Special Sessions listed first, followed by Oral Technical Sessions. Listed in alphabetical order by session title. Find complete details on the meeting website at www.apsnet.org/meetings/annual/program/Pages/. As a courtesy to presenters, please do not take photographs during presentations.

Meeting room key: Convention Center = CC

Biological Control**2:15 – 3:30 p.m.; 12A, CC**

Moderators: Jun Myoung Yu, Texas A&M University, College Station, TX, U.S.A.; Kelly Ivors, North Carolina State University, Mills River, NC, U.S.A.

2:15 p.m. • 131-O.

Evaluation of beneficial bacterial isolates from citrus roots for mitigating huanglongbing damage. J. LI (1), P. Trivedi (1), N. Wang (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

2:30 p.m. • 132-O.

Biocontrol potential of endophytic fluorescent *Pseudomonas* isolated from *Salvadora* species. S. EHTESHAMUL-HAQUE (1), F. Korejo (1), V. Sultana (2), S. A. Ali (3), J. Ara (4). (1) Department of Botany, University of Karachi, Karachi, Pakistan; (2) Department of Biochemistry, University of Karachi, Karachi, Pakistan; (3) HEJ Research Institute of Chemistry, University of Karachi, Karachi, Pakistan; (4) Department of Food Science & Technology, University of Karachi, Karachi, Pakistan

2:45 p.m. • 133-O.

Characterization of plant growth-promoting and disease suppressing abilities of certain actinomycetes isolated from

groundnut rhizosphere. S. JACOB (1), H. K. Sudini (1). (1) ICRISAT, Hyderabad, India

3:00 p.m. • 134-O.

The use of growth promoting bacteria isolated from wild strawberry for the management of strawberry black root rot. A. TORRES-BARRAGAN (1), P. Tran (1), F. J. Louws (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

3:15 p.m. • 135-O.

Effect of native-Mexican strains of *Bacillus subtilis* on melon (*Cucumis melo* L.) fruit quality and diseases. I. M. Espitia-Vazquez (1), L. Perez-Moreno (1), R. Ramírez-Malagon (1), B. Mendoza-Celedón (1), G. Martínez-Soto (1), M. d. Abraham-Juarez (1), V. Olalde-Portugal (2), H. G. NUNEZ-PALENIUS (1). (1) University of Guanajuato, Irapuato, Mexico; (2) CINVESTAV-IPN, Irapuato Unit, Irapuato, Mexico

Fruit Tree Pathology**2:15 – 3:30 p.m.; 18D, CC**

Moderators: Sarah J. Bardsley, Pennsylvania State University, University Park, PA, U.S.A.; James Polashock, USDA ARS, Chatsworth, NJ, U.S.A.

2:15 p.m. • 136-O.

Characterization of the citrus black spot pathogen and its potential spread in the U.S. H. L. ER (1), K. Hendricks (2), P. D. Roberts (2), J. J. Marois (3), A. H. C. van Bruggen (1). (1) University of Florida, Gainesville, FL, U.S.A.; (2) SWFREC, University of Florida, Immokalee, FL, U.S.A.; (3) NFREC, University of Florida, Quincy, FL, U.S.A.

2:30 p.m. • 137-O. WITHDRAWN**2:45 p.m. • 138-O.**

Phacidiopycnis washingtonensis: Inoculum availability, persistence and seasonal host susceptibility in Washington apple orchards. P. SIKDAR (1), M. Mazzola (2), C. L. Xiao (3). (1) TFREC, Washington State University, Wenatchee, WA, U.S.A.; (2) USDA ARS, Tree-Fruit Research Laboratory, Wenatchee, WA, U.S.A.; (3) USDA ARS, San Joaquin Valley Agricultural Sciences Center, Parlier, CA, U.S.A.

3:00 p.m. • 139-O.

A next-generation sequencing approach to identifying the causal agent of funky flower in cranberry. J. POLASHOCK (1), P. V. Oudemans (2), T. Smolinski (3). (1) USDA ARS, Chatsworth, NJ, U.S.A.; (2) Rutgers University, Chatsworth, NJ, U.S.A.; (3) Delaware State University, Dover, DE, U.S.A.

3:15 p.m. • 140-O.

Molecular evaluation of resistibility/susceptibility of Saudi date palm germplasm against Bayoud disease caused by *Fusarium oxysporum* f. sp. *albedinis*. A. A. SALEH (1), M. H. EL-Komy (1), A. Eranthodi (1), A. H. Sharafaddin (1), Y. Y. Molan (1). (1) King Saud University, Riyadh, Saudi Arabia

Fungal Disease Control on Monocots**2:15 – 3:30 p.m.; 18A, CC**

Moderators: J. Bradley R. Shaver, Clemson University, Clemson, SC, U.S.A.; Cruz Avila-Adame, Dow AgroSciences LLC, Indianapolis, IN, U.S.A.

2:15 p.m. • 141-O.

Investigation of quantitative real-time PCR as a mechanism for evaluating the efficacy of experimental fungicides against *Septoria tritici*. C. AVILA-ADAME (1), G. Gustafson (1). (1) Dow AgroSciences LLC, Indianapolis, IN, U.S.A.


2:30 p.m. • 142-O.

De novo RNA-Seq and bioinformatic analyses uncover genetic determinants of fungicide detoxification in the turfgrass pathogen *Sclerotinia homoeocarpa*. J. HULVEY (1), H. Sang (1), A. Berg (1), M. Mullis (1), J. T. Popko (1), T. Chang (2), G. Jung (1). (1) University of Massachusetts, Amherst, MA, U.S.A.; (2) Kyungpook National University, Gyungbuk, Korea

2:45 p.m. • 143-O.

Heterokaryons of *Sclerotinia homoeocarpa* exhibit enhanced adaptability to multiple fungicide pressures. D. KESSLER (1), J. Hulvey (1), G. Jung (1). (1) University of Massachusetts-Amherst, Amherst, MA, U.S.A.

3:00 p.m. • 144-O.

 A new name for an age-old fungus: Unraveling the mystery of dollar spot disease of turfgrass. L. A. BEIRN (1), L. Tredway (2), M. Boehm (3), A. Orshinsky (4), A. Putman (5), I. Carbone (5), B. Clarke (1), J. A. Crouch (6). (1) Rutgers The State University of New Jersey, New Brunswick, NJ, U.S.A.; (2) Syngenta Crop Protection, Greensboro, NC, U.S.A.; (3) The Ohio State University, Columbus, OH, U.S.A.; (4) Agriculture & Agri-Food Canada, Saskatoon, SK, Canada; (5) North Carolina State University, Raleigh, NC, U.S.A.; (6) USDA-ARS, Systematic Mycology and Microbiology Laboratory, Beltsville, MD, U.S.A.

3:15 p.m. • 145-O.

Induction of plant defense response by salicylic acid in perennial ryegrass turf against gray leaf spot caused by *Magnaporthe oryzae*. A. RAHMAN (1), W. Uddin (1). (1) Pennsylvania State University, State College, PA, U.S.A.

Fungal Ecology 2**2:15 – 3:30 p.m.; 18C, CC**

Moderator: Dominik Begerow, Ruhr-Universität Bochum, Bochum, Germany

2:15 p.m. • 146-O.

Host specificity of fungal phyllosphere communities of tropical trees. D. BEGEROW (1), T. Wubet (2). (1) Ruhr-Universität Bochum, Bochum, Germany; (2) Helmholtz Centre for Environmental Research GmbH (UFZ), Halle, Germany

2:30 p.m. • 147-O.

Host-specific relationships between *Suillus* and *Pinus* species. H. L. LIAO (1), T. D. Bruns (2), K. G. Peay (3), J. Taylor (2), S. D. Branco (2), J. W. Talbot (4), D. Smith (5), R. Vilgalys (1). (1) Duke University, Durham, NC, U.S.A.; (2) University of California-Berkeley, Berkeley, CA, U.S.A.; (3) Stanford University, Stanford, CA, U.S.A.; (4) Stanford University, Standford, CA, U.S.A.; (5) Standford University, Stanford, CA, U.S.A.

2:45 p.m. • 148-O.

It takes a village: New insights on the fungi that raise mycoheterotrophic plants from seedlings to adults. N. HYNSON (1), M. Weiß (2), K. Preiss (3), G. Gebauer (3), K. Treseder (4). (1) University of Hawaii-Manoa, Honolulu, HI, U.S.A.; (2) Department of Biology, University of Tübingen, Tübingen, Germany; (3) BayCEER University of Bayreuth, Bayreuth, Germany; (4) Department of Ecology and Evolutionary Biology, University of California-Irvine, Irvine, CA, U.S.A.

3:00 p.m. • 149-O.

Root mycobiomes: Diversity and plant-host interactions in extreme environments. A. PORRAS-ALFARO (1), S. L. Hicks (2), J. Tuter (3), T. Tobias (1), K. Sandona (1), D. O. Natvig (2), R. L. Sinsabaugh (4), R. Musser (1), S. Hum-Musser (1). (1) Western Illinois University, Macomb, IL, U.S.A.; (2) University of New Mexico, Albuquerque, NM, U.S.A.; (3) Western Illinois University, Macomb, IN, U.S.A.; (4) University of New Mexico, Albuquerque, IL, U.S.A.

3:15 p.m. • 150-O.

A multigene phylogeny of Chytridiales (Chytridiomycetes). S. SEKIMOTO (1), P. M. Letcher (1), J. E. Longcore (2), M. J. Powell (1). (1) The University of Alabama, Tuscaloosa, AL, U.S.A.; (2) The University of Maine, Orono, ME, U.S.A.

Fungi**2:15 – 3:30 p.m.; 18B, CC**

Moderators: Brian A. Aynardi, Pennsylvania State University, State College, PA, U.S.A.; Hillary L. Mehl, University of Arizona, Tucson, AZ, U.S.A.

2:15 p.m. • 151-O.

Mechanisms of adaptation to host rice cells by the blast fungus. J. FERNANDEZ (1), R. A. Wilson (1). (1) University of Nebraska, Lincoln, NE, U.S.A.

2:30 p.m. • 152-O.

Using SSR markers to understand the mechanism of powdery mildew disease resistance in *Cornus florida*. M. Mmbaga (1), L. PARIKH (2). (1) Tennessee State University School of Agriculture & Consumer Science, McMinnville, TN, U.S.A.; (2) Tennessee State University, Nashville, TN, U.S.A.

2:45 p.m. • 153-O.

Susceptibility of corn to stalk rot caused by *Fusarium graminearum* and mycotoxin mutants. L. QUESADA (1), J. Al-Haddad (2), F. Trail (2), R. Buell (2). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) Michigan State University, East Lansing, MI, U.S.A.

3:00 p.m. • 154-O.

Use of quantitative pyrosequencing to dissect complex pathogen-pathogen interactions. H. L. MEHL (1), P. J. Cotty (2). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) USDA-ARS, University of Arizona, Tucson, AZ, U.S.A.

3:15 p.m. • 155-O.

Analysis of transporter responsible for the secretion of fusaric acid from the plant pathogen *Fusarium oxysporum* f. sp. *vasinfectum*. F. K. CRUTCHER (1), J. Liu (1), A. A. Bell (1), R. D. Stipanovic (1), C. M. Kenerley (2). (1) USDA ARS, College Station, TX, U.S.A.; (2) Texas A&M University, College Station, TX, U.S.A.

GenBank, Fungal Digitization, and Cell Biology**2:15 – 3:15 p.m.; 16B, CC**

Moderator: Romina Gazis, Clark University, Worcester, MA, U.S.A.

2:15 p.m. • 156-O.

Open Tree of Life: Challenges and progress for the fungi. R. GAZIS (1), R. Ree (2), S. Smith (3), K. Cranston (4), D. Hibbett (1). (1) Clark University, Worcester, MA, U.S.A.; (2) Field Museum of Natural History, Chicago, IL, U.S.A.; (3) University of Michigan, Ann Arbor, MI, U.S.A.; (4) National Evolutionary Synthesis Center, Durham, NC, U.S.A.

2:30 p.m. • 157-O.

Digitization of 120,000 fungal collections at the University of Michigan Herbarium as part of the Macrofungi Collection Consortium. M. J. FOLTZ (1), T. Y. James (1). (1) University of Michigan, Ann Arbor, MI, U.S.A.

2:45 p.m. • 158-O.

Fungal digitization projects. A. N. MILLER (1), B. M. Thiers (2), C. Gries (3), T. Nash (3), E. Gilbert (4). (1) University of Illinois Urbana-Champaign, Champaign, IL, U.S.A.; (2) New York Botanical Garden, Bronx, NY, U.S.A.; (3) University of Wisconsin, Madison, WI, U.S.A.; (4) Arizona State University, Tempe, AZ, U.S.A.

3:00 p.m. • 159-O.

GFP-immunoelectron microscopy of endocytic vesicles of *Neurospora crassa*. D. DELGADO-ALVAREZ (1), R. Mouriño-Pérez (1), D. Lowry (2). (1) CICESE, Ensenada BC, Mexico; (2) Arizona State University, Tempe, AZ, U.S.A.

Pathogen Resistance**2:15 – 3:30 p.m.; 16A, CC**

Moderators: Guido Schnabel, Clemson University, Clemson, SC, U.S.A.; Zachary Schultzhause, Texas A&M University, College Station, TX, U.S.A.

2:15 p.m. • 160-O.

Fungicide-induced mutagenesis in *Monilinia fructicola* and implications for resistance management. G. SCHNABEL (1), F. Chen (1). (1) Clemson University, Clemson, SC, U.S.A.

2:30 p.m. • 161-O.

Mapping *Alternaria cucumerina* resistance in *Cucumis melo*. J. D. DALEY (1), R. L. Hassell (2), W. P. Wechter (3). (1) Clemson University, Charleston, SC, U.S.A.; (2) Clemson University, Charleston, SC, U.S.A.; (3) U.S. Vegetable Laboratory, USDA ARS, Charleston, SC, U.S.A.

2:45 p.m. • 162-O.

Monitoring for resistance in *Botrytis cinerea* from strawberry to seven chemical classes of fungicides in the eastern United States. D. FERNANDEZ-ORTUNO (1), P. K. Bryson (1), A. Grabke (1), G. Schnabel (1). (1) Clemson University, Clemson, SC, U.S.A.

3:00 p.m. • 163-O.

Prevalence and characterization of iprodione and fludioxonil resistance in *Botrytis cinerea* isolates from small fruits in the southeastern U.S. A. GRABKE (1), X. Li (1), D. Fernández-Ortuño (1), A. Amiri (2), N. A. Peres (2), G. Schnabel (1). (1) Clemson University, Clemson, SC, U.S.A.; (2) University of Florida, Wimauma, FL, U.S.A.

3:15 p.m. • 164-O.

Investigating genetic mechanisms of decreased sensitivity to iprodione in field isolates of *Sclerotinia homoeocarpa*. H. SANG (1), J. Hulvey (1), J. T. Popko (1), T. Chang (2), G. Jung (1). (1) University of Massachusetts, Amherst, MA, U.S.A.; (2) Kyungpook National University, Sangju, Korea

Pest and Disease Management**2:15 – 3:15 p.m.; 12B, CC**

Moderators: Aaron J. Palmateer, University of Florida, Homestead, FL, U.S.A.; Emily Pfeufer, Pennsylvania State University, University Park, PA, U.S.A.

2:15 p.m. • 165-O.

Improving recommendations for grape berry moth and fruit rot management in high brix Niagara grape production. B. HED (1), J. Timer (2), T. Weigle (3). (1) Lake Erie Regional Grape Research & Extension Center, North East, PA, U.S.A.; (2) Pennsylvania State University, North East, PA, U.S.A.; (3) Cornell University, Portland, NY, U.S.A.

2:30 p.m. • 166-O.

What are the best ways to manage *Rhizoctonia solani* of sugar beet? M. F. R. KHAN (1). (1) North Dakota State University & University of Minnesota, Fargo, ND, U.S.A.

2:45 p.m. • 167-O.

Prediction of long-term field resistance of hybrid poplars to *Septoria musiva* using a greenhouse screening protocol without wounding. R. QIN (1), G. R. Stanosz (2), J. M. LeBoldus (1). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) University of Wisconsin-Madison, Madison, WI, U.S.A.

3:00 p.m. • 168-O.

Assessments of potential management and environmental factors affecting regional occurrence of potato zebra chip disease. F. WORKNEH (1), D. C. Henne (2), J. A. Goolsby (3), J. M. Crosslin (4), S. D. Whipple (5), J. D. Bradshaw (5), A. Rashed (1), L. Paetzold (1), R. M. Harveson (5), C. M. Rush (1). (1) Texas A&M AgriLife Research, Bushland, TX, U.S.A.; (2) Texas A&M AgriLife Research, Weslaco, TX, U.S.A.; (3) USDA-ARS, Edinburg, TX, U.S.A.; (4) USDA-ARS, Prosser, WA, U.S.A.; (5) University of Nebraska, Panhandle Research and Extension Center, Scottsbluff, NE, U.S.A.

3:15 p.m. • 169-O. WITHDRAWN

WEDNESDAY, AUGUST 14, 2013 (morning)

Special Sessions listed first, followed by Oral Technical Sessions. Listed in alphabetical order by session title. Find complete details on the meeting website at www.apsnet.org/meetings/annual/program/Pages/. As a courtesy to presenters, please do not take photographs during presentations.

Meeting room key: Convention Center = CC

SPECIAL SESSIONS

Counting Beans & Tooting Horns: Effective Metrics for Documenting the Impact of Research and Extension

8:30 – 11:30 a.m.; 18D, CC

Organizer/Moderator: Amanda Gevens, University of Wisconsin, Madison, WI, U.S.A.

Sponsoring Committees/Sponsors: Extension; Early Career Professionals; Plant Pathogen and Disease Detection

8:30 a.m. 82-S.

Introduction—Defining impact: From website hits to change in practice. A. GEVENS (1). (1) University of Wisconsin, Madison, WI, U.S.A.

9:00 a.m. 83-S.

Impact evaluation: It's by design. T. BARTHOLOMAY (1). (1) Minnesota Office of Higher Education, St. Paul, MN, U.S.A.

9:30 a.m. 84-S.

The importance of documenting impact—A Washington perspective. M. A. DRAPER (1). (1) USDA-NIFA, Washington, DC, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 85-S.

A case study in documenting impact in research. C. SMART (1). (1) Cornell University, Geneva, NY, U.S.A.

10:45 a.m. • 86-S.

Documenting the impact of 10 years of IPM on Wisconsin cranberry production: A case study in documenting impact in extension. J. COLQUHOUN (1). (1) University of Wisconsin, Madison, WI, U.S.A.

11:15 a.m. • Discussion

Interaction Between Plants and Human Pathogens

8:30 – 11:30 a.m.; 19AB, CC

Organizers: Maeli Melotto, University of Texas-Arlington, Arlington, TX, U.S.A.; Jacqueline Fletcher, Oklahoma State University, Stillwater, OK, U.S.A.

Moderator: Maeli Melotto, University of Texas-Arlington, Arlington, TX, U.S.A.

Sponsoring Committees/Sponsors: APS Food Safety Interest Group; Public Policy Board

8:30 a.m. 87-S.

A microbe is a microbe: What plant pathologists can and do to contribute to food safety research and outreach. S. A. MILLER (1). (1) The Ohio State University, Wooster, OH, U.S.A.

9:00 a.m. • 88-S.

Human enteric bacteria transmission to leafy greens by flies. J. TALLEY (1), R. Pace (1), A. Wayadande (1). (1) Department of Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK, U.S.A.

9:30 a.m. • 89-S.

Hanging on and hanging out, *Salmonella's* life in roots and leaves. J. BARAK (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 90-S.

Plant immunity against human pathogens. M. MELOTTO (1). (1) University of Texas-Arlington, Arlington, TX, U.S.A.

10:45 a.m. • 91-S.

A food safety perspective on the interactions of enteric viruses with plants. K. KNIEL (1). (1) University of Delaware, Newark, DE, U.S.A.

11:15 a.m. • Discussion

Interactions and Mechanisms of Symptomless Plant Symbioses

8:30 – 11:30 a.m.; 18B, CC

Organizers/Moderators: Klara Scharnagl, Florida International University, Miami, FL, U.S.A.; Robin Choudhury and Cassandra Swett, University of California, Davis, CA, U.S.A.

Sponsoring Committees/Sponsors: MSA; Mycology; Phyllosphere Microbiology; Postharvest Pathology; Turfgrass Pathology; Seed Pathology

8:30 a.m. 92-S.

Parallels between mutualism and pathogenesis: A comparison of lichen and pathogenic symbioses. E. M. MEDINA (1), O. Mueller (1), D. Armaleo (1), F. Lutzoni (1). (1) Duke University, Durham, NC, U.S.A.

9:00 a.m. • 93-S.

Dual mutualist-antagonist dynamics of grass endophytes. S. H. FAETH (1), S. Saari (1). (1) University of North Carolina-Greensboro, Greensboro, NC, U.S.A.

9:30 a.m. • 94-S.

Obligately lichen-associated fungi in the lichen microbiome: How did they get there and what are they doing? J. LAWREY (1), R. Lücking (2). (1) George Mason University, Fairfax, VA, U.S.A.; (2) Field Museum of Natural History, Chicago, IL, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 95-S.

Cell-cell signaling coordinates endophytic lifestyle of *Xylella fastidiosa*. S. E. LINDOW (1). (1) University of California, Berkeley, CA, U.S.A.

10:45 a.m. • 96-S.

Hemibiotrophy: The *Magnaporthe oryzae*-rice interaction. B. VALENT (1), M. C. Giraldo (1), C. H. Khang (2), G. Mosquera (3), M. Dalby (1). (1) Department of Plant Pathology, Kansas State University, Manhattan, KS, U.S.A.; (2) Department of Plant Pathology, Kansas State University, Manhattan, KS, & Currently: Department of Plant Biology, University of Georgia, Athens, GA, U.S.A.; (3) Department of Plant Pathology, Kansas State University, Manhattan, KS, & Currently: International Center for Tropical Agriculture, Cali, Colombia

11:15 a.m. • Discussion

One Fungus, One Name: The Impact of Recent Changes in Fungal Nomenclature

8:30 – 11:30 a.m.; 18C, CC

Organizers: Carol Stiles, Georgia Military College, Valdosta, GA, U.S.A.; Carrie Harmon, University of Florida, Gainesville, FL, U.S.A.

Moderators: Keith A. Seifert, Agriculture & Agri-Food Canada, Eastern Cereal and Oilseed Research Centre, Ottawa, ON, Canada; Carrie Harmon, University of Florida, Gainesville, FL, U.S.A.

Sponsoring Committees/Sponsors: Mycology; Diagnostics; Widely Prevalent Plant-Pathogenic Fungi List Working Group; International Commission on the Taxonomy of Fungi

Financial Sponsor: Widely Prevalent Plant-Pathogenic Fungi List Working Group

8:30 a.m. 97-S.

Overview of changes affecting fungal nomenclature in the International Code of Nomenclature and progress of nomenclatural working groups. K. A. SEIFERT (1), A. N. Miller (2). (1) Agriculture & Agri-Food Canada, Eastern Cereal and Oilseed Research Centre, Ottawa, ON, Canada; (2) Illinois Natural History Survey, University of Illinois, Champaign, IL, U.S.A.

9:00 a.m. • 98-S.

Impact of ICN changes on scientific names of regulated fungal plant pathogens. M. E. PALM (1), A. Y. Rossman (2). (1) USDA APHIS PPQ, Riverdale, MD, U.S.A.; (2) USDA ARS, Beltsville, MD, U.S.A.

9:30 a.m. • 99-S.

Merging the 2000 plus genera of Dothideomycetes. P. W. CROUS (1), K. D. Hyde (2). (1) CBS-KNAW Fungal Biodiversity Centre, Utrecht, Netherlands; (2) School of Science, Mae Fah Luang University, Chiang Rai, Thailand

10:00 a.m. • Break

10:15 a.m. • 100-S.

Defining the genus *Fusarium* in a scientifically robust way that best preserves longstanding use. D. M. GEISER (1), K. O'Donnell (2). (1) Pennsylvania State University, University Park, PA, U.S.A.; (2) USDA ARS NCAUR Bacterial Foodborne Pathogens and Mycology Unit, Peoria, IL, U.S.A.

10:45 a.m. • 101-S.

Pyricularia or *Magnaporthe*? Names and genomes. N. ZHANG (1), J. Luo (1), G. Cai (1), D. Bhattacharya (1). (1) Rutgers University, New Brunswick, NJ, U.S.A.

11:15 a.m. • Discussion

Plant Pathologists of the Future: Showcasing the Top Graduate Students from APS Division Meetings

8:30 – 11:00 a.m.; 16B, CC

Organizer: David Schmale, Virginia Tech, Blacksburg, VA, U.S.A.

Moderator: Wade Elmer, Connecticut Agricultural Experiment Station (CAES), New Haven, CT, U.S.A.


Sponsoring Committee/Sponsor: Divisional Forum

8:30 a.m. Introduction

8:45 a.m. • 102-S.

Prevalent citrus diseases in Puerto Rico. M. R. MARROQUIN-GUZMAN (1), C. Estevez de Jensen (2). (1) University of Nebraska-Lincoln, Lincoln, NE, U.S.A.; (2) University of Puerto Rico, Mayaguez, Puerto Rico, U.S.A.

9:00 a.m. • 103-S.

 Detection of boscalid resistance and the H272R mutation in the *SdhB* gene of *Blumeriella jaapii*. C. A. OUTWATER (1), G. W. Sundin (1), T. J. Proffer (2). (1)

Department of Plant, Soil, and Microbial Sciences, Michigan State University, East Lansing, MI, U.S.A.; (2) Department of Biological Sciences, Kent State University Columbiana, Salem, OH, U.S.A.

9:15 a.m. • 104-S.

Northeastern Division: Detection of *Peronospora variabilis* in quinoa seeds. A. L. TESTEN (1), J. B. Ochoa (2), G. Plata R. (3), P. A. Backman (1). (1) Pennsylvania State University, University Park, PA, U.S.A.; (2) INIAP Ecuador, Quito, Ecuador; (3) PROINPA Foundation, Cochabamba, Bolivia

9:30 a.m. • 105-S.

Dualism in symbiosis: Growth and defense enhancement of symptomless infection by the pathogen *Fusarium circinatum* in *Pinus radiata* seedlings. C. L. SWETT (1), T. R. Gordon (1). (1) University of California-Davis, Davis, CA, U.S.A.

9:45 a.m. • 106-S.

Xylella fastidiosa phoP/Q two-component system mediates colonization of grapevines and may be a potential target for Pierce's disease control. B. PIERCE (1), B. Kirkpatrick (1). (1) University of California-Davis, Davis, CA, U.S.A.

10:00 a.m. • Break

10:15 a.m. • 107-S.

Phytophthora cinnamomi as a possible contributor to white oak (*Quercus alba*) decline in Mid-Atlantic forests. M. E. MCCONNELL (1), Y. Balci (1). (1) University of Maryland, College Park, MD, U.S.A.

10:30 a.m. • 108-S.

Genetic analyses of *ntpR* encoding a novel negative regulator for toxoflavin production in the rice-pathogenic bacterium *Burkholderia glumae*. R. A. MELANSON (1), I. K. Barphagha (1), J. H. Ham (1). (1) Department of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.

10:45 a.m. • Discussion

ORAL TECHNICAL SESSIONS

Endophyte Biology

8:30 – 9:30 a.m.; 16A, CC

Moderators: Jana M. U'Ren, School of Plant Sciences, University of Arizona, Tucson, AZ, U.S.A.; Christopher L. Schardl, University of Kentucky, Lexington, KY, U.S.A.

8:30 a.m. 170-O.

Effect of endophyte on tall fescue host plant metabolite levels and gene expression under drought stress. P. NAGABHYRU (1), R. D. Dinkins (2), C. W. Bacon (3), C. L. Schardl (1). (1) University of Kentucky, Lexington, KY, U.S.A.; (2) USDA ARS, Forage-Animal Production Research Unit, Lexington, KY, U.S.A.; (3) USDA ARS, Toxicology and Mycotoxin Research Unit, Athens, GA, U.S.A.

8:45 a.m. • 171-O. WITHDRAWN

9:00 a.m. • 172-O.

A culture-based and culture-free assessment of the geographic and temporal variation of boreal endophytic and endolichenic fungal communities. J. M. U'REN (1), N. Massimo (1), J. M. Riddle (2), C. Steen (1), K. Arendt (1), Y. L. Huang (1), J. Miadlikowska (3), E. Lefevre (3), B. Ball (3), V. L. Wong (4), J. Monacell (5), I. Carbone (5), F. Lutzoni (3), G. May (4), A. E. Arnold (6). (1) School of Plant Sciences, University of Arizona, Tucson, AZ, U.S.A.; (2) Plant Biological Sciences Graduate Program, University of Minnesota, St. Paul, MN, U.S.A.; (3) Department of Biology, Duke University, Durham, NC, U.S.A.; (4) Department of Ecology, Evolution, and Behavior, University of Minnesota, St.

Paul, MN, U.S.A.; (5) Department of Plant Pathology, North Carolina State University, Raleigh, NC, U.S.A.; (6) School of Plant Sciences, University of Arizona, Tucson, AR, U.S.A.

9:15 a.m. • 173-O.

Exploring endophyte diversity across the Pooideae. C. A. YOUNG (1), N. D. Charlton (1), J. E. Takach (1), G. A. Swoboda (1), B. A. Hall (1), K. D. Craven (1), M. E. Afkhami (2), T. Shymanovich (3), M. Oberhofer (3), S. H. Faeth (3), J. Rudgers (4), J. Pan (5), L. Chen (5), C. L. Schardl (5). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; (2) University of California-Davis, Davis, CA, U.S.A.; (3) University of North Carolina-Greensboro, Greensboro, NC, U.S.A.; (4) University of New Mexico, Albuquerque, NM, U.S.A.; (5) University of Kentucky, Lexington, KY, U.S.A.

Fungal Diversity and Dispersal

8:30 – 9:45 a.m.; 12B, CC

Moderators: James Kolmer, USDA-ARS Cereal Disease Laboratory, St. Paul, MN, U.S.A.; Nik Mohamed Nor, Kansas State University, Manhattan, KS, U.S.A.

8:30 a.m. • 174-O.

Characterization of *Sclerotinia sclerotiorum* isolates from USA and South America soybean fields for aggressiveness and mycelial compatibility grouping. J. J. Steadman (1), T. J. MIORINI (2), R. Jhala (1), R. Higgins (1). (1) University of Nebraska-Lincoln, Lincoln, NE, U.S.A.; (2) Sao Paulo State University, Sao Paulo, Brazil

8:45 a.m. • 175-O.

Signatures of global dispersal and population structure in *Sclerotinia homoeocarpa*. A. PUTMAN (1), L. Tredway (2), I. Carbone (1). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) Syngenta Crop Protection, Greensboro, NC, U.S.A.

9:00 a.m. • 176-O.

Analysis of interregional dispersal of *Puccinia striiformis* in China using a coalescent method. J. LIANG (1), Q. Wan (1), Y. Luo (2), Z. Ma (1). (1) China Agricultural University, Beijing, China; (2) University of California-Davis, Davis, CA, U.S.A.

9:15 a.m. • 177-O.

Genetic diversity in epichloae of *Bromus laevipes*. B. A. HALL (1), N. D. Charlton (1), G. A. Swoboda (1), M. E. Afkhami (2), S. R. Ghimire (3), K. D. Craven (1), C. A. Young (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; (2) University of California-Davis, Davis, CA, U.S.A.; (3) RTI International, Research Triangle Park, NC, U.S.A.

9:30 a.m. • 178-O.

Population genomic RAD-Seq characterization of the boxwood blight fungus, *Calonectria pseudonaviculata*. J. B. HEBERT (1), R. E. Marra (2), B. I. Hillman (3), J. A. Crouch (4). (1) USDA ARS, Rutgers University, Beltsville, MD, U.S.A.; (2) Connecticut Agricultural Experiment Station, New Haven, CT, U.S.A.; (3) Rutgers University, New Brunswick, NJ, U.S.A.; (4) USDA ARS, Systematic Mycology and Microbiology Laboratory, Beltsville, MD, U.S.A.

Liberibacter Biology

8:30 – 9:45 a.m.; 12A, CC

Moderators: Manjunath Keremane, USDA ARS, Riverside, CA, U.S.A.; Stacy Mauzey, Washington State University, Pullman, WA, U.S.A.

8:30 a.m. • 179-O.

Sequencing the metagenome of ‘*Candidatus* Liberibacter psyllaurous’ associated with tomato psyllid yellows using a BAC

library. M. L. KEREMANE (1), C. Ramadugu (2), Y. P. Duan (3), L. Zhou (3), G. Kund (2), J. Trumble (2), R. F. Lee (4). (1) USDA ARS, Citrus Germplasm Repository, Riverside, CA, U.S.A.; (2) University of California-Riverside, Riverside, CA, U.S.A.; (3) U.S. Horticultural Research Laboratory, Fort Pierce, FL, U.S.A.; (4) USDA National Clonal Germplasm Repository for Citrus and Dates, Riverside, CA, U.S.A.

8:45 a.m. • 180-O.

Transcriptomic, proteomic, and nutritional analyses of potato tissues infected with ‘*Candidatus* Liberibacter solanacearum’. C. NWUGO (1), V. Venkatesan (2), J. Munyaneza (2), H. Lin (1). (1) USDA-ARS, Parlier, CA, U.S.A.; (2) USDA-ARS, Austin, TX, U.S.A.

9:00 a.m. • 181-O.

Transcriptome analysis of ‘Valencia’ sweet orange response to citrus Huanglongbing (HLB) infection. E. LOUZADA (1), C. C. Parra (1), J. V. da Graça (1), M. Sétamou (1), M. Kunta (1). (1) Texas A&M University-Kingsville, Weslaco, TX, U.S.A.

9:15 a.m. • 182-O.

Relationship of potato biochemical responses to ‘*Candidatus* Liberibacter solanacearum’, causal agent of zebra chip, to disease progression. C. M. WALLIS (1), A. Rashed (2), A. K. Wallingford (1), C. M. Rush (2). (1) USDA ARS, Parlier, CA, U.S.A.; (2) Texas AgriLife Research, Amarillo, TX, U.S.A.

9:30 a.m. • 183-O.

Citrus Huanglongbing root loss is independent of phloem plugging and carbohydrate starvation. E. G. JOHNSON (1), J. Wu (1), D. B. Bright (1), J. H. Graham (1). (1) Citrus Research and Education Center, University of Florida, Lake Alfred, FL, U.S.A.

Basidiomycete Molecular Systematics and Evolution

10:15 – 11:30 a.m.; 16A, CC

Moderator: Otto Miettinen, Clark University, Worcester, MA, U.S.A.

10:15 a.m. 184-O.

Bioluminescence among North American *Armillaria* species in response to biotic and abiotic stimuli. J. MIHAIL (1). (1) University of Missouri, Columbia, MO, U.S.A.

10:30 a.m. • 185-O.

Phylogeography and taxonomy of *Pluteus* section *Pluteus* (Basidiomycota, Agaricales) in the Northern Hemisphere. A. JUSTO (1), E. Malysheva (2), T. Bulyonkova (2), E. C. Vellinga (3), G. Cobian (3), N. Nguyen (3), A. M. Minnis (4), D. S. Hibbett (1). (1) Clark University, Worcester, MA, U.S.A.; (2) Komarov Botanical Institute RAS, St. Petersburg, Russia; (3) University of California-Berkeley, Berkeley, CA, U.S.A.; (4) Biological and Environmental Influences on Forest Health and Productivity (USDA), Madison, WI, U.S.A.

10:45 a.m. • 186-O.

Implications of improved taxonomic resolution in polypores—More species, more specialists, longer red lists? O. MIETTINEN (1), T. Niemelä (2), S. Stenroos (2), J. Vlasák (3), D. S. Hibbett (1). (1) Clark University, Worcester, MA, U.S.A.; (2) University of Helsinki, Botanical Museum, Helsinki, Finland; (3) Biology Centre of the Academy of Sciences of the Czech Republic, Institute of Plant Molecular Biology, České Budějovice, Czech Republic

11:00 a.m. • 187-O.

Sparassis (Basidiomycota): Transatlantic disjunction and paraphyly. R. PETERSEN (1), K. W. Hughes (1). (1) University of Tennessee, Knoxville, TN, U.S.A.


11:15 a.m. • 188-O.

Phylogenetic overview of the Boletineae. M. NUHN (1), M. Binder (2), R. Halling (3), A. Taylor (4), D. S. Hibbett (5). (1) Clark University, Worcester, MA, U.S.A.; (2) CBS-Knaw Fungal Biodiversity Center, Uppsalaan, Netherlands; (3) New York Botanical Garden, Bronx, NY, U.S.A.; (4) The James Hutton Institute, Aberdeen, United Kingdom; (5) Biology Department, Clark University, Worcester, MA, U.S.A.

Fungal Diversity and Management**10:15 – 11:30 a.m.; 12B, CC**

Moderator: Kathleen Burchardt, North Carolina State University, Raleigh, NC, U.S.A.

10:15 a.m. • 189-O.

 Phytophthora fruit rot resistance, population structure, and genetic diversity in a diverse pepper (*Capsicum* spp.) collection. R. P. NAEGELE (1), A. Tomlinson (1), M. K. Hausbeck (1). (1) Michigan State University, East Lansing, MI, U.S.A.

10:30 a.m. • 190-O.

Investigation of a population of *Pythophthora infestans* in and near central New York in 2011. G. DANIES (1), F. Martin (2), K. Myers (1), D. E. Cooke (3), C. D. Smart (1), A. Seaman (4), W. E. Fry (1). (1) Cornell University, Ithaca, NY, U.S.A.; (2) USDA-ARS, Salinas, CA, U.S.A.; (3) The James Hutton Institute, Invergowrie, Dundee, Scotland; (4) Cornell University, Geneva, NY, U.S.A.

10:45 a.m. • 191-O.

Diversity of oomycetes associated with soybean seedling diseases in the U.S. A. ROJAS (1), J. L. Jacobs (1), S. Napieralski (1), C. A. Bradley (2), T. Chase (3), P. D. Esker (4), L. Giesler (5), D. Jardine (6), B. D. Nelson (7), D. Malvick (8), S. Markell (9), A. E. Robertson (10), J. C. Rupe (11), L. Sweets (12), K. Wise (13), M. I. Chilvers (1). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) Department of Crop Sciences, University of Illinois, Urbana, IL, U.S.A.; (3) South Dakota State University, Brookings, SD, U.S.A.; (4) Universidad de Costa Rica, San José, Costa Rica; (5) Department of Plant Pathology, University of Nebraska-Lincoln, North Platte, NE, U.S.A.; (6) Department of Plant Pathology, Kansas State University, Manhattan, KS, U.S.A.; (7) Department of Plant Pathology, North Dakota State University, Fargo, ND, U.S.A.; (8) University of Minnesota, St. Paul, MN, U.S.A.; (9) North Dakota State University, Fargo, ND, U.S.A.; (10) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.; (11) University of Arkansas, Fayetteville, AR, U.S.A.; (12) University of Missouri, Columbia, MO, U.S.A.; (13) Department of Plant Pathology, Purdue University, West Lafayette, IN, U.S.A.

11:00 a.m. • 192-O.

Steaming is a sustainable method to eradicate the quarantine pathogen *Phytophthora ramorum* from infested nursery soil. W. SCHWEIGKOFER (1), K. Kosta (2), K. Suslow (1), V. Huffman (3), S. Ghosh (4). (1) Dominican University of California, San Rafael, CA, U.S.A.; (2) CDFR, Sacramento, CA, U.S.A.; (3)

Dominican University of California, San Rafael, CA, U.S.A.; (4) Dominican University of California, San Rafael, CA, U.S.A.

11:15 a.m. • 193-O.

Effects of solarization and biocontrol on soilborne *Phytophthora* spp. in container nurseries. F. FUNAHASHI (1), J. L. Parke (1). (1) Oregon State University, Corvallis, OR, U.S.A.

Liberibacter Biology and Detection**10:15 – 11:30 a.m.; 12A, CC**

Moderators: Manjunath Keremane, USDA ARS, Riverside, CA, U.S.A.; Stacy Mauzey, Washington State University, Pullman, WA, U.S.A.

10:15 a.m. • 194-O.

Publicly available website for the identification of psyllid-*Ca. Liberibacter* interactors using comparative transcriptome analysis. T. FISHER (1), W. Nelson (1), M. Vyas (1), R. He (2), M. Willer (1), D. R. Gang (2), C. Soderlund (1), J. K. Brown (1). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) Washington State University, Pullman, WA, U.S.A.

10:30 a.m. • 195-O.

Comparative metagenome sequencing of *Candidatus Liberibacter solanacearum* haplotypes A and B reveals hypervariable phage-like regions. C. JOHNSON (1), S. Thompson (2), A. Wen (1), Y. P. Duan (3), G. Smith (2), N. C. Gudmestad (1). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) New Zealand Plant and Food Research, Lincoln, New Zealand; (3) U.S. Horticultural Research Laboratory, Fort Pierce, FL, U.S.A.

10:45 a.m. • 196-O.

Development and application of scFv for *Ca. Liberibacter asiaticus*, the pathogen associated with huanglongbing. Q. Yuan (1), F. Ding (2), O. Minenkova (3), R. Bransky (4), R. Jordan (2), J. HARTUNG (5). (1) Luzhou Medical College, Luzhou, China; (2) USDA ARS, Beltsville, MD, U.S.A.; (3) Sigma-tau Pharmaceutical, Rome, Italy; (4) University of Florida, Lake Alfred, FL, U.S.A.; (5) USDA ARS MPPL, Beltsville, MD, U.S.A.

11:00 a.m. • 197-O.

Development of *Candidatus Liberibacter solanacearum* haplotyping assay. A. WEN (1), C. Johnson (1), N. C. Gudmestad (1). (1) North Dakota State University, Fargo, ND, U.S.A.

11:15 a.m. • 198-O.

Development of a home detection kit for *Candidatus Liberibacter asiaticus* (LAS) associated with citrus huanglongbing from psyllids. M. L. Keremane (1), C. Ramadugu (2), R. Kubota (3), Y. P. Duan (4), D. G. Hall (4), D. Jenkins (3), R. F. LEE (5). (1) USDA ARS, Citrus Germplasm Repository, Riverside, CA, U.S.A.; (2) University of California-Riverside, Riverside, CA, U.S.A.; (3) University of Hawaii, Honolulu, HI, U.S.A.; (4) U.S. Horticultural Research Laboratory, Fort Pierce, FL, U.S.A.; (5) USDA National Clonal Germplasm Repository for Citrus and Dates, Riverside, CA, U.S.A.

WEDNESDAY, AUGUST 14, 2013 (afternoon)

Special Sessions listed first, followed by Oral Technical Sessions. Listed in alphabetical order by session title. Find complete details on the meeting website at www.apsnet.org/meetings/annual/program/Pages/. As a courtesy to presenters, please do not take photographs during presentations.

Meeting room key: Convention Center = CC

■ SPECIAL SESSIONS

Exploring Genomic and Molecular Mechanisms of Host-Parasite Interactions for Crop Protection

1:00 – 4:00 p.m.; 19AB, CC

Organizers: Yulin Jia, USDA-ARS, Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.; Guo-Liang Wang, Department of Plant Pathology, Ohio State University, Columbus, OH, U.S.A.

Moderators: Yulin Jia and Tracy Bianco, USDA-ARS, Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.

Sponsoring Committees/Sponsors: Working group of the Chinese Society of Plant Pathology (CSPP) and The American Phytopathological Society (APS)

1:00 p.m. 109-S.

The Peanut Genome Consortium and Peanut Genome Sequence: Creating a better future through global food security. B. GUO (1), X. Liu (2), P. Ozias-Akins (3), X. Zhang (4), B. Liao (5), R. K. Varshney (6), V. Nwosu (7), R. F. Wilson (8), H. T. Stalker (9). (1) USDA ARS, Crop Protection and Management Research Unit, Tifton, GA, U.S.A.; (2) BGI-Shenzhen, Shenzhen, China; (3) University of Georgia, Tifton, GA, U.S.A.; (4) Henan Academy of Agricultural Sciences, Zhengzhou, China; (5) Oil Crops Research Institute, Chinese Academy of Agricultural Sciences, Wuhan, China; (6) International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, India; (7) Plant Science Program, Global Chocolate Science & Technology, Mars Chocolate North America, Hackettstown, NJ, U.S.A.; (8) Oilseeds & Bioscience Consulting, Raleigh, NC, U.S.A.; (9) North Carolina State University, Raleigh, NC, U.S.A.

1:30 p.m. • 110-S.

Population structure and genomics of the stripe rust pathogen and interactions with its host plants. X. CHEN (1). (1) USDA ARS, Washington State University, Pullman, WA, U.S.A.

2:00 p.m. • 111-S.

Mycotoxins produced by the rice false smut pathogen. T. Shan (1), X. Wang (1), H. Luo (1), W. Sun (1), S. Lu (1), W. Sun (1), Y. Peng (1), L. ZHOU (1). (1) China Agricultural University, Beijing, China

2:30 p.m. • Break

2:45 p.m. • 112-S.

Global efforts in managing rice blast disease. Y. JIA (1). (1) USDA ARS, Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.

3:00 p.m. • 113-S.

Mechanisms and management of carbendazim resistance in *Gibberella zeae*. M. G. ZHOU (1), J. Yu (1), J. Qiu (1), C. Chen (1), Y. Zhang (1), Y. Hou (1). (1) Nanjing Agricultural University, Nanjing, China

3:30 p.m. • 114-S.

Primary research progress on the resistance of rice varieties against two rice viruses transmitted by small brown planthoppers (SBPH) in China. T. ZHOU (1), Y. Lan (1), L. Du (1), F. Sun (1), Y. Fan (1), Z. Cheng (1), Y. Zhou (1). (1) Institute of Plant Protection, Jiangsu Academy of Agricultural Sciences, Nanjing, Jiangsu, Peoples Republic of China

Filling the Gap: Understanding Factors Driving Expanding Distributions of Plant Viruses

1:00 – 4:00 p.m.; 18C, CC

Organizers: Jing Zhou, University of Arkansas, Fayetteville, AR, U.S.A.; Judith Brown, The University of Arizona, Tucson, AZ, U.S.A.

Moderators: Judith Brown, The University of Arizona, Tucson, AZ, U.S.A.; Jing Zhou, University of Arkansas, Fayetteville, AR, U.S.A.

Sponsoring Committees/Sponsors: Virology; Vector-Pathogen Complexes

Financial Sponsor: Eurofins STA Laboratories; Agdia, Inc.; Monsanto Company

1:00 p.m. 115-S.

Virus-vector-host plant interactions: Factors that influence the spread of hemipteran-borne plant viruses. A. FERERES (1). (1) CSIC, Madrid, Spain

1:30 p.m. • 116-S.

The panacea of host resistance genes: The inadvertent selection of resistance-breaking begomoviruses. J. K. BROWN (1). (1) Plant Sciences, The University of Arizona, Tucson, AZ, U.S.A.

2:00 p.m. • 117-S.

Evolutionary genetics factors underlying the emergence and spread of plant RNA viruses. S. F. ELENA (1). (1) IBMCP-CSIC, Valencia, Spain

2:30 p.m. • Break

2:45 p.m. • 118-S.

Specialty crop clean plant centers—Managing plant health through pathogen screening and distribution of plant materials. D. GOLINO (1). (1) Department of Plant Pathology & Foundation Plant Services, University of California, Davis, CA, U.S.A.

3:15 p.m. • 119-S.

Free trade, fair trade, safe trade: The role of plant pathology in filling regulatory gaps. W. GUTIERREZ (1). (1) USDA, APHIS, PPQ, Center for Plant Health Science and Technology, Raleigh, NC, U.S.A.

3:45 p.m. • Discussion

Innovations in Seed Treatments for Crop Protection and Health

1:00 – 4:00 p.m.; 16A, CC

Organizers: Gary Munkvold and Gregory Tylka, Iowa State University, Ames, IA, U.S.A.

Moderator: Gary Munkvold, Iowa State University, Ames, IA, U.S.A.

Sponsoring Committees/Sponsors: Seed Pathology; Nematology

Financial Sponsors: BASF US Crop Protection; Syngenta Seed Care; Valent U.S.A. Corporation; Seed Science Center (Iowa State University)

1:00 p.m. 120-S.

Development and formulation of seed treatment combinations. K. S. ARTHUR (1). (1) Valent U.S.A. Corporation, Plano, TX, U.S.A.

1:30 p.m. • 121-S.

Adoption of new seed treatment technologies by the seed industry. G. LAMKA (1). (1) DuPont Pioneer, Johnston, IA, U.S.A.

2:00 p.m. • 122-S.

Enhancement of plant productivity through microbial seed treatments. G. E. HARMAN (1). (1) Advanced Biological Marketing, Geneva, NY, U.S.A.

2:30 p.m. • Break

2:45 p.m. • 123-S.

Nematode-protectant seed treatments: New options for nematode management in row crops. G. L. TYLKA (1). (1) Iowa State University, Ames, IA, U.S.A.

3:15 p.m. • 124-S.

Physiological benefits of seed treatments. P. R. d. C. CASTRO (1). (1) University of Sao Paulo (ESALQ/USP), Piracicaba, Brazil

3:45 p.m. • Discussion

Insect-Transmitted Bacterial Diseases: Passing the Gift

1:00 – 4:00 p.m.; 18B, CC

Organizers/Moderators: Jeri Barak and Jose Pablo Soto-Arias, University of Wisconsin-Madison, Madison, WI, U.S.A.

Sponsoring Committees/Sponsors: Vector-Pathogen Complexes; Bacteriology

1:00 p.m. 125-S.

Recent advances in understanding the biology of the insect-transmitted bacterium, *Xylella fastidiosa*. M. C. ROPER (1), J. Rapicavoli (1). (1) University of California-Riverside, Riverside, CA, U.S.A.

1:30 p.m. • 126-S.

Phytophagous insects, *Salmonella enterica*, and fresh produce: A tritrophic interaction that can make you sick. J. P. SOTO-ARIAS (1), R. Groves (1), J. D. Barak (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

2:00 p.m. • 127-S.

Pantoea stewartii uses distinct type III secretion systems to alternate between host kingdoms. M. REDINBAUGH (1), V. Correa (2), D. R. Majerczak (2), E. D. Ammar (3), M. Merighi (4), R. Pratt (5), S. Hogenhout (6), D. Coplin (4). (1) USDA ARS and Ohio State University/OARDC, Wooster, OH, U.S.A.; (2) Ohio State University, Wooster, OH, U.S.A.; (3) USDA ARS, Subtropical Insects Research, Fort Pierce, FL, U.S.A.; (4) Ohio State University, Columbus, OH, U.S.A.; (5) New Mexico State University, Las Cruces, NM, U.S.A.; (6) John Innes Centre, Norwich, United Kingdom

2:30 p.m. • Break

2:45 p.m. • 128-S.

Erwinia tracheiphila: Getting around with a little help from my friends. E. SAALAU-ROJAS (1), M. L. Gleason (1). (1) Iowa State University, Ames, IA, U.S.A.

3:15 p.m. • 129-S.

Genomics of *Erwinia amylovora*–host interactions: Update and perspective. Y. ZHAO (1). (1) University of Illinois at Urbana-Champaign, Urbana, IL, U.S.A.

3:45 p.m. • Discussion

Responses of Plant-Symbiotic Fungi to Climate Change: Diversity, Distribution, and Function

1:00 – 4:00 p.m.; 16B, CC

Organizer/Moderator: Christine Hawkes, University of Texas-Austin, Austin, TX, U.S.A.

Sponsoring Committee/Sponsor: MSA

1:00 p.m. • 130-S.

Fungal community responses to discrete precipitation pulses under altered rainfall intervals. A. JUMPPONEN (1), L. Zeglin (2), M. David (3), E. Prestat (3), S. Brown (1), J. Dvornik (3), K. Lothamer (1), R. Hettich (4), J. Jansson (3), C. W. Rice (1), S. Tringe (5), D. Myrold (2). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) Oregon State University, Corvallis, OR, U.S.A.; (3) Lawrence Berkeley National Laboratory, Berkeley, CA, U.S.A.; (4) Oak Ridge National Laboratory, Oak Ridge, TN, U.S.A.; (5) Joint Genome Institute, Berkeley, CA, U.S.A.

1:30 p.m. • 131-S.

Climatic drivers of fungal endophyte distributions and their impacts on plant drought resistance. H. E. GIAUQUE (1), C. V. Hawkes (2). (1) University of Texas, Austin, TX, U.S.A.; (2) Section of Integrative Biology, University of Texas-Austin, Austin, TX, U.S.A.

2:00 p.m. • 132-S.

Climate change, endophyte symbiosis, and ecosystem engineering in dune ecosystems: Can fungi affect how plants build dunes? J. A. RUDGERS (1), S. Emery (2). (1) University of New Mexico, Albuquerque, NM, U.S.A.; (2) University of Louisville, Louisville, KY, U.S.A.

2:30 p.m. • Break

2:45 p.m. • 133-S.

Mycorrhizal feedbacks with global change: An ecophysiological perspective. G. M. MALCOLM (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.

3:15 p.m. • 134-S.

Fires as global change: Responses by mycorrhizal fungi. S. R. HOLDEN (1), K. K. Treseder (1). (1) University of California-Irvine, Irvine, CA, U.S.A.

3:45 p.m. • Discussion

ORAL TECHNICAL SESSIONS

Fungal Genomics 1

1:00 – 2:15 p.m.; 12B, CC

Moderators: Merje Toome, Purdue University, West Lafayette, IN, U.S.A.; James B. Anderson, University of Toronto, Missisauga, ON, Canada

1:00 p.m. 199-O.

Genome-wide mutation dynamic within a long-lived individual of *Armillaria*. J. B. ANDERSON (1). (1) University of Toronto, Missisauga, ON, Canada

1:15 p.m. • 200-O.

Population genomics of plant-associated model Ascomycota species. P. Gladieux (1), C. Hann-Soden (1), I. A. Sylvain (1), M. Fischer (1), J. W. TAYLOR (1). (1) University of California, Berkeley, CA, U.S.A.

1:30 p.m. • 201-O.

Genome-wide signature of adaptation in a recently introduced pathogen. N. FEAU (1), P. Frey (2), S. Duplessis (2), R. C. Hamelin (3). (1) University of British Columbia, Vancouver, Canada; (2) INRA, Université de Lorraine, Nancy, France; (3) University of British Columbia, Vancouver, BC, Canada

1:45 p.m. • 202-O. WITHDRAWN

2:00 p.m. • 203-O.

The genome of the fern pathogen *Mixia osmundae* reveals hints about its cryptic biology. M. TOOME (1), R. W. Riley (2), T. Y. James (3), K. L. Lazarus (3), B. Henrissat (4), O. A. Robin (2), I. V. Grigoriev (2), J. W. Spatafora (5), M. C. Aime (1). (1) Purdue University, West Lafayette, IN, U.S.A.; (2) U.S. Department of Energy Joint Genome Institute, Walnut Creek, CA, U.S.A.; (3) University of Michigan, Ann Harbor, MI, U.S.A.; (4) CNRS and Aix-Marseille University, Marseille, France; (5) Oregon State University, Corvallis, OR, U.S.A.

Fusarium**1:00 – 2:15 p.m.; 12A, CC**

Moderator: Amanda Warner, Southern Illinois University, Carbondale, IL, U.S.A.

1:00 p.m. • 204-O.

Effect of intermittent pre- and post-anthesis moisture patterns on Fusarium head blight, deoxynivalenol, and fungal biomass in wheat. K. F. ANDERSEN (1), K. T. Willyerd (1), A. Cabrera (1), L. V. Madden (1), P. A. Paul (1). (1) The Ohio State University, Wooster, OH, U.S.A.

1:15 p.m. • 205-O.

Characterization and field detection of *Cryptococcus flavescens* strains, biocontrol agents against Fusarium head blight of wheat. X. RONG (1), P. A. Paul (1), D. A. Schisler (2), B. B. McSpadden Gardener (1). (1) Ohio State University, OARDC, Wooster, OH, U.S.A.; (2) Crop Bioprotection Research, USDA-ARS, Peoria, IL, U.S.A.

1:30 p.m. • 206-O.

Comparison of the *Fusarium* species composition between a New England and Chinese salt marsh affected by dieback and climate change. W. ELMER (1). (1) Connecticut Agricultural Experiment Station, New Haven, CT, U.S.A.

1:45 p.m. • 207-O.

Fusarium decemcellulare associated with cushion gall and dieback of tropical trees in Brazil and Mexico. G. RODRIGUEZ-ALVARADO (1), L. M. Abreu (2), E. A. Guimarães (2), S. S. Costa (2), J. L. Bezerra (3), L. H. Pfenning (2). (1) Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Michoacan, Mexico; (2) Universidade Federal de Lavras, Lavras, Brazil; (3) Universidade Estadual de Santa Cruz, Ilheus, Brazil

2:00 p.m. • 208-O.

Microbial disease complex of sweetpotato (*Ipomoea batatas* L. Lam.) tip/end rot. C. E. STOKES (1), R. A. Arancibia (1), R. E. Baird (1). (1) Mississippi State University, Mississippi State, MS, U.S.A.


Population Genetics**1:00 – 2:15 p.m.; 18D, CC**

Moderators: Thomas Harrington, Iowa State University, Ames, IA, U.S.A.; Parama Sikdar, TFREC, Washington State University, Wenatchee, WA, U.S.A.

1:00 p.m. 209-O.

Population divergence in the wheat leaf rust fungus *Puccinia triticina* is correlated with wheat evolution. M. Liu (1), J. KOLMER (2). (1) AAFC, ECORC, Ottawa, ON, Canada; (2) USDA ARS, St. Paul, MN, U.S.A.

1:15 p.m. • 210-O.

 Genetic polymorphism of *Puccinia arachidis*. I. L. POWER (1), R. S. Arias (2), A. K. Culbreath (1). (1) University of Georgia, Department of Plant Pathology, Tifton, GA, U.S.A.; (2) USDA-ARS, National Peanut Research Laboratory, Dawson, GA, U.S.A.

1:30 p.m. • 211-O.

Evolution of virulence in *Puccinia striiformis* f. sp. *tritici* (Pst) on genes for adult-plant resistance in soft and hard winter wheat cultivars. E. A. MILUS (1), D. E. Moon (1). (1) Department of Plant Pathology, University of Arkansas, Fayetteville, AR, U.S.A.

1:45 p.m. • 212-O.

Population genetic analyses of *Verticillium dahliae* from lettuce indicates regular introduction of novel genotypes. S. GURUNG (1), D. P. G. Short (1), K. V. Subbarao (1). (1) University of California-Davis, Salinas, CA, U.S.A.

2:00 p.m. • 213-O.

Race-specific PCRs for *Verticillium dahliae* reveal a high frequency of race 2 strains in spinach seed. D. P. G. SHORT (1), S. Gurung (2), K. Maruthachalam (2), K. V. Subbarao (2). (1) University of California, Salinas, CA, U.S.A.; (2) University of California-Davis, Salinas, CA, U.S.A.

Resistance and Defence Pathway Identification**1:00 – 2:00 p.m.; 18A, CC**

Moderator: Giovanna D. Turano, Cornell University, Ithaca, NY, U.S.A.

1:00 p.m. 214-O.

Molecular characterization of rice blast resistance genes using a recombinant inbred population derived from a cross of Nipponbare and 93-11. J. MA (1), M. H. Jia (2), Y. Jia (2). (1) University of Arkansas Rice Research Extension Center, Stuttgart, AR, U.S.A.; (2) USDA-ARS Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.

1:15 p.m. • 215-O.

Identification of loci for resistance to Sclerotinia stem rot in a perennial relative of soybean. S. CHANG (1), C. Thurber (1), P. Brown (1), G. Hartman (1), L. L. Domier (1). (1) University of Illinois, Urbana, IL, U.S.A.

1:30 p.m. • 216-O.

The activation of ethylene and jasmonic acid pathways in apple rootstock during *Pythium ultimum* infection. Y. ZHU (1), S. Shin (2), F. Johnson (3), M. Mazzola (2). (1) USDA ARS Tree Fruit Research Laboratory, Wenatchee, WA, U.S.A.; (2) USDA ARS, Wenatchee, WA, U.S.A.; (3) Washington State University, Pullman, WA, U.S.A.

1:45 p.m. • 217-O.

Expression profiling and evolution of pathogenesis related genes in maize and teosinte in response to *Ustilago maydis*. S. CHAVAN (1), S. M. Smith (1). (1) University of Georgia, Athens, GA, U.S.A.

Disease Control Alternatives**2:45 – 4:00 p.m.; 12A, CC**

Moderator: Pravin Gautam, North Dakota State University, Langdon, ND, U.S.A.

2:45 p.m. • 218-O.


Trunk and soil applications of imidacloprid, thiamethoxam and acibenzolar-S-methyl for SAR control of citrus canker on young fruiting citrus trees. J. H. GRAHAM (1), M. E. Myers (1). (1) University of Florida, Citrus Research and Education Center, Lake Alfred, FL, U.S.A.

3:00 p.m. • 219-O.

A field trial to evaluate HLB tolerance and resistance in *Citrus* and citrus relatives. C. RAMADUGU (1), M. L. Keremane (2), S. E. Halbert (3), E. Stover (4), Y. P. Duan (4), R. F. Lee (5). (1) University of California-Riverside, Riverside, CA, U.S.A.; (2) USDA National Clonal Germplasm Repository for Citrus and Dates, Riverside, CA, U.S.A.; (3) Division of Plant Industry,

Gainesville, FL, U.S.A.; (4) U.S. Horticultural Research Laboratory, Fort Pierce, FL, U.S.A.; (5) USDA ARS, Citrus Germplasm Repository, Riverside, CA, U.S.A.

3:15 p.m. • 220-O.

 Competitiveness of field QoI-resistant isolates of *Alternaria alternata*, the causal agent of Alternaria brown spot (ABS) of tangerine. B. VEGA (1), M. M. Dewdney (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

3:30 p.m. • 221-O.

Rhizoctonia spp. dynamics and optimal timing of glyphosate application to cereal cover crops to manage onion stunting in Washington and Oregon. D. SHARMA POU DYAL (1), T. Paulitz (2), L. Porter (3), J. Eggers (4), P. B. Hamm (4), L. du Toit (5). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA ARS, Pullman, WA, U.S.A.; (3) USDA ARS, Prosser, WA, U.S.A.; (4) Oregon State University, Hermiston, OR, U.S.A.; (5) Washington State University, Mt. Vernon, WA, U.S.A.

3:45 p.m. • 222-O.

Increasing the mobility and stability of nematicides using plant viral nanoparticles. S. A. LOMMEL (1), R. H. Guenther (1), J. Cao (1), T. L. Sit (1), C. H. Opperman (1), J. A. Willoughby (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

Fungal Genomics 2

2:45 – 4:00 p.m.; 12B, CC

Moderators: Joseph W. Spatafora, Oregon State University, Corvallis, OR, U.S.A.; Braham Dhillon, University of British Columbia, Vancouver, BC, Canada

2:45 p.m. • 223-O.

One genome, two genomes, one thousand genomes. I. V. GRIGORIEV (1). (1) U.S. DOE Joint Genome Institute, Walnut Creek, CA, U.S.A.

3:00 p.m. • 224-O.

1000 Fungal Genomes project. J. SPATAFORA (1), J. Stajich (2), I. Grigoriev (3). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) University of California-Riverside, Riverside, CA, U.S.A.; (3) Joint Genome Institute, DOE, Walnut Creek, CA, U.S.A.

3:15 p.m. • 225-O.

Diverse lifestyles and strategies of plant pathogenesis encoded in the genomes of eighteen Dothideomycetes fungi. R. OHM (1), S. Goodwin (2), Dothideomycetes Consortium (3), I. Grigoriev (1). (1) U.S. DOE Joint Genome Institute, Walnut Creek, CA, U.S.A.; (2) USDA ARS, Purdue University, West Lafayette, IN, U.S.A.; (3) international locations

3:30 p.m. • 226-O.

Large-scale genomic and transcriptomic analysis of mycorrhizal fungi. A. KUO (1), A. Kohler (2), I. Grigoriev (1), F. Martin (2). (1) US DOE Joint Genome Institute, Walnut Creek, CA, U.S.A.; (2) INRA, Nancy, France

3:45 p.m. • 227-O.

Genetic and epigenetic profiling of *Fusarium graminearum* following serial subculture. H. E. HALLEN-ADAMS (1), R. Legge (1), R. Crespo Ramirez (1). (1) University of Nebraska-Lincoln, Lincoln, NE, U.S.A.

Host Resistance

2:45 – 3:30 p.m.; 18D, CC

Moderators: Anna Conrad, The Ohio State University, Columbus, OH, U.S.A.; Teresa J. Hughes, Purdue University, West Lafayette, IN, U.S.A.

2:45 p.m. • 228-O.

Field screening of diverse *Brassica* germplasm identifies high level resistance against white leaf spot disease. N. GUNASINGHE (1), M. You (1), M. J. Barbeti (1). (1) The University of Western Australia, Perth, Australia

3:00 p.m. • 229-O.

Screening sorghum germplasm for biotic and abiotic stress tolerance and potential use of selected physiological traits as disease severity predictors. A. Y. BANDARA (1), R. Perumal (2), M. H. Kapanigowda (2), C. R. Little (1). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) Agricultural Research Center, Kansas State University, Hays, KS, U.S.A.

230-O. WITHDRAWN

3:15 p.m. • 231-O.

Peanut mini core collection at ICRISAT: A reality in identifying multiple disease resistance sources. H. K. SUDINI (1), H. D. Upadhyaya (1), C. L. Gowda (1). (1) ICRISAT, Hyderabad, India
3:45 p.m. • 232-O. WITHDRAWN

Pest and Disease Management on Apple

2:45 – 4:00 p.m.; 18A, CC

Moderator: Kiersten Bekoscke, Cornell University, NYSAES, Geneva, NY, U.S.A.

2:45 p.m. • 233-O.

Sensitivity of *Erwinia amylovora* in Illinois apple orchards to streptomycin, kasugamycin, and copper. A. G. Jurgens (1), M. BABADOOST (2). (1) Dow AgroSciences, Gibson City, IL, U.S.A.; (2) University of Illinois, Urbana, IL, U.S.A.

3:00 p.m. • 234-O.

Control of fire blight (*Erwinia amylovora*) with trunk injection of the maximum seasonally allowed doses of SAR inducers and antibiotics in apple trees. S. G. AĆIMOVIĆ (1), Q. Zeng (1), G. C. McGhee (1), J. C. Wise (1), G. W. Sundin (1). (1) Michigan State University, East Lansing, MI, U.S.A.

3:15 p.m. • 235-O.

Stability and fitness of pyrimethanil-resistant phenotypes of *Penicillium expansum* from apple. R. CAIAZZO (1), C. L. Xiao (2). (1) Washington State University, Wenatchee, WA, U.S.A.; (2) USDA ARS, Parlier, CA, U.S.A.

3:30 p.m. • 236-O.

CYP51A1 upstream anomalies and overexpression in myclobutanil and difenoconazole resistant *Venturia inaequalis* isolates. S. VILLANI (1), K. Cox (1). (1) Cornell University, Geneva, NY, U.S.A.

3:45 p.m. • 237-O.

Efficacy of foliar applications of a phosphite fungicide for control of apple scab, caused by *Venturia inaequalis*. M. ELLIS (1), W. Stringfellow (2), L. Wilson (1). (1) Ohio State University, Wooster, OH, U.S.A.; (2) Quest Products Corp., Lindswood, KS, U.S.A.

POSTER SCHEDULE AND POSTER TITLES BY CATEGORY

Poster Viewing Hours

Sunday, August 11

12:00 – 3:00 p.m.Poster Set-Up
 4:30 – 8:00 p.m.Poster Viewing

Monday, August 12

7:30 a.m. – 8:00 p.m.Poster Viewing
 3:30 – 5:30 p.m.Poster Viewing with Authors Present

If you are presenting two posters and they are scheduled during the same time period, please leave a note to indicate the other poster board where you can be found.

3:30 – 4:30 p.m. Posters 1 – 364 (even-numbered poster authors present)
 4:30 – 5:30 p.m. Posters 365 – 728 (even-numbered poster authors present)

Tuesday, August 13

7:30 a.m. – 6:00 p.m.Poster Viewing
 3:30 – 5:30 p.m.Poster Viewing with Authors Present

If you are presenting two posters and they are scheduled during the same time period, please leave a note to indicate the other poster board where you can be found.

3:30 – 4:30 p.m. Posters 1 – 364 (odd-numbered poster authors present)
 4:30 – 5:30 p.m. Posters 365 – 728 (odd-numbered poster authors present)

Wednesday, August 14

8:00 – 10:00 a.m.Poster Take-Down



2013 APS-MSA Joint Meeting Poster Categories

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<i>Poster Categories</i>	<i>Poster numbers</i>	<i>Poster Categories</i>	<i>Poster numbers</i>
Bacteriology	1 – 32	Plant Stress and Abiotic Disorders	466 – 472
Mycology	33 – 124	Analytical and Theoretical Plant Pathology	473 – 478
Virology	125 – 140	Cropping Systems – Sustainability and Pathogen-Vector Interactions	479 – 498
Biological Control	141 – 201	Phylloplane and Rhizosphere Ecology	499 – 523
Chemical Control	202 – 241	Population Biology Genetics	524 – 551
Cultural Control	242 – 261	Risk Assessment	552 – 568
Genetics of Resistance	262 – 300	Systematics/Evolution	569 – 598
Integrated Pest Management	301 – 322	Biochemistry and Cell Biology of Host Resistance	599 – 609
Postharvest Biology	323 – 330	Biochemistry and Cell Biology of Pathogenesis	610 – 642
Crop Loss Assessment	331 – 332	Molecular Aspects of Effectors and Their Host Targets	643 – 651
Detection and Diagnosis – Bacteria	333 – 346	Molecular Plant-Microbe Interactions – Bacteria	652 – 664
Detection and Diagnosis – Fungi and Oomycetes	347 – 394	Molecular Plant-Microbe Interactions – Fungi and Oomycetes	665 – 692
Detection and Diagnosis – Nematodes	395 – 398	Molecular Plant-Microbe Interactions – Viruses	693 – 705
Detection and Diagnosis – Viruses	399 – 419	Plant Defense Responses	706 – 718
New and Emerging Diseases – Bacteria	420 – 426	Outreach and Teaching	719 – 728
New and Emerging Diseases – Fungi and Oomycetes	427 – 451		
New and Emerging Diseases – Viruses	452 – 465		

BACTERIOLOGY

- 1-P Complete genome sequencing and comparative analysis of *Pseudomonas syringae* pv. *syringae* strains B301D and HS191.**
A. RAVINDRAN (1), N. U. Janan (2), J. S. Yuan (1), N. Wang (2), D. C. Gross (1). (1) Texas A&M University, College Station, TX, U.S.A.; (2) University of Florida, Lake Alfred, FL, U.S.A.
- 2-P  Characterizing the promoter of the phenazine biosynthesis operon in the biological control strain *Pseudomonas chlororaphis* 30-84.**
J. M. YU (1), J. G. Levy (1), D. Wang (1), L. S. Pierson (1), E. A. Pierson (1). (1) Texas A&M University, College Station, TX, U.S.A.
- 3-P The function of the *acr* genes in phenazine regulation and transport in the biological control strain *Pseudomonas chlororaphis* 30-84.**
Y. YANG (1), D. Wang (1), J. M. Yu (1), J. G. Levy (1), L. S. Pierson (1), E. A. Pierson (1). (1) Texas A&M University, College Station, TX, U.S.A.
- 4-P Roles of the Gac-Rsm pathway in the regulation of phenazine biosynthesis in *Pseudomonas chlororaphis* 30-84.**
D. WANG (1), S. H. Lee (2), C. Seeve (3), J. M. Yu (1), L. S. Pierson (1), E. A. Pierson (1). (1) Texas A&M University, College Station, TX, U.S.A.; (2) Chungcheongbuk-Do Agricultural Research & Extension Services, Ochang-eup, Korea; (3) Baylor University, Waco, TX, U.S.A.
- 5-P Monitoring the infection process of *Xanthomonas fragariae* in strawberry with a GFP-labeled strain.**
H. WANG (1), C. McTavish (2), W. Turechek (3). (1) University of Florida, USDA-ARS, Fort Pierce, FL, U.S.A.; (2) Plant, Soil and Microbial Sciences, Michigan State University, East Lansing, MI, U.S.A.; (3) USDA-ARS, Fort Pierce, FL, U.S.A.
- 6-P Characterization of *Dickeya* spp. from South China by multi-locus sequence analysis.**
B. LIN (1), J. Zhang (1), H. Shen (1), X. Pu (1). (1) Key Laboratory of New Technique for Plant Protection in Guangdong, Institute of Plant Protection, Guangdong Academy of Agricultural Sciences, Guangzhou, China
- 7-P Genomic and SEM characterization of a phytoplasma detected in huanglongbing-affected citrus.**
M. Liang (1), X. Deng (1), X. Wang (2), J. CHEN (3). (1) South China Agricultural University, Guangzhou, China; (2) South-West University, Qiongzhou, China; (3) USDA ARS PWA, Parlier, CA, U.S.A.
- 8-P Classification of *Rathayibacter agropyri* sp. nov. based on analysis of the 16S rRNA and housekeeping genes.**
S. J. MAUZEY (1), B. K. Schroeder (1), T. D. Murray (1). (1) Washington State University, Pullman, WA, U.S.A.
- 9-P Genetic variability of the population of *Ralstonia solanacearum* in Brazil.**
T. R. SANTIAGO (1), C. A. Lopes (2), E. Mizubuti (1). (1) Universidade Federal de Viçosa, Viçosa, Brazil; (2) Embrapa Hortaliças, Brasília, Brazil
- 10-P Novel species of *Enterobacteriaceae* isolated from Russian wheat aphid (*Diuraphis noxia*).**
E. Luna (1), L. Van Eck (2), N. Lapitan (1), A. M. Botha (2), J. Leach (1), N. Tisserat (1), T. CAMPILLO (1), M. Cilia (3). (1) Colorado State University, Fort Collins, CO, U.S.A.; (2) Stellenbosch University, Stellenbosch, Republic of South Africa; (3) Cornell University, Ithaca, NY, U.S.A.
- 11-P WITHDRAWN**
- 12-P Fungal contaminants recovered from selected tree nuts and dried fruits.**
V. H. TOURNAS (1), J. S. Kohn (2), A. Johny (3). (1) Food and Drug Administration/CFSAN, College Park, MD, U.S.A.; (2) Food and Drug Administration/ORA/NERL, Jamaica, NY, U.S.A.; (3) JIFSAN/University of Maryland, College Park, MD, U.S.A.
- 13-P Evaluation of 'Pera' (*Citrus sinensis*) genotypes resistance to citrus canker on greenhouse conditions.**
A. M. O. Goncalves-Zuliani (1), W. M. C. NUNES (1), J. Belasque (2), D. H. P. Catani (1), P. T. R. Nocchi (1). (1) Universidade Estadual de Maringá, Maringá, Brazil; (2) Fundo de Defesa da Citricultura, Araraquara, Brazil
- 14-P Bacteriophage ecological niches and potential role in coevolution of *Xanthomonas arboricola* pv. *pruni* on peach trees.**
A. M. SMITH (1), D. F. Ritchie (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 15-P WITHDRAWN**
- 16-P 'Candidatus *Liberibacter solanacearum*' titer over time in the potato psyllid, *Bactericera cockerelli*, following acquisition from infected plants.**
V. SENGODA GOUNDER (1), J. L. Buchman (2), D. C. Henne (3), H. R. Pappu (4), J. E. Munyaneza (1). (1) USDA ARS, Wapato, WA, U.S.A.; (2) North Dakota State University, Fargo, ND, U.S.A.; (3) Texas AgriLife Research-Weslaco, Weslaco, TX, U.S.A.; (4) Washington State University, Pullman, WA, U.S.A.
- 17-P Rates of recombination and point mutation of bacterial plant pathogens compared to bacterial vertebrate pathogens.**
A. Cantu (1), E. SCHUENZEL (1). (1) University of Texas Pan American, Edinburg, TX, U.S.A.
- 18-P The identification of genes undergoing adaptive evolution in multiple subspecies of *Xylella fastidiosa*.**
D. FLORES (1), E. Schuenzel (1). (1) University of Texas Pan American, Edinburg, TX, U.S.A.
- 19-P Novel regulatory genes affect thaxtomin production and pathogenesis in *Streptomyces scabies*.**
P. LASKARIS (1), I. M. Francis (1), R. Loria (1). (1) University of Florida, Gainesville, FL, U.S.A.
- 20-P WITHDRAWN**
- 21-P Impact of plant age on development of bacterial wilt on muskmelon.**
Q. LIU (1), E. Saalau-Rojas (1), J. C. Batzer (1), M. L. Gleason (1). (1) Iowa State University, Ames, IA, U.S.A.
- 22-P Bacterial blight in *Pelargonium*: Infections unravelled.**
E. T. M. MEEKES (1), R. Hoofman (1), B. Koenen (1), H. A. S. Teunissen (1), J. Westerhof (1). (1) Naktuinbouw, Roelofarendsveen, Netherlands
- 23-P Factors affecting proliferation of *Salmonella enterica* in tomato fruit tissues.**
J. A. BARTZ (1), D. Spiceland (1), M. Teplitski (2), G. J. Hochmuth (2). (1) Plant Pathology Department, University of Florida, Gainesville, FL, U.S.A.; (2) Soil and Water Science Department, University of Florida, Gainesville, FL, U.S.A.
- 24-P  Tomato fruit colonization of *Clavibacter michiganensis* subsp. *michiganensis* via external and internal routes.**
M. TANCOS (1), C. Smart (1). (1) Cornell University, Geneva, NY, U.S.A.
- 25-P Characterization of Sec-translocon-dependent extracytoplasmic proteins of 'Candidatus *Liberibacter asiaticus*' based on PhoA assay.**
N. Wang (1), F. SAMIKSHA (1). (1) University of Florida, Lake Alfred, FL, U.S.A.
- 26-P  The role of the bacterial cell surface lipopolysaccharide in grapevine colonization and insect acquisition of *Xylella fastidiosa*.**
J. N. RAPICAVOLI (1), J. Clifford (2), H. Shugart (3), E. Backus (3), C. May (1), T. Perring (1), M. C. Roper (1). (1) University of California, Riverside, CA, U.S.A.; (2) USDA ARS, Corvallis, OR, U.S.A.; (3) USDA ARS, Parlier, CA, U.S.A.
- 27-P Removal of divalent cations disrupts biofilm formation by the bacterial plant pathogen *Xylella fastidiosa*.**
F. NAVARRETE (1), K. Schultz (1), S. Wisotsky (1), S. Lopez (1), L. De La Fuente (1). (1) Auburn University, Auburn, AL, U.S.A.
- 28-P Effects of grapevine sap phenolics on the *in vitro* growth of *Xylella fastidiosa*.**
C. M. WALLIS (1), A. K. Wallingford (1). (1) USDA ARS, Parlier, CA, U.S.A.

29-P Diverse phytoplasma strains, including 16SrXII-E and two new subgroups, associated with diseased potatoes (*Solanum tuberosum*) in China.

M. Cheng (1), J. Dong (2), I. M. Lee (3), K. D. Bottner-Parker (3), Y. Zhao (3), R. E. Davis (3), P. J. Laski (4), J. H. MCBEATH (5). (1) Plant Pathology and Biotechnology Laboratory, Agricultural and Forestry Experiment Station, University of Alaska-Fairbanks, Fairbanks, AK, U.S.A.; (2) Yunnan Key Laboratory of Agricultural Biotechnology, Biotechnology and Genetic Germplasm Institute, Yunnan Academy of Agricultural Sciences, Kunming, China; (3) Molecular Plant Pathology Laboratory, USDA, Beltsville, MD, U.S.A.; (4) Plant Pathology and Biotechnology Laboratory, Agricultural and Forestry Experiment Station, University of Alaska-Fairbanks, Fairbanks, AK, U.S.A.; (5) University of Alaska-Fairbanks, Fairbanks, AK, U.S.A.

30-P The detection of 'Candidatus Liberibacter asiaticus' in worldwide populations of *Diaphorina citri*.

E. SCHUENZEL (1), M. Scally (1), E. Braswell (2). (1) University of Texas Pan American, Edinburg, TX, U.S.A.; (2) USDA APHIS, Mission, TX, U.S.A.

31-P Grape crown gall: Distribution in vines and detection using a Taqman real-time PCR assay.

K. L. JOHNSON (1), H. Cronin (2), C. Reid (1), T. Burr (1). (1) Cornell University, Geneva, NY, U.S.A.; (2) Colby College, Waterville, ME, U.S.A.

32-P The basis of resistance to *Agrobacterium vitis* in Concord grapevine is not based on exclusion of the pathogen.

C. T. GEE (1), J. E. Creasap Gee (2). (1) Pennsylvania State University, Erie, PA, U.S.A.; (2) Kent State University-Ashtabula, Ashtabula, OH, U.S.A.

MYCOLOGY

33-P Characterization of *Stenocarpella maydis* mutants.

M. P. ROMERO (1), C. Liu (2), C. Woloshuk (1). (1) Purdue University, West Lafayette, IN, U.S.A.; (2) South China Agricultural University, Guangzhou, China

34-P Cell wall changes in an endocytosis mutant of *Neurospora crassa*.

A. RAMIREZ-DEL VILLAR (1), R. Echaui-Espinosa (1), S. Bartnicki-García (1), R. Mouriño-Pérez (1). (1) Center for Scientific Research and Higher Education of Ensenada, Ensenada, Mexico

35-P The localization and dynamics of actin in *Aspergillus nidulans*.

A. E. HILTON (1), L. A. Quintanilla (1), D. Moncada-Monsivais (1), B. D. Shaw (1). (1) Texas A&M University, College Station, TX, U.S.A.

36-P Letting that love light shine: A study of the sexuality of eGFP-transformed *Aspergillus flavus* biocontrol strains.


G. G. MOORE (1). (1) USDA-ARS, New Orleans, LA, U.S.A.

37-P Complementing T-DNA replaces original T-DNA in tagged mutants of *Phoma medicaginis*.

K. CHOI (1), M. R. Dhulipala (1), C. A. Smith (1), S. M. Marek (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.

38-P A next generation sequencing approach for the identification and annotation of the mating locus in the wheat bunt pathogen *Tilletia caries*.

S. W. McCotter (1), J. Humann (2), D. Main (2), M. R. Wildung (3), L. A. Castlebury (4), L. M. CARRIS (1). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) Department of Horticulture, Washington State University, Pullman, WA, U.S.A.; (3) Laboratory for Bioanalysis and Biotechnology, Washington State University, Pullman, WA, U.S.A.; (4) USDA ARS, Systematic Mycology and Microbiology Laboratory, Beltsville, MD, U.S.A.

39-P  Characterization of the mating-type locus (MAT) of *Guignardia citricarpa*, the fungal causal agent of citrus black spot.

N. Y. WANG (1), J. A. Rollins (1), M. M. Dewdney (2). (1) University of Florida, Gainesville, FL, U.S.A.; (2) University of Florida, Lake Alfred, FL, U.S.A.

40-P Prevalence of inversion negative and inversion positive *MAT* alleles in *Sclerotinia sclerotiorum* from across the United States.

P. CHITRAMPALAM (1), C. Qiu (1), L. Aldrich-Wolfe (2), B. Nelson (1). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) Concordia College, Moorhead, MN, U.S.A.

41-P *Geastrum polystigmatis*: An important member of the sooty blotch and flyspeck disease complex in the north-eastern United States.

A. M. MADEIRAS (1), D. R. Cooley (1). (1) University of Massachusetts, Amherst, MA, U.S.A.

42-P Physiological impacts of laurel wilt on avocado.

R. PLOETZ (1), B. Schaffer (1), A. Vargas (1), J. Konkol (1), J. Salvatierra (1), S. Inch (1), A. Campbell (2), R. Wideman (1). (1) University of Florida, Homestead, FL, U.S.A.; (2) University of Florida, Gainesville, FL, U.S.A.

43-P Response of *Medicago truncatula* accessions with differing levels of triterpene saponins to infection by the necrotrophic fungus, *Phoma medicaginis*.

S. L. ROBERSON (1), J. Ridenour (1), L. Nelson (1), B. H. Bluhm (1), K. L. Korth (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.

44-P Microscopic interactions between butternut (*Juglans cinerea*) trees and the butternut canker fungus (*Ophiognomonia clavignenti-juglandacearum*).


J. JACOBS (1), M. Ostry (2), K. Woeste (3). (1) USDA Forest Service Forest Health Protection, Albuquerque, NM, U.S.A.; (2) USDA Forest Service Northern Research Station, St. Paul, MN, U.S.A.; (3) USDA Forest Service Northern Research Station, West Lafayette, IN, U.S.A.

45-P Diversity and specificity of phenotypic effects of endohyphal bacteria on foliar fungal endophytes.

K. R. ARENDT (1), D. A. Baltrus (1), A. E. Arnold (1). (1) School of Plant Sciences, The University of Arizona, Tucson, AZ, U.S.A.

46-P Impact of essential oils on spore germination and plant colonization by *Beauveria bassiana*.

W. Liu (1), B. H. Ownley (1), K. D. GWINN (1). (1) University of Tennessee, Knoxville, TN, U.S.A.

47-P  Ontogenesis of conidiation in the grapevine powdery mildew (*Erysiphe necator*).

T. MCCANN (1), G. Grove (2), W. Mahaffee (3), D. M. Gadoury (4), L. Cadle-Davidson (5), D. C. Gadoury (4), R. C. Seem (4). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Washington State University, Prosser, WA, U.S.A.; (3) USDA ARS, Corvallis, OR, U.S.A.; (4) Cornell University, Geneva, NY, U.S.A.; (5) USDA ARS, Geneva, NY, U.S.A.

48-P *Physalospora vaccinii*: Endophyte, commensal, inquiline, or incidental pathogen?

P. V. OUDEMANS (1), C. Constantelos (1), F. L. Caruso (2), P. S. McManus (3). (1) Rutgers University, Chatsworth, NJ, U.S.A.; (2) Cranberry Station, University of Massachusetts, East Wareham, MA, U.S.A.; (3) University of Wisconsin, Madison, WI, U.S.A.

49-P The effects of environmental factors on infection of blueberry fruit by *Colletotrichum acutatum*.

A. C. SCHILDER (1), T. D. Miles (1), J. M. Gillett (1), A. M. Jarosz (1). (1) Michigan State University, East Lansing, MI, U.S.A.

50-P Genetic variation and aggressiveness of *Sclerotinia sclerotiorum* in the United States.

C. QIU (1), B. D. Nelson (1). (1) North Dakota State University, Fargo, ND, U.S.A.

51-P Comparison of inoculation methods for characterizing aggressiveness of *Phomopsis* stem canker pathogens of sunflower.

F. MATHEW (1), L. Castlebury (2), J. Jordahl (1), T. Gulya (3), S. Markell (1). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) USDA ARS, Systematic Mycology & Microbiology Laboratory, Beltsville, MD, U.S.A.; (3) USDA ARS, Northern Crop Science Laboratory, Fargo, ND, U.S.A.

- 52-P Characterization of the interaction between soybean cultivars and isolates of *Fusarium oxysporum* causing seedling disease.**
D. CRUZ (1), M. L. Ellis (1), L. L. Leandro (1), G. P. Munkvold (1). (1) Iowa State University, Ames, IA, U.S.A.
- 53-P Possible infection of above-ground plant tissue by airborne conidia of nonpathogenic *Fusarium oxysporum*.**
M. d. JIMENEZ-GASCO (1), J. E. Demers (1), F. Magdama (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.
- 54-P Factors affecting seed infection by *Colletotrichum lindemuthianum* in dry bean.**
J. S. PASCHE (1), R. Lamppa (1), J. Halvorson (2). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) North Dakota State University, Fargo, ND, U.S.A.
- 55-P *Edythea quitensis* infecting *Berberis* species in Ecuador.**
C. W. BARNES (1), M. E. Ordoñez (2), C. E. Vivanco (3). (1) Universidad Tecnológica Indoamérica, Quito, Ecuador; (2) Pontificia Universidad Católica del Ecuador, Quito, Ecuador; (3) Universidad Tecnológica Indoamérica, Quito, Ecuador
- 56-P  *Puccinia* on wheat and other Poaceae in the Ecuadorian highlands.**
M. E. ORDONÉZ (1), C. E. Vivanco (1), S. Hambleton (2), C. W. Barnes (3). (1) Pontificia Universidad Católica del Ecuador, Quito, Ecuador; (2) Eastern Cereal Oilseed Research Centre, Agriculture and Agri-Food Canada, Ottawa, ON, Canada; (3) Universidad Tecnológica Indoamérica, Quito, Ecuador
- 57-P *Puccinia mariae-wilsoniae* and *Claytonia virginica*: A pathogen's tale.**
S. A. SCHLUND (1), A. S. Methven (2), B. S. Carlswald (2). (1) Eastern Illinois University, Princeton, IL, U.S.A.; (2) Eastern Illinois University, Charleston, IL, U.S.A.
- 58-P Phylogeny and haplotype diversity of three DNA barcodes in *Puccinia emaculata* causing switchgrass rust.**
G. ORQUERA (1), C. D. Garzon (1), S. M. Marek (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
- 59-P DNA barcoding of rust fungi (Pucciniales) from the Brazilian Cerrado.**
É. S. C. Souza (1), R. N. G. Miller (2), J. C. DIANESE (1). (1) Departamento de Fitopatologia, Universidade de Brasília, Brasília, Brazil; (2) Departamento de Biologia Celular, Universidade de Brasília, Brasília, Brazil
- 60-P Observations on the life cycle of *Ophiodothella vaccinii*.**
R. T. HANLIN (1). (1) University of Georgia, Bogart, GA, U.S.A.
- 61-P Diversity of lignicolous freshwater ascomycetes from an urban lentic environment of Mexico City.**
Y. HERNANDEZ-ALVAREZ (1), M. C. Gonzalez (2), S. Rodriguez-Zaragoza (1), A. Quiroz-Flores (2), R. T. Hanlin (3). (1) UNAM, Tlalnepantla, Mexico; (2) UNAM, Mexico City, Mexico; (3) University of Georgia, Bogart, GA, U.S.A.
- 62-P Diversity of marine lignicolous ascomycetes from two mangroves of Baja California Sur Mexico.**
C. ALPUCHE-GONZALEZ (1), M. C. Gonzalez (1), R. Riosmena-Rodriguez (2). (1) UNAM, Mexico City, Mexico; (2) UABCS, La Paz, Mexico
- 63-P A cultural independent method for investigating the genetic structure of the cotton root rot pathogen, *Phymatotricopsis omnivore*, in Arizona.**
P. CHITRAMPALAM (1), M. Olsen (2). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) University of Arizona, Tucson, AZ, U.S.A.
- 64-P Development of a protocol to optimize the isolation of *Geomyces* from soil samples.**
S. R. LUESCHOW (1), L. Johnson (1), A. Porras-Alfaro (1), T. F. Williams (1). (1) Western Illinois University, Macomb, IL, U.S.A.
- 65-P Nutritional capability and substrate suitability of psychrophilic species of *Geomyces* from the United States.**
D. B. RAUDABAUGH (1), D. L. Lindner (2), A. Porras-Alfaro (3), A. N. Miller (4). (1) Department of Plant Biology, University of Illinois, Urbana, IL, U.S.A.; (2) U.S. Forest Service, Northern Research Station, Center for Forest Mycology Research, Madison, WI, U.S.A.; (3) Department of Biological Sciences, Western Illinois University, Macomb, IL, U.S.A.; (4) Illinois Natural History Survey, University of Illinois, Champaign, IL, U.S.A.
- 66-P Seasonality and prevalence of *Asellaria jatibonicua* in terrestrial isopods.**
M. RIVERA BEEDE (1). (1) University of Puerto Rico, Mayaguez, Puerto Rico, U.S.A.
- 67-P Evolutionary relationships of the clavarioid mushroom genus *Lentaria*.**
A. METHVEN (1), A. Miller (2). (1) Eastern Illinois University, Charleston, IL, U.S.A.; (2) Illinois Natural History Survey, University of Illinois Urbana-Champaign, Urbana-Champaign, IL, U.S.A.
- 68-P The Laboulbeniales of the Boston Harbor Islands.**
D. Haelewaters (1), S. Y. ZHAO (1), A. De Kesel (2), D. H. Pfister (1). (1) Harvard University Herbaria, Cambridge, MA, U.S.A.; (2) National Botanic Garden of Belgium, Meise, Belgium
- 69-P Temporary ponds: Unexplored chytrid biodiversity.**
W. J. DAVIS (1), J. Antonetti (1), P. M. Letcher (1), M. J. Powell (1). (1) University of Alabama, Tuscaloosa, AL, U.S.A.
- 70-P Patterns of fungal diversity within pitcher plant microcosms.**
L. S. BITTLESTON (1), N. E. Pierce (1), A. Pringle (1). (1) Harvard University, Cambridge, MA, U.S.A.
- 71-P Atkinson's fungi: Documenting the legacy of Cornell's preeminent mycologist, George F. Atkinson.**
K. T. HODGE (1), T. R. Russo (1), S. A. LaGreca (1). (1) Cornell University, Ithaca, NY, U.S.A.
- 72-P Evolution of zygomycetous spindle pole bodies: Evidence from mitosis in *Coemansia reversa*.**
D. J. MCLAUGHLIN (1), R. A. Healy (1), R. W. Roberson (2), T. K. Kumar (3), G. J. Celio (1). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) Arizona State University, Tempe, AZ, U.S.A.; (3) The Zamorin's Guruvayurappan College, Calicut, India
- 73-P WITHDRAWN**
- 74-P Fungal community response to restoration-based disturbance in degraded semi-arid landscapes.**
M. R. MALTZ (1), K. K. Treseder (1). (1) University of California-Irvine, Irvine, CA, U.S.A.
- 75-P MSA Student Section 2013.**
D. HAELEWATERS (1), M. Maltz (2), S. L. Lee (3), K. Zimmerman (1). (1) Harvard University, Cambridge, MA, U.S.A.; (2) University of California-Irvine, Irvine, CA, U.S.A.; (3) Rutgers University, New Brunswick, NJ, U.S.A.
- 76-P Identification, molecular characterization, and evolution of group I introns at the expansion segment D11 of 28S rDNA in *Rhizoctonia* species.**
D. GONZALEZ (1). (1) Instituto de Ecología, A.C., Xalapa, Mexico
- 77-P Characterization of *Rhizoctonia solani* anastomosis groups on potato in the Pacific Northwest.**
T. D. Miles (1), J. W. Woodhall (2), L. A. Miles (1), P. B. Hamm (3), P. S. WHARTON (1). (1) University of Idaho, Aberdeen, ID, U.S.A.; (2) The Food and Environment Research Agency, Sand Hutton, York, United Kingdom; (3) Oregon State University, Hermiston, OR, U.S.A.
- 78-P *Ganoderma* species in the neotropics.**
C. W. BARNES (1), M. E. Ordoñez (2), A. Salazar (2), B. W. Held (3), R. A. Blanchette (3). (1) Universidad Tecnológica Indoamérica, Quito, Ecuador; (2) Pontificia Universidad Católica del Ecuador, Quito, Ecuador; (3) University of Minnesota, St. Paul, MN, U.S.A.
- 79-P  Assessing the reactive oxygen species scavenging activity of *Diplodia pinea*.**
P. SHERWOOD (1), K. Gambone (1), P. Bonello (1). (1) The Ohio State University, Columbus, OH, U.S.A.
- 80-P The production of mycotoxins by fungi isolated from maple syrup.**
S. L. ANNIS (1), R. Garcia (1), K. L. Hopkins (2), B. L. Calder (1), L. B. Perkins (1). (1) University of Maine, Orono, ME, U.S.A.; (2) Cooperative Extension, University of Maine, Skowhegan, ME, U.S.A.

- 81-P *Fusarium* symbionts of an ambrosia beetle (*Euwallacea* sp.) in southern Florida are pathogens of avocado, *Persea americana*.**
R. PLOETZ (1), J. Ploetz (1), J. Konkol (1), K. O'Donnell (2), A. Campbell (3), R. Duncan (1). (1) University of Florida, Homestead, FL, U.S.A.; (2) USDA ARS MWA NCAUR, Peoria, IL, U.S.A.; (3) University of Florida, Gainesville, FL, U.S.A.
- 82-P *Cantharocybe brunneovelutina* Lodge, Ovrebø et Aime in Mexico.**
J. CIFUENTES (1), S. Cappello (2), G. Guzmán (3), J. Lodge (4). (1) Facultad de Ciencias Universidad Nacional Autónoma de México, Coyoacán DF, México; (2) División Académica de Ciencias Biológicas, Universidad Juárez Autónoma de Tabasco, Villahermosa, Tabasco, México; (3) Instituto Nacional de Ecología Xalapa, Xalapa, Veracruz, México; (4) Center for Forest Mycology Research, USDA Forest Service, Northern Research Station, Luquillo, Puerto Rico, U.S.A.
- 83-P Ectomycorrhizal community structure along a complex hydrologic gradient.**
S. ERLANDSON (1), J. Savage (2), J. Cavender-Bares (3), K. G. Peay (1). (1) Stanford University, Stanford, CA, U.S.A.; (2) Harvard University, Cambridge, MA, U.S.A.; (3) University of Minnesota, St. Paul, MN, U.S.A.
- 84-P A microfungus from Costa Rica: *Ticosynnema* gen. nov.**
M. d. GRANADOS (1), R. F. Castañeda-Ruiz (2), M. Mardones (3). (1) University of Costa Rica, San José, Costa Rica; (2) Instituto de Investigaciones Fundamentales en Agricultura Tropical "Alejandro de Humboldt" (INIFAT), Ministerio de la Agricultura, La Habana, Cuba; (3) University of Costa Rica, San Pedro, Montes de Oca, Costa Rica
- 85-P A multilocus phylogenetic reconstruction of the *Pachyphloides-Scabropezia* lineage (*Pezizaceae*).**
R. A. HEALY (1), G. M. Bonito (2), M. E. Smith (3), G. G. Guevara (4), C. P. Pačz (5), K. Nara (6), A. Kinoshita (6), J. L. Frank (7), J. Trappe (8). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) Duke University, Durham, NC, U.S.A.; (3) University of Florida, Gainesville, FL, U.S.A.; (4) Instituto Tecnológico de Ciudad Victoria, Victoria, México; (5) National Autonomous University of Mexico, Mexico City, Mexico; (6) University of Tokyo, Tokyo, Japan; (7) Southern Oregon University, Ashland, OR, U.S.A.; (8) Oregon State University, Corvallis, OR, U.S.A.
- 86-P Investigations of ectomycorrhizal communities of *Chrysopsis chrysophylla* & *Pinus ponderosa* along a soil moisture gradient.**
L. J. LONGWAY (1), J. E. Smith (2), D. L. Luoma (1). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) USDA PNW Research Station, Corvallis, OR, U.S.A.
- 87-P Delimitation of tropical endophytic *Diaporthe* species from three euphorbiaceous hosts: *Hevea brasiliensis*, *H. guianensis*, and *Micandra* sp.**
D. N. SKALTSAS (1), L. Castlebury (2), P. Chaverri (3). (1) University of Maryland, Silver Spring, MD, U.S.A.; (2) USDA ARS, Systematic Mycology & Microbiology Laboratory, Beltsville, MD, U.S.A.; (3) University of Maryland, College Park, MD, U.S.A.
- 88-P *Ramularia eucalypti* species complex untangled.**
S. I. R. Videira (1), J. Z. Groenewald (1), P. W. CROUS (2). (1) CBS-KNAW Fungal Biodiversity Centre, Utrecht, Netherlands; (2) Centraalbureau Voor Schimmelcultures, Utrecht, Netherlands
- 89-P *Alternaria* species in the Bogotá plateau, Colombia.**
I. Valdés (1), J. Rodríguez (1), P. JIMÉNEZ (1). (1) Universidad Militar Nueva Granada, Bogotá, Colombia
- 90-P Myxomycetes on *Orbygnia* sp. (*Arecaceae*) from the Brazilian Cerrado.**
L. A. N. Agra (1), J. C. DIANESE (1). (1) Departamento de Fitopatologia, Universidade de Brasília, Brasília, Brazil
- 91-P *Echidnodella* species (*Asterinaceae*, *Ascomycota*) on *Mauritia flexuosa* (*Arecaceae*) from the Brazilian Cerrado.**
É. S. C. Souza (1), R. C. Pereira-Carvalho (1), M. Sanchez (1), J. C. DIANESE (1). (1) Departamento de Fitopatologia, Universidade de Brasília, Brasília, Brazil
- 92-P First record of a *Cyanodiscus* (*Saccardiaceae*) species in Central Brazil.**
R. C. Pereira-Carvalho (1), É. S. C. Souza (1), W. O. Soares (1), J. C. DIANESE (1). (1) Departamento de Fitopatologia, Universidade de Brasília, Brasília, Brazil
- 93-P Exploring the basidiomycetous endophytic community of natural and planted rubber tree populations (*Hevea brasiliensis*).**
R. MARTIN (1), R. Gazis (1), P. Chaverri (2), D. S. Hibbett (1), A. Justo (1). (1) Clark University, Worcester, MA, U.S.A.; (2) University of Maryland, College Park, MD, U.S.A.
- 94-P Ramulosis of cotton is caused by a distinct phylogenetic lineage within the *Colletotrichum gloeosporioides* species complex.**
L. H. PFENNING (1), L. M. Abreu (1), M. E. Salustiano (1), M. N. Rondon (1), S. S. Costa (1), J. C. Machado (1). (1) Universidade Federal de Lavras, Lavras, Brazil
- 95-P Conidia viability and cytology in *Moniliophthora roreri*, the causal agent of frosty pod rot of cacao.**
J. R. DIAZ VALDERRAMA (1), M. C. Aime (1). (1) Purdue University, West Lafayette, IN, U.S.A.
- 96-P Genetic diversity and population structure of the Korean oak wilt fungus (*Raffaelea quercus-mongolicae*) using RAD sequencing.**
M. S. KIM (1), P. A. Hohenlohe (2), K. H. Kim (3), S. T. Seo (3), N. B. Klopfenstein (4). (1) Department of Forestry, Environment, and Systems, Kookmin University, Seoul, South Korea; (2) Departments of Biological Sciences and Statistics, University of Idaho, Moscow, ID, U.S.A.; (3) Korea Forest Research Institute, Seoul, South Korea; (4) USDA Forest Service-RMRS, Moscow Forestry Sciences Laboratory, Moscow, ID, U.S.A.
- 97-P Molecular phylogenetic studies in the phytopathogenic genus *Diaporthe*.**
D. UDAYANGA (1), A. Y. Rossman (1), L. A. Castlebury (1), K. D. Hyde (2), E. Chukeatirote (2). (1) USDA ARS SMML, Beltsville, MD, U.S.A.; (2) Institute of Excellence in Fungal Research, School of Science, Mae Fah Luang University, Chiang Rai, Thailand
- 98-P PCR-RFLP fingerprinting of the intergenic spacer region to determine the lineage of fungi in the *Fusarium oxysporum* complex isolated from soybean.**
M. L. ELLIS (1), L. F. Leandro (1), G. P. Munkvold (1). (1) Iowa State University, Ames, IA, U.S.A.
- 99-P A taxonomic and phylogenetic study of the plant pathogenic genus *Bipolaris*.**
D. S. MANAMGODA (1), A. Y. Rossman (2), L. A. Castlebury (1), E. Chukeatirote (3), C. Lei (4), K. D. Hyde (3). (1) USDA ARS SMML, Beltsville, MD, U.S.A.; (2) USDA ARS, Beltsville, MD, U.S.A.; (3) Mae Fah Luang University, Chiang Rai, Thailand; (4) State Key Laboratory of Mycology, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China
- 100-P Phylogenetic analyses to assess the evolutionary origins of sooty blotch and flyspeck fungi on apple.**
S. I. ISMAIL (1), J. C. Batzer (1), T. C. Harrington (1), M. L. Gleason (1). (1) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.
- 101-P Phylogenetic placement of fungi causing spring dead spot of bermudagrass.**
F. FLORES (1), S. Marek (1), N. Walker (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
- 102-P Genetic relationship among *Fusarium oxysporum* f.sp. *melonis* VCGs and their relatedness to other *F. oxysporum* formae speciales.**
M. Mirtalebi (1), Z. BANIHASHEMI (1). (1) Shiraz University, Shiraz, Iran
- 103-P WITHDRAWN**

- 104-P Understanding DNA methylation patterns in *Fusarium* species.**
G. DEIULIO (1), L. Guo (2), H. Gu (3), L. J. Ma (2). (1) University of Massachusetts-Amherst, Sunderland, MA, U.S.A.; (2) University of Massachusetts-Amherst, Amherst, MA, U.S.A.; (3) The Broad Institute of MIT and Harvard, Cambridge, MA, U.S.A.
- 105-P The protist trichomycete *Enterobryus* associated with *Anadenobolus monilicornis* in Guanica Dry Forest.**
K. CONTRERAS (1). (1) University of Puerto Rico, Mayaguez, Puerto Rico, U.S.A.
- 106-P A critical look at comparative genomic approaches: What and how we can learn from a 1000 fungal genomes.**
L. G. NAGY (1), D. Floudas (2), R. Riley (3), I. V. Grigoriev (3), D. Hibbett (2). (1) Clark University, Worcester, MA, U.S.A.; (2) Biology Department, Clark University, Worcester, MA, U.S.A.; (3) U.S. Department of Energy, Joint Genome Institute, Walnut Creek, CA, U.S.A.
- 107-P The Hesler papers: Digitization of unpublished photographs, species descriptions, and morphology of collections in Tennessee and other herbaria.**
K. W. HUGHES (1), J. V. Wingard (1), R. H. Petersen (1). (1) University of Tennessee, Knoxville, TN, U.S.A.
- 108-P Evolutionary consequences of putative intra- and interspecific hybridization in agaric fungi.**
K. W. HUGHES (1), R. H. Petersen (1), D. J. Lodge (2), S. E. Bergemann (3), K. Baumgartner (4), R. E. Tulloss (5), E. B. Lickey (6), J. Cifuentes (7). (1) University of Tennessee, Knoxville, TN, U.S.A.; (2) USDA Forest Service, Luquillo, Puerto Rico, U.S.A.; (3) Tennessee State University, Murfreesboro, TN, U.S.A.; (4) University of California-Davis, Davis, CA, U.S.A.; (5) Herbarium Amanitarum Rooseveltensis, Roosevelt, NJ, U.S.A.; (6) Bridgewater College, Bridgewater, VA, U.S.A.; (7) University of Mexico, Mexico City, Mexico
- 109-P Hyphal tip ultrastructure and cytoplasmic organization in the Zygomycota.**
K. E. FISHER (1), R. Hamel (1), R. Reyes (1), D. Lowry (1), R. W. Roberson (1). (1) Arizona State University, Tempe, AZ, U.S.A.
- 110-P Occurrence of the A2 mating type of *Pseudoperonospora cubensis* in the United States.**
A. THOMAS (1), I. Carbone (1), P. Ojiambo (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 111-P *Ppmid1* plays an important role in the asexual development of *Phytophthora parasitica*.**
F. Y. Hwu (1), R. F. LIOU (1). (1) National Taiwan University, Taipei, Taiwan Republic of China
- 112-P Evaluating the correlation between mitochondrial haplotype and nuclear genotype of *Phytophthora cinnamomi*.**
F. N. MARTIN (1), G. W. Douhan (2), N. J. Grunwald (3), M. D. Coffey (2). (1) USDA ARS, Salinas, CA, U.S.A.; (2) University of California-Riverside, Riverside, CA, U.S.A.; (3) USDA ARS, Corvallis, OR, U.S.A.
- 113-P Exploring the characteristics of *Pythium* communities: Can knowledge about pathogen communities improve disease control?**
J. WEILAND (1), P. Garrido (2), N. J. Grunwald (1), C. Garzon (2). (1) USDA ARS, Corvallis, OR, U.S.A.; (2) Oklahoma State University, Stillwater, OK, U.S.A.
- 114-P Biodiversity and potential pathogenicity of field collected oomycetes from asymptomatic soybeans in southeastern PA.**
L. S. COFFUA (1), S. T. Veterano (1), J. E. Blair (1). (1) Franklin & Marshall College, Lancaster, PA, U.S.A.
- 115-P Functional analysis of the host target of a *Phytophthora* RXLR effector in solanaceous crops.**
G. S. Ali (1), A. KHAN (2), D. Norman (2). (1) University of Florida, Apopka, FL, U.S.A.; (2) Mid-Florida Research and Education Center, University of Florida, Apopka, FL, U.S.A.
- 116-P Characterization of *Phytophthora cinnamomi* from ornamental crops in South Carolina.**
S. Schreier (1), S. N. JEFFERS (1). (1) Clemson University, Clemson, SC, U.S.A.
- 117-P Examination of molecular diversity of the spinach downy mildew pathogen *Peronospora farinosa* f. sp. *spinaciae* with SSRs.**
C. Feng (1), B. H. Bluhm (1), K. H. Lamour (2), J. C. CORRELL (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) University of Tennessee, Knoxville, TN, U.S.A.
- 118-P The population dynamics of *Phytophthora infestans* in Egypt.**
S. M. El-Ganainy (1), A. M. M. TOHAMY (1), M. A. Awad (2), J. N. Squires (3), D. E. Cooke (3). (1) Plant Pathology Research Institute, Giza, Egypt; (2) Agriculture Botany Department, Minufiya University, Shibin El-Kom, Egypt; (3) The James Hutton Institute, Dundee, Scotland, United Kingdom
- 119-P Pathogenicity and host range of *Phytophthora infestans* population isolated from potato in Thailand.**
J. SOPEE (1), S. Sangchote (2), W. R. Stevenson (3). (1) Forest and Wild Plant Conservation Office, Department of National Parks, Wildlife and Plant Conservation, Lad Yao, Chatuchak, Bangkok, Thailand; (2) Kasetsart University, Lad Yao, Chatuchak, Bangkok, Thailand; (3) University of Wisconsin-Madison, Madison, WI, U.S.A.
- 120-P Comparison of *Peronospora* species causing downy mildew on basil, coleus, and agastache.**
A. L. VU (1), M. L. Daughtrey (2), J. A. Crouch (3), R. L. Wick (1). (1) University of Massachusetts, Amherst, MA, U.S.A.; (2) Cornell University, LIHREC, Riverhead, NY, U.S.A.; (3) USDA ARS, Systematic Mycology & Microbiology, Beltsville, MD, U.S.A.
- 121-P Morphological variation of *Phytophthora infestans*-Thai isolates from infected potato.**
P. Chiampiriyakul (1), J. SOPEE (2). (1) Maejo University, NongHan, SanSai, ChiangMai, Thailand; (2) Forest and Wild Plant Conservation Office, Department of National Parks, Wildlife and Plant Conservation, Lad Yao, Chatuchak, Bangkok, Thailand
- 122-P Diversity of saprotrophic oomycetes from a mangrove swamp of Ilha do Cardoso, Cananéia, São Paulo state, Brazil.**
A. V. VIRGINIA MARANO (1), A. L. Jesus (2), E. M. Leão (3), J. I. de Souza (4), T. Y. James (5), F. H. Gleason (6), G. H. Jerônimo (2), M. C. Boro (2), M. D. Barrera (7), C. L. A. Pires-Zottarelli (2). (1) Instituto de Botânica, Sao Paulo, Brazil; (2) Instituto de Botânica, Nucleo de Pesquisa em Micologia, Sao Paulo, Brazil; (3) Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand; (4) Instituto de Botânica, Nucleo de Pesquisa em Micologia, Sao Paulo, Brazil; (5) Department of Ecology and Evolution, University of Michigan, Ann Arbor, MI, U.S.A.; (6) University of Sydney, Sydney, Australia; (7) Universidad Nacional de La Plata, La Plata, Argentina
- 123-P Diversity of zoosporic assemblages from Pirarungaua stream, São Paulo, Brazil.**
A. L. Jesus (1), A. V. MARANO (2), I. H. Schoenlein-Crusius (1), C. L. A. Pires-Zottarelli (1). (1) Instituto de Botânica, Nucleo de Pesquisa em Micologia, Sao Paulo, Brazil; (2) Instituto de Botânica, Sao Paulo, Brazil
- 124-P Islands in stone: Fungal community structure within Hawaiian kipuka.**
L. GALLAGHER (1), B. Perry (1). (1) Department of Biology, University of Hawaii-Hilo, Hilo, HI, U.S.A.

■ VIROLOGY

- 125-P Analysis of acquisition and titer of *Maize mosaic rhabdovirus* in its vector, *Peregrinus maidis*.**
K. BARANDOC-ALVIAR (1), G. M. Ramirez (1), M. Cui (1), D. Rotenberg (1), J. Yao (1), A. E. Whitfield (1). (1) Kansas State University, Manhattan, KS, U.S.A.
- 126-P Characterization of protein biomarkers linked to transmission competent and transmission refractive aphid and whitefly populations in Nigeria.**
D. IGWE (1), S. Ngatat (2), M. Cilia (3), M. S. Bereman (4), M. J. MacCoss (4), S. M. Gray (3), R. Hanna (2), L. Kumar (1). (1) International Institute

of Tropical Agriculture (IITA), Ibadan, Nigeria; (2) International Institute of Tropical Agriculture (IITA), Yaoundé, Cameroon; (3) USDA ARS, Ithaca, NY, U.S.A.; (4) University of Washington, Seattle, WA, U.S.A.

127-P Seasonal dynamics and correlation studies of two viroids in two citrus cultivars.

C. Y. LIN (1), T. H. Hung (1). (1) Department of Plant Pathology and Microbiology, National Taiwan University, Taipei, Taiwan Republic of China

128-P Evidence for exogenous and endogenous forms of *Rubus yellow net virus* in *Rubus*.

A. DIAZ LARA (1), N. Mosier (2), R. R. Martin (3). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) USDA ARS, Horticultural Crops Research Laboratory, Corvallis, OR, U.S.A.; (3) USDA ARS, Corvallis, OR, U.S.A.

129-P The root-shoot dichotomy in citrus—*Citrus tristeza virus* interactions.

S. J. HARPER (1), S. J. Cowell (1), C. J. Robertson (1), W. O. Dawson (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

130-P Stability of *Citrus tristeza virus* populations in field and glasshouse sweet orange.


S. J. COWELL (1), S. J. Harper (1), C. J. Robertson (1), W. O. Dawson (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

131-P Abolishing the nematode transmissibility of a *Grapevine fanleaf virus* vector engineered for functional genomics.

J. GOTTLA (1), G. Demangeat (2), C. Ritzenthaler (3), M. Fuchs (1). (1) Cornell University, Geneva, NY, U.S.A.; (2) INRA, Colmar, France; (3) CNRS, Strasbourg, France

132-P Association of endornaviruses of Black Turtle Soup common bean with seed germination, grain yield, and host reaction to *Tobacco ringspot virus*.

S. Khankhum (1), R. VALVERDE (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.

133-P  Characterizing a synergistic interaction between *Glycine max*, *Soybean mosaic virus*, and soil salinity.

A. G. LANEY (1), A. M. Harris (1), D. M. Escamilla Sanchez (2), K. L. Korth (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Universidad Nacional de Colombia, Bogota, Colombia

134-P Long term evaluation of the susceptibility of 16 *Musa* genotypes to banana bunchy top disease in Cameroon, Central Africa.

S. NGATAT (1), R. Hanna (1), L. Kumar (2), S. M. Gray (3), M. Cilia (3), D. A. Fontem (4). (1) International Institute of Tropical Agriculture (IITA), Yaoundé, Cameroon; (2) International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria; (3) USDA ARS, Ithaca, NY, U.S.A.; (4) Plant Protection Department, Faculty of Agriculture, University of Dschang, Dschang, Cameroon

135-P Molecular characterization of six new Asian prunus virus isolates: Evidences of their recombination and high genetic diversity.

L. PU (1), R. Li (1), M. Bateman (2), G. Kinard (1). (1) USDA ARS, Beltsville, MD, U.S.A.; (2) USDA APHIS, Beltsville, MD, U.S.A.

136-P Molecular characterization of a novel soybean-infecting nepovirus from North Dakota.

T. YASMIN (1), H. A. Hobbs (1), L. L. Domier (2), B. D. Nelson (3). (1) Department of Crop Sciences, University of Illinois, Urbana, IL, U.S.A.; (2) USDA ARS, Urbana, IL, U.S.A.; (3) Department of Plant Pathology, North Dakota State University, Fargo, ND, U.S.A.

137-P Genome characterization of *Tomato necrotic dwarf virus*, a *Torradovirus* from southern California.

W. M. WINTERMANTEL (1), L. L. Hladky (1). (1) USDA ARS, Salinas, CA, U.S.A.

138-P Use of deep sequencing for characterization geminivirus replication fidelity.

J. Achata Bottger (1), S. HANSON (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.

139-P Severe symptoms on bell pepper plants infected with *Bell pepper endornavirus* and *Cucumber mosaic virus* suggest a synergistic effect between the viruses.

D. F. QUITO-AVILA (1), R. R. Martin (2), M. A. Ibarra (1), R. A. Alvarez (1), L. Espinoza (1), E. L. Peralta (1). (1) CIBE-ESPOL, Guayaquil, Ecuador; (2) USDA-RS, Corvallis, OR, U.S.A.

140-P Tracking internode stunting in *Cucumber mosaic virus* infected of bell pepper plants.

J. F. MURPHY (1). (1) Auburn University, Auburn, AL, U.S.A.

■ BIOLOGICAL CONTROL

141-P Therapeutic and prophylactic application of phages to control Pierce's disease.

M. DAS (1), T. S. Bhowmick (1), S. J. Ahern (1), R. F. Young (1), C. Gonzalez (1). (1) Texas A&M University, College Station, TX, U.S.A.

142-P Transmission of phage by glassy-winged sharpshooter.

T. S. BHOWMICK (1), M. Das (1), K. M. Heinz (1), P. C. Krauter (1), C. Gonzalez (1). (1) Texas A&M University, College Station, TX, U.S.A.

143-P Cloning and overexpression of a positive gene *slnMI* to increase natamycin biosynthesis in *Streptomyces lydicus* A01.

H. L. Wu (1), W. LIU (2), D. Dong (2), C. Lu (2), T. Zhang (2), Z. Tian (2). (1) Beijing Academy of Agriculture and Forestry Sciences, Beijing, China; (2) Institute of Plant and Environment Protection, Beijing Academy of Agriculture and Forestry Sciences, Beijing, China

144-P Use of fluorescence labeling to validation the *PxylA* promoter activity from *Bacillus subtilis* in *Bacillus megaterium*.

H. L. Wu (1), W. LIU (2), T. Liu (2), D. Zhang (2), J. Li (2), D. Liu (2). (1) Beijing Academy of Agriculture and Forestry Sciences, Beijing, China; (2) Institute of Plant and Environment Protection, Beijing Academy of Agriculture and Forestry Sciences, Beijing, China

145-P Biological control of crown gall on grape and root colonization by nonpathogenic *Agrobacterium vitis* strain ARK-1.

A. KAWAGUCHI (1). (1) Agricultural Research Institute, Okayama Pref. Japan, Akaiwa, Japan

146-P Impact of biological amendments on *Agrobacterium tumefaciens* soil survival.

S. L. STRAUSS (1), D. Kluepfel (1). (1) USDA ARS, Davis, CA, U.S.A.

147-P Evidence for iron competition as a mechanism for biocontrol of *Erwinia amylovora* by *Aureobasidium pullulans*.

S. S. UPPALA (1), T. N. Temple (1), K. B. Johnson (1). (1) Oregon State University, Corvallis, OR, U.S.A.

148-P Biological control of bacterial blight of anthurium caused by *Xanthomonas axonopodis* pv. *dieffenbachiae*.

A. M. ALVAREZ (1), P. J. Toves (1), T. K. S. Vowell (1). (1) University of Hawaii, Honolulu, HI, U.S.A.

149-P Antibacterial activity of mycelial extracts from submerged cultures of shiitake (*Lentinula edodes*) strains.

L. M. NYOCHEMBENG (1), H. Kaur (1), S. R. Mentreddy (1). (1) Alabama A&M University, Normal, AL, U.S.A.

150-P Black-pigmented strain of *Bacillus* with potential biocontrol capabilities.

C. A. KNIGHT (1), L. Frederick (2), L. Austin (1), R. Michelin (3), J. Stubbs (1), A. Day (1), J. Davidson (2). (1) Howard University, Washington, DC, U.S.A.; (2) Tuskegee University, Tuskegee, AL, U.S.A.; (3) Morgan State University, Baltimore, MD, U.S.A.

151-P The development of a phage therapy for the control of the causal agent of horse chestnut bleeding canker, *Pseudomonas syringae* pv. *aesculi*.

S. L. JAMES (1), T. Taylor (2), L. Johnson (2), G. Percival (3), M. Brockhurst (4), I. Jones (2), R. Jackson (2). (1) The University of Reading, Bartlett's Tree Experts, Reading, United Kingdom; (2) The University of Reading, Reading, United Kingdom; (3) Bartlett's Tree Experts, Reading, United Kingdom; (4) The University of York, York, United Kingdom

- 152-P Plant-growth promoting rhizobacteria attenuates *Curtobacterium flaccumfaciens* pv. *flaccumfaciens* defence suppression-like in common bean.**
S. J. MARTINS (1), F. H. V. Medeiros (1), R. M. Souza (1), V. L. de Resende (1), P. M. Ribeiro Junior (1). (1) Universidade Federal de Lavras, Lavras, Brazil
- 153-P Using next-generation sequencing to determine the influence of metabolic intermediates on the *Pseudomonas protegens* transcriptome.**
J. CLIFFORD (1), T. Kidarsa (1), A. Buchanan (2), J. H. Chang (2), J. Loper (1). (1) USDA ARS HCRL, Corvallis, OR, U.S.A.; (2) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.
- 154-P A *vfr* homologue of *Pseudomonas protegens* Pf-5 regulates antibiotic production and traits important to root colonization.**
D. P. Roberts (1), L. F. McKenna (2), D. Kobayashi (3), D. LAKSHMAN (1), A. Mattoo (1), I. Misner (4), J. Loper (5). (1) USDA Sustainable Agricultural Systems Laboratory, Beltsville, MD, U.S.A.; (2) USDA ARS, Beltsville, MD, U.S.A.; (3) Department of Plant Biology and Pathology, Rutgers University, New Brunswick, NJ, U.S.A.; (4) Computer and Information Sciences, Towson University, Towson, MD, U.S.A.; (5) USDA Horticultural Crops Research Laboratory, Corvallis, OR, U.S.A.
- 155-P *pilG* in the biocontrol agent *Lysobacter enzymogenes* strain C3 positively regulates surface motility and negatively regulates antibiotic production.**
X. ZHOU (1), G. Qian (1), F. Liu (1), G. Y. Yuen (2). (1) Nanjing Agricultural University, Nanjing, China; (2) University of Nebraska, Lincoln, NE, U.S.A.
- 156-P Biocontrol and growth-promoting activity of rhizobacteria from Chinese contaminated soils.**
X. Wang (1), D. V. Mavrodi (2), L. Ke (1), O. V. Mavrodi (2), M. Yang (2), N. Zheng (1), L. Tomashow (3), D. M. Weller (3), J. ZHANG (1). (1) Huazhong Agricultural University, Wuhan, China; (2) Washington State University, Pullman, WA, U.S.A.; (3) USDA ARS, Root Disease and Biological Control Research Unit, Pullman, WA, U.S.A.
- 157-P Efficacy of *Bacillus* biocontrol agents for management of sheath blight and narrow brown leaf spot in organic rice.**
X. G. ZHOU (1), A. M. McClung (2). (1) Texas A&M AgriLife Research, Beaumont, TX, U.S.A.; (2) USDA ARS, Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.
- 158-P Genomic and biochemical characterization of cyclic lipopeptides of *Bacillus mojavensis* RRC101, an antagonist of *Fusarium verticillioides*.**
A. BLACUTT (1), S. Gold (2), T. R. Mitchell (2). (1) University of Georgia, Athens, GA, U.S.A.; (2) USDA ARS, Athens, GA, U.S.A.
- 159-P *Bacillus subtilis* ameliorate common bean production under web blight conducive and unfavourable temperature conditions.**
S. A. Martins (1), F. H. V. MEDEIROS (1), D. A. Schurt (2), S. S. Seabra (3), G. R. Souza (3), L. M. Galvão (3), W. L. Manduca (2). (1) Universidade Federal de Lavras, Lavras, Brazil; (2) Embrapa-RR, Boa Vista, Brazil; (3) Embrapa-RR, Lavras, Brazil
- 160-P Control of fungal plant pathogens by *Bacillus* sp. F727 and production of novel metabolites.**
C. E. TODD (1), C. D. McCort (1), R. N. Asolkar (1), A. L. Cordova-Kreylos (1), P. G. Marrone (1). (1) Marrone Bio Innovations, Davis, CA, U.S.A.
- 161-P Surfactin and biofilm production by *Bacillus subtilis* IN937b, a biological control agent for suppressing *Phytophthora* blight on squash.**
X. Mo (1), Y. Fu (1), J. S. PATEL (1), S. Zhang (1). (1) University of Florida, Homestead, FL, U.S.A.
- 162-P Biological control of *Phytophthora nicotianae* by heat-tolerant bacteria in irrigation water.**
W. HAO (1), C. Hong (1). (1) Virginia Tech Hampton Roads AREC, Virginia Beach, VA, U.S.A.
- 163-P Aerobic endospore-forming bacteria strains from potato rhizosphere for biological control of *Rhizoctonia solani* on *Solanum tuberosum* gr. *Phureja* crops.**
D. C. BLANCO-ZAPATA (1), V. Villegas (2), D. Uribe-Vélez (3). (1) Biotechnology Institute, Universidad Nacional de Colombia, Bogota, D.C., Colombia; (2) Department of Process Engineering, Universidad de Eafit, Medellín, Colombia; (3) Biotechnology Institute, Universidad Nacional de Colombia, Bogota D.C., Colombia
- 164-P Determination of 2,4-diacetylphloroglucinol (2,4-DAPG) and phenazine-producing *Pseudomonas* spp. in wheat crops in southern Chile.**
E. A. MOYA-ELIZONDO (1), N. C. Cattán (1), N. L. Arismendi (1), H. A. Doussoulín (2). (1) Universidad de Concepción, Chillán, Chile; (2) Universidad Austral de Chile, Valdivia, Chile
- 165-P Multistate evaluation of PGPR strain MBI600 and its combined use with azoxystrobin for control of sheath blight in rice.**
X. G. ZHOU (1), G. Liu (1), M. M. Anders (2), Y. Jia (3), T. W. Allen (4), S. Lu (5), M. S. Reddy (6), J. W. Kloepper (6). (1) Texas A&M AgriLife Research, Beaumont, TX, U.S.A.; (2) University of Arkansas, Stuttgart, AR, U.S.A.; (3) USDA ARS, Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.; (4) Mississippi State University, Delta Research and Extension Center, Stoneville, MS, U.S.A.; (5) Mississippi State University, Mississippi State, MS, U.S.A.; (6) Auburn University, Auburn, AL, U.S.A.
- 166-P Role of fluorescent *Pseudomonas* associated with mycorrhizosphere in suppressing the root diseases and phosphorus uptake by mungbean.**
S. S. Bokhari (1), V. SULTANA (2), S. Tariq (1), J. Ara (3), S. Ehteshamul-Haque (4). (1) Department of Botany, University of Karachi, Karachi, Pakistan; (2) Department of Biochemistry, University of Karachi, Karachi, Pakistan; (3) Department of Food Science & Technology, University of Karachi, Karachi, Pakistan; (4) Department of Botany, University of Karachi, Karachi, Pakistan
- 167-P WITHDRAWN
- 168-P Screening of biocontrol agents for protection of chile peppers plants against *Phytophthora* and *Verticillium* caused wilts.**
P. Havstad (1), A. Alvarez-Garcia (1), R. Trejo (1), S. HANSON (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.
- 169-P Biocontrol efficacy and mechanism of action against root-knot nematode of *Pseudomonas putida* A316 from South Pole soil.**
Z. Zhang (1), Z. Shao (2), J. Tang (1), X. Jin (1), L. S. Thomashow (3), D. M. Weller (3), P. Okubara (3), J. ZHANG (1). (1) Huazhong Agricultural University, Wuhan, China; (2) Third Institute of Oceanography of State Oceanic Administration, Xiamen, China; (3) USDA ARS, Root Disease and Biological Control Research Unit, Pullman, WA, U.S.A.
- 170-P Biocontrol of damping-off and root and crown rots of cucumber caused by *Pythium aphanidermatum* by ACC-deaminase producing endophytic actinomycetes.**
K. A. EL-TARABILY (1). (1) United Arab Emirates University, Al-Ain, United Arab Emirates
- 171-P Plant growth promotion and biocontrol of seedlings damping-off of cucumber caused by *Pythium aphanidermatum* by rhizosphere-competent actinomycetes.**
K. A. EL-TARABILY (1), F. McKenna (2). (1) United Arab Emirates University, Al-Ain, United Arab Emirates; (2) Natural Science Centre Inc., Steele, AL, U.S.A.
- 172-P Genetic structure of soil populations of *Aspergillus* section *Flavi* and efficacy of biocontrol of aflatoxin in corn.**
M. H. LEWIS (1), I. Carbone (1), G. A. Payne (1), K. L. Bowen (2), A. Hagan (2), R. Kemerait (3), R. Heiniger (1), P. Ojiambo (1). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) Auburn University, Auburn, AL, U.S.A.; (3) University of Georgia, Tifton, GA, U.S.A.
- 173-P Aflatoxin management in corn with Afla-Guard.**
M. Weaver (1), H. ABBAS (1), G. Sciunbato (2), H. C. Pringle (2), T. Allen (2). (1) USDA ARS, Stoneville, MS, U.S.A.; (2) Mississippi State University MAFES, Stoneville, MS, U.S.A.
- 174-P Evaluation of atoxigenic strains of *Aspergillus flavus* for aflatoxin control in corn on commercial farms in Texas.**
T. ISAKEIT (1). (1) Texas A&M University, College Station, TX, U.S.A.

- 175-P Variability in the aflatoxin biosynthesis gene cluster among members of the atoxigenic *Aspergillus flavus* VCG YV36 endemic to Mexico.**
A. ORTEGA-BELTRAN (1), K. A. Callicott (2), L. C. Grubisha (3), P. J. Cotty (2). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) USDA ARS, Tucson, AZ, U.S.A.; (3) Centre College, Danville, KY, U.S.A.
- 176-P  Soil bacteria for broad-spectrum mycotoxigenic fungi control in maize.**
E. ZANOTTO (1), F. H. V. Medeiros (1), T. D. Zucchi (2), I. S. D. Melo (2), F. B. Pereira (1), J. D. C. Machado (1). (1) Universidade Federal de Lavras, Lavras, Brazil; (2) EMBRAPA-CNPMA, Jaguariuna, Brazil
- 177-P  Etiology of aflatoxin contamination of maize in Zambia.**
P. W. KACHAPULULA (1), P. J. Cotty (2), R. Bandyopadhyay (3), T. Dubois (3), M. Mukanga (4). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) USDA ARS, University of Arizona, Tucson, AZ, U.S.A.; (3) International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria; (4) Zambia Agricultural Research Institute, Lusaka, Zambia
- 178-P Antagonist *Cryptococcus flavescens* OH 182.9 3C colonization of wheat heads when applied with triazole fungicides and the effect on scab.**
D. A. SCHISLER (1), P. A. Paul (2), M. J. Boehm (3), C. A. Bradley (4), C. A. Dunlap (1). (1) USDA ARS MWA NCAUR, Peoria, IL, U.S.A.; (2) Ohio State University, OARDC, Wooster, OH, U.S.A.; (3) The Ohio State University, Columbus, OH, U.S.A.; (4) Department of Crop Sciences, University of Illinois, Urbana, IL, U.S.A.
- 179-P WITHDRAWN
- 180-P Phillospheric yeasts as potential biocontrol agents of *Botrytis cinerea* on cut roses.**
M. LOPEZ (1), D. Uribe-Vélez (2). (1) Biotechnology Institute, Universidad Nacional de Colombia, Bogota, D.C., Colombia; (2) Biotechnology Institute, Universidad Nacional de Colombia, Bogota D.C., Colombia
- 181-P *In vitro* evaluation of endophytic fungi from *Alnus acuminata* as antagonists of *Fusarium oxysporum* and *Botrytis cinerea*.**
L. Rodríguez (1), I. Valdés (1), E. Coy-Barrera (1), P. JIMÉNEZ (1). (1) Universidad Militar Nueva Granada, Bogotá, Colombia
- 182-P Antifungal activities of *Xylogone ganodermorphthora* KACC93082P against several plant pathogens.**
H. KANG (1), Y. S. Kim (1), T. Kim (1), B. Han (1), J. Noh (1), Y. Kim (1). (1) Watermelon Research Institute, CBARES, Eumsung-gun Chungcheongbuk-do, South Korea
- 183-P Use of *Trichoderma* spp. and *Glomus intraradices* to control *Botryosphaeria dieback* caused by *L. theobromae* in grapevine.**
N. Nieblas-Núñez (1), C. Valenzuela-Solano (2), R. HERNANDEZ-MARTINEZ (1). (1) Department of Microbiology, Center for Scientific Research and Higher Education of Ensenada (CICESE), Ensenada Baja California, Mexico; (2) INIFAP, Sitio Experimental Costa de Ensenada, Ensenada, Mexico
- 184-P Potential use of *G. intraradices* to control *Botryosphaeria dieback* in grapevine.**
F. J. Morales-Santos (1), C. Valenzuela-Solano (2), T. G. Kretzschmar (3), R. HERNANDEZ-MARTINEZ (1). (1) Department of Microbiology, Center for Scientific Research and Higher Education of Ensenada (CICESE), Ensenada, Baja California, Mexico; (2) INIFAP, Sitio Experimental Costa de Ensenada, Ensenada, Baja California, Mexico; (3) Department of Geology, Center for Scientific Research and Higher Education of Ensenada (CICESE), Ensenada, Baja California, Mexico
- 185-P WITHDRAWN
- 186-P *Collimonas* sp. ZLZ261—A novel antagonistic strain against *Monilinia fructicola*.**
W. Liu (1), D. Zhang (1), C. LU (1), H. Wu (1), J. Li (1), L. Yu (2). (1) Beijing Academy of Agriculture and Forestry Sciences, Beijing, China; (2) Guandong Ocean University, Zhanjiang, China
- 187-P General suppression of *Fusarium* wilt of watermelon via spring incorporated *Vicia villosa* and *Trifolium incarnatum* cover crops.**
J. HIMMELSTEIN (1), K. Everts (1), J. Maul (2), Y. Balci (3). (1) University of Maryland, Salisbury, MD, U.S.A.; (2) USDA ARS, Beltsville, MD, U.S.A.; (3) University of Maryland, College Park, MD, U.S.A.
- 188-P Characterization of a novel protein from *Trichoderma virens* with chitinolytic activity and a role in mycoparasitism.**
M. E. MORAN-DIEZ (1), F. K. Crutcher (2), I. Krieger (3), C. M. Kenerley (1). (1) Texas A&M University, Department of Plant Pathology and Microbiology, College Station, TX, U.S.A.; (2) USDA ARS, Southern Plains Agricultural Research Center, College Station, TX, U.S.A.; (3) Texas A&M University, Department of Biochemistry and Biophysics, College Station, TX, U.S.A.
- 189-P Phenological status influence the antifungal phytoconstituents of a wild Brassicaceae.**
C. Vargas (1), G. Sánchez (1), J. Fierro (1), E. Coy-Barrera (1), P. JIMÉNEZ (1). (1) Universidad Militar Nueva Granada, Bogotá, Colombia
- 190-P Effect of quinolone alkaloids isolated from *Esenbeckia alata* and *Raputia heptaphylla* (Rutaceae) on *Botrytis cinerea*.**
A. Jiménez (1), E. Coy-Barrera (1), P. JIMÉNEZ (1). (1) Universidad Militar Nueva Granada, Bogotá, Colombia
- 191-P PGPR-*Virola* extracts consortia as biocontrollers of *F. oxysporum* and its effect on *Physalis peruviana* growth.**
J. Bejarano (1), E. Coy-Barrera (1), P. JIMÉNEZ (1). (1) Universidad Militar Nueva Granada, Bogotá, Colombia
- 192-P Isolation of antagonistic fungal consortium from rhizosphere and its evaluation against *Fusarium oxysporum* f. sp. *lycopersici* in tomato cv. Pusa Ruby.**
R. ARYA (1). (1) T.R.K.M. Aligarh, Aligarh, India
- 193-P Application of *Clonostachys rosea* ACM941 to control soil-borne fungal diseases on *Asparagus officinalis*.**
C. LU (1), W. Liu (1), D. Zhang (1), T. Zhang (1). (1) Beijing Academy of Agriculture and Forestry Sciences, Beijing, China
- 194-P Isolation, characterization, and evaluation of *Muscodor albus* isolate SA-13 for controlling plant pathogens.**
S. E. LEWIS (1), V. Bui (1), G. A. Strobel (2), H. Su (1), P. Himmel (1), P. G. Marrone (1). (1) Marrone Bio Innovations, Inc., Davis, CA, U.S.A.; (2) Montana State University, Bozeman, MT, U.S.A.
- 195-P An usefull antagonistic strain of *Aspergillus niger*-Y61 for control of root knot nematode.**
J. QIU (1), T. Liu (2), W. Liu (2), J. Ma (1). (1) Beijing Academy of Agriculture and Forestry Sciences, Beijing, China; (2) Institute of Plant and Environment Protection, Beijing Academy of Agriculture and Forestry Sciences, Beijing, China
- 196-P Evaluation of *Trichoderma viride* for antagonistic activity against root-knot nematode *Meloidogyne incognita*.**
T. Liu (1), D. Dong (1), W. c. Liu (1), C. g. Lu (1), T. t. Zhang (1), J. y. QIU (1). (1) Institute of Plant and Environment Protection, Beijing Academy of Agriculture and Forestry Science, Beijing, China
- 197-P Quantification of *Paecilomyces lilacinus* YES-2-14 by RT-PCR in corn straw bio-reactor established in greenhouse vegetable field.**
J. Liu (1), M. Sun (1), T. Zhang (1), S. LI (1). (1) Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing, China
- 198-P Use of a fungal “cocktail” to inhibit growth of *Phytophthora cinnamomi*.**
T. WIDMER (1). (1) USDA ARS FDWSRU, Frederick, MD, U.S.A.
- 199-P  Syringomycin E as an organic-compatible agrofungicide.**
Y. KAWASAKI (1), M. Grilley (1), J. Jones (1), C. Nischwitz (1), J. Takemoto (1). (1) Utah State University, Logan, UT, U.S.A.
- 200-P WITHDRAWN

201-P Successful biological control of Canada thistle (*Cirsium arvense*) with the rust fungus *Puccinia punctiformis*.
D. K. BERNER (1), E. L. Smallwood (2), C. A. Cavin (2), A. L. Lagopodi (3), J. N. Kashfi (4), T. Kolomiets (5), L. Pankratova (5), Z. Mukhina (6), M. Cripps (7), G. Bourdot (7). (1) USDA ARS, Foreign Disease- Weed Science Research Unit, Frederick, MD, U.S.A.; (2) USDA ARS, Foreign Disease-Weed Science Research Unit, Fort Detrick, MD, U.S.A.; (3) School of Agriculture, Aristotle University, Thessaloniki, Greece; (4) European Biological Control Laboratory, Thessaloniki, Greece; (5) All Russia Phytopathology Research Institute, Moscow, Russia; (6) All Russia Rice Research Institute, Krasnodar, Russia; (7) AgResearch, Lincoln Research Centre, Christchurch, New Zealand


CHEMICAL CONTROL

202-P Effectiveness of chemicals and biocontrol agents for management of bacterial spot (*Xanthomonas cucurbitae*) in pumpkin.

S. THAPA (1). (1) University of Illinois, Urbana, IL, U.S.A.

203-P Evaluation of the control of black rot in cabbage following treatments to transplants in the greenhouse and field.

H. W. LANGE (1), C. D. Smart (1). (1) Cornell University, Geneva, NY, U.S.A.

204-P  Effects of fumigation and bactericide application on the decontamination of *Salmonella enterica*.

S. L. Rideout (1), G. Gu (1), M. S. Reiter (1), J. H. Freeman (1), R. R. Boyer (1), C. Waldenmaier (1), K. FIEDLER (1). (1) Virginia Tech, Painter, VA, U.S.A.

205-P Characterization of genes associated with antibacterial activity of *Burkholderia contaminans* strain MS14.

P. DENG (1), K. C. Chen (1), K. C. Showmaker (2), S. M. Baird (1), S. Lu (1). (1) Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS, U.S.A.; (2) Institute of Genomics, Bioinformatics, and Biotechnology, Mississippi State University, Mississippi State, MS, U.S.A.

206-P *Xanthomonas perforans* strains from Florida tomatoes exhibit widespread copper tolerance, changing race structure and sensitivity to other bactericides.


S. TIMILSINA (1), G. E. Vallad (2), J. B. Jones (1). (1) Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.; (2) Department of Plant Pathology, Gulf Coast Research and Education Center, University of Florida, Wimauma, FL, U.S.A.

207-P Development of switchgrass extractives as a value-added biopesticide against bacterial spot (*Xanthomonas perforans*) of tomato.

B. H. OWNLEY (1), N. Labbe (1), K. D. Gwinn (1), M. Dee (1), P. B. Filson (1), A. L. Vu (2), D. H. D'Souza (1), N. Moustaid-Moussa (3). (1) University of Tennessee, Knoxville, TN, U.S.A.; (2) University of Massachusetts, Amherst, MA, U.S.A.; (3) Texas Tech University, Lubbock, TX, U.S.A.

208-P Impact of antimicrobial compounds on etiolation of creeping bentgrass putting green turf.

J. ROBERTS (1), D. Ritchie (1). (1) North Carolina State University, Department of Plant Pathology, Raleigh, NC, U.S.A.

209-P  Evaluation of acibenzolar-S-methyl and phosphorous acid for the control of bacterial diseases and PR-gene induction.

K. E. LESNIAK (1), G. C. McGhee (1), N. L. Rothwell (1), G. W. Sundin (1). (1) Michigan State University, East Lansing, MI, U.S.A.

210-P Management of curly top in sugar beet with seed and foliar insecticides.

C. A. STRAUSBAUGH (1), E. J. Wenninger (2), I. A. Eujayl (1). (1) USDA ARS NWISRL, Kimberly, ID, U.S.A.; (2) University of Idaho, Kimberly, ID, U.S.A.

211-P In vivo evaluation of *Cercospora zeae-maydis* isolates with differing in vitro sensitivities to pyraclostrobin fungicide.

V. CHAPARA (1), K. A. Ames (2), D. K. Pedersen (2), C. A. Bradley (2). (1) North Dakota State University, Minot, ND, U.S.A.; (2) University of Illinois, Urbana, IL, U.S.A.

212-P Evaluation of *Rhizoctonia solani* AG 1 - IA and *Rhizoctonia* species for resistance to QoI fungicides.

V. L. CASTROAGUDIN (1), S. Fiser (1), R. D. Cartwright (2), Y. Wamishe (3), J. C. Correll (1). (1) University of Arkansas, Department of Plant Pathology, Fayetteville, AR, U.S.A.; (2) Cooperative Extension Center, University of Arkansas, Little Rock, AR, U.S.A.; (3) Cooperative Extension Center, Rice Research and Extension Center, Stuttgart, AR, U.S.A.

213-P Azoxystrobin (QoI) resistance monitoring of *Rhizoctonia solani* isolates causing rice sheath blight in Louisiana.

G. OLAYA (1), L. Sarmiento (1), K. Edlebeck (1), C. Buitrago (2), H. Sierotzki (2), J. Zaunbrecher (3), A. Tally (3). (1) Syngenta, Vero Beach, FL, U.S.A.; (2) Syngenta, Stein, Switzerland; (3) Syngenta, Greensboro, NC, U.S.A.

214-P Efficacy of seed treatment fungicides for control of seedling diseases of rice.

X. G. ZHOU (1). (1) Texas A&M AgriLife Research, Beaumont, TX, U.S.A.

215-P Fungicide resistance in *Cercospora kikuchii*, a major pathogen of Louisiana soybean.

P. P. PRICE (1), M. A. Purvis (1), G. B. Padgett (1), C. L. Robertson (2), R. W. Schneider (2). (1) Louisiana State University, Winnsboro, LA, U.S.A.; (2) Louisiana State University, Baton Rouge, LA, U.S.A.

216-P Resistance to postharvest fungicides in the blue mold fungus from the Mid-Atlantic area.

W. M. JURICK (1), I. Vico (2), V. L. Gaskins (3), W. J. Janisiewicz (4), B. Evans (4), K. A. Peter (5). (1) USDA ARS, Food Quality Laboratory, Beltsville, MD, U.S.A.; (2) University of Belgrade, Belgrade, Serbia; (3) USDA ARS, Beltsville, MD, U.S.A.; (4) USDA ARS, Kearneysville, WV, U.S.A.; (5) Pennsylvania State University, Department of Plant Pathology and Environmental Microbiology, Biglerville, PA, U.S.A.

217-P Survey of fungicide resistance of *Botrytis cinerea* in Virginia vineyards.

A. BAUDOIN (1). (1) Virginia Tech, Blacksburg, VA, U.S.A.

218-P The role of nursery plants as a potential source of inoculum for *Botrytis cinerea* and its impact on fungicide sensitivity.

M. S. OLIVEIRA (1), A. Amiri (1), N. A. Peres (1). (1) University of Florida, Wimauma, FL, U.S.A.

219-P Sensitivity of *Cercospora beticola* from Serbia to benzimidazole and sterol demethylation inhibiting fungicides.

D. Budakov (1), V. Stojšin (1), N. Nagl (2), F. Bagi (1), D. Danojevic (2), K. Taski-Ajdukovic (2), O. T. NEHER (3). (1) University of Novi Sad, Faculty of Agriculture, Novi Sad, Serbia; (2) Institute of Field and Vegetable Crops, Novi Sad, Serbia; (3) University of Idaho, Kimberly, ID, U.S.A.

220-P Multi-drug resistance to site-specific fungicides in populations *Monilinia fructicola* in Pennsylvania orchards.

N. O. HALBRENDT (1), H. K. Ngugi (2), F. Magdama (3), M. D. Jimenez-Gasco (3). (1) The Pennsylvania State University, Biglerville, PA, U.S.A.; (2) CIMMYT, El Batán, Mexico; (3) The Pennsylvania State University, University Park, PA, U.S.A.

221-P Characterization and molecular diagnosis and quantification of quinone outside inhibitor fungicide-resistant isolates of *Cercospora sojae*.

F. ZENG (1), G. Zhang (1), V. Chapara (2), R. Ming (1), C. A. Bradley (1). (1) University of Illinois, Urbana, IL, U.S.A.; (2) North Dakota State University, Minot, ND, U.S.A.

222-P Exploring a mefenoxam sensitivity screening service for floricultural crop producers.

E. LOOKABAUGH (1), B. Shew (1), K. Ivors (1). (1) North Carolina State University, Raleigh, NC, U.S.A.


223-P Cell-based high-throughput assay for evaluating the response of *Mycosphaerella graminicola* to different doses of fungicides.

R. S. GOSWAMI (1), B. Goldberger (1), J. Falcone (1), N. McCafferty (1), J. Sweigard (1), A. Carroll (1), M. Stidham (1), A. Trivellas (1). (1) DuPont Crop Protection, Newark, DE, U.S.A.

- 224-P Does increased fungicide use in eastern apples mean greater pesticide risk? An evaluation using PRiMe.**
D. R. COOLEY (1), T. Green (2). (1) University of Massachusetts, Amherst, MA, U.S.A.; (2) IPM Institute of North America, Madison, WI, U.S.A.
- 225-P Operational warning for Septoria leaf blotch and leaf rust in winter wheat: Importance of fungicide dosage, formulation, and spray time.**
M. EL JARROUDI (1), L. Kouadio (2), M. Beyer (3), B. Tychon (4), P. Delfosse (3). (1) Université de Liège, Arlon, Belgium; (2) Agriculture and Agri-Food Canada, Lethbridge, AB, Canada; (3) Centre de Recherche Public, Gabriel Lippmann Département Environnement et Agro-Biotechnologies, Belvaux, Luxembourg; (4) Université de Liège, Campus Environnement Arlon, Arlon, Belgium
- 226-P Efficacy of fungicides with resistance risk for cucurbit powdery mildew and fungicide sensitivity of *Podospheera xanthii* in New York.**
M. T. MCGRATH (1). (1) Cornell University, Riverhead, NY, U.S.A.
- 227-P Fungicide applications affect fruit diseases and quality of muscadine grape (*Vitis rotundifolia* Michx.).**
B. J. SMITH (1). (1) USDA ARS, Thad Cochran Southern Horticultural Laboratory, Poplarville, MS, U.S.A.
- 228-P Trunk applications of phosphite for the control of pecan scab.**
C. H. BOCK (1), T. B. Breneman (2), M. W. Hotchkiss (1), B. W. Wood (1). (1) USDA-ARS, SEFTNRL, Byron, GA, U.S.A.; (2) Department of Plant Pathology, Coastal Plain Experiment Station, The University of Georgia, Tifton, GA, U.S.A.
- 229-P Fungicide spray coverage from ground-based sprayers in mature pecan trees.**
C. H. BOCK (1), M. W. Hotchkiss (1), T. E. Cottrell (1), B. W. Wood (1). (1) USDA-ARS, SEFTNRL, Byron, GA, U.S.A.
- 230-P Control of apple scab (*Venturia inaequalis*) using trunk injection of biopesticides and fungicides in apple trees.**
S. G. AĆIMOVIĆ (1), A. H. VanWoerkom (1), T. Garavaglia (2), C. Vandervoort (1), J. C. Wise (1), G. W. Sundin (1). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) USDA, East Lansing, MI, U.S.A.
- 231-P Efficacy of methyl bromide alternatives against *Macrophomia phaseolina*, causal agent of charcoal rot of strawberry.**
T. E. SEIJO (1), J. C. Mertely (1), N. A. Peres (1), J. Noling (2), M. Chamorro (3), C. Franco (4). (1) University of Florida, GCREC IFAS, Wimauma, FL, U.S.A.; (2) University of Florida, GCREC IFAS, Lake Alfred, FL, U.S.A.; (3) University of Seville, Seville, Spain; (4) Universidade Federal de Uberlândia, Uberlândia, Brazil
- 232-P Efficacy of sanitizing agents to refine best management practices for the boxwood blight pathogen *Calonectria pseudonavicula*.**
S. M. DOUGLAS (1). (1) Connecticut Agricultural Experiment Station, New Haven, CT, U.S.A.
- 233-P Development of molecular diagnostic assays for fungicide resistance in an important turfgrass pathogen, *Sclerotinia homoeocarpa*.**
J. HULVEY (1), A. Bousquet (1), H. Sang (1), G. Jung (1). (1) University of Massachusetts, Amherst, MA, U.S.A.
- 234-P Evidence of field selection of DMI insensitive isolates of *Sclerotinia homoeocarpa* by the SDHI fungicide, boscalid.**
E. ALLAN (1), K. Campbell-Nelson (2), H. Sang (2), M. Seaman (2), J. Popko (2), G. Jung (2). (1) University of Massachusetts-Amherst, South Hadley, MA, U.S.A.; (2) University of Massachusetts-Amherst, Amherst, MA, U.S.A.
- 235-P Stimulation of radial growth *in vitro* of *Sclerotinia homoeocarpa* by subinhibitory doses of thiophanate-methyl.**
N. GRAF-GRACHET (1), F. J. Flores (1), S. Pradhan (1), N. R. Walker (1), C. D. Garzon (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
- 236-P Stability of azoxystrobin resistance and fitness of fungicide-sensitive and -resistant field isolates of *Didymella bryoniae*.**
M. J. Finger (1), K. L. STEVENSON (1), P. Ji (1). (1) University of Georgia, Tifton, GA, U.S.A.
- 237-P Method for detecting treatment effects on root growth and nematode densities in turf infected with *Belonolaimus longicaudatus* or *Trichodorus obtusus*.**
J. B. R. SHAVER (1), W. C. Bridges (1), P. Agudelo (1), S. B. Martin (2). (1) Clemson University, Clemson, SC, U.S.A.; (2) Clemson University, Pee Dee Research and Education Center, Clemson, SC, U.S.A.
- 238-P Phosphonate, carboxylic acid amide, and benzamide treatments for pre- and postharvest management of citrus brown rot.**
J. E. Adaskaveg (1), H. FORSTER (1), M. Vilchez (1). (1) University of California, Riverside, CA, U.S.A.
- 239-P Interaction of root stress, chemical management, and ramorum blight development from soilborne inoculum in potted rhododendron plants.**
T. V. ROUBTSOVA (1), R. M. Bostock (1). (1) University of California-Davis, Davis, CA, U.S.A.
- 240-P Management of downy mildew of basil by seed treatment with oxathiapiprolin.**
J. S. PATEL (1), M. I. Costa de Novaes (2), S. Zhang (2). (1) University of Florida, IFAS, Homestead, FL, U.S.A.; (2) University of Florida, Homestead, FL, U.S.A.
- 241-P Potential treatments for disinfecting runoff water from nurseries contaminated with *Phytophthora ramorum*.**
E. Larson (1), J. Eberhart (1), J. PARKE (1). (1) Oregon State University, Corvallis, OR, U.S.A.

CULTURAL CONTROL

- 242-P Effect of corn residue management practices on Goss's wilt of corn.**
K. MEHL (1), K. A. Ames (1), C. A. Bradley (1). (1) University of Illinois, Urbana, IL, U.S.A.
- 243-P Identification and epidemiology of *Serratia marcescens* strains associated with cucurbit yellow vine disease in Georgia.**
K. BESLER (1), E. Little (1). (1) University of Georgia, Athens, GA, U.S.A.
- 244-P Ultrastructural action of essential oils on *Xanthomonas vesicatoria* and control of bacterial spot in tomato.**
E. ALVES (1), G. C. Lucas (1), R. B. Pereira (2), F. J. Perina (3). (1) Universidade Federal de Lavras, Lavras, Brazil; (2) EMBRAPA Hortaliças, Brasília, Brazil; (3) Universidade Federal de Lavras, Lavras, Bulgaria
- 245-P Effects of mineral nutrition on soybean rust and yield.**
E. C. SILVA (1), C. L. Robertson (1), R. W. Schneider (1), B. M. Ward (1). (1) Louisiana State University, Agricultural Center, Baton Rouge, LA, U.S.A.
- 246-P Effects of minor elements on *Cercospora* leaf blight of soybean and production of cercosporin.**
B. M. WARD (1), C. Robertson (1), R. Schneider (1), E. Silva (1), S. Albu (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.
- 247-P Carbon source-dependent efficacy of anaerobic soil disinfestation (ASD) in suppression of *Rhizoctonia* root rot of apple.**
S. S. HEWAVITHARANA (1), M. Mazzola (2). (1) Washington State University, Wenatchee, WA, U.S.A.; (2) USDA ARS, Wenatchee, WA, U.S.A.
- 248-P Effect of compost tea to control gray mold of blueberry.**
E. X. BRICEÑO (1). (1) Universidad Austral de Chile, Valdivia, Chile

- 249-P Effect of preharvest calcium spray, storage method, and fruit health status on postharvest development of *Monilinia fructigena* on apple.**
I. J. HOLB (1), B. Balla (1). (1) University of Debrecen, Debrecen, Hungary
- 250-P Practical application of UV-B radiation against powdery mildews under greenhouse conditions.**
S. ARUPPILLAI (1), S. Arne (2), S. A. Knut (3), B. Nils (4), G. David (5), G. R. Hans (1). (1) Department of Plant & Environmental Sciences, Norwegian University of Life Sciences, Aas, Norway; (2) Bioforsk, Norwegian Institute for Agricultural and Environmental Research, Aas, Norway; (3) Department of Ecology and Natural Resource Management, Norwegian University of Life Sciences, Aas, Norway; (4) Department of Mathematical Sciences and Technology, Norwegian University of Life Sciences, Aas, Norway; (5) Department of Plant Pathology and Plant-Microbe Biology, Cornell University, New York State Agricultural Experiment Station, Geneva, NY, U.S.A.
- 251-P Relationship of canopy reflectance and foliar NO³-N to anthracnose severity on an annual bluegrass putting green.**
J. INGUAGIATO (1). (1) University of Connecticut, Storrs, CT, U.S.A.
- 252-P Spread potential of binucleate *Rhizoctonia* from propagation floors to trays containing stem cuttings.**
W. E. COPEL (1). (1) USDA ARS, Poplarville, MS, U.S.A.
- 253-P Importance of soil moisture and isolate origin on disease severity of three *Rhizoctonia solani* AG 2-2 IIIB isolates.**
O. T. NEHER (1), E. J. Wenninger (1), H. Neibling (1), V. Stojšin (2), D. Budakov (2), F. Bagi (2). (1) University of Idaho, Kimberly, ID, U.S.A.; (2) Faculty of Agriculture, University of Novi Sad, Novi Sad, Serbia
- 254-P Resistance of gladiolus cultivars to *Uromyces transversalis* in field trials in Mexico: Preliminary results.**
A. J. Valencia-Botín (1), J. W. Buck (2), S. N. Jeffers (3), C. L. PALMER (4). (1) University of Guadalajara, Cienega Campus, Guadalajara, Jalisco, Mexico; (2) University of Georgia, Griffin, GA, U.S.A.; (3) Clemson University, Clemson, SC, U.S.A.; (4) IR-4 HQ, Rutgers University, Princeton, NJ, U.S.A.
- 255-P Influence of crop rotation on diseases, nematode activity, and yield of peanut and cotton in Southeast Alabama.**
H. L. CAMPBELL (1), A. K. Hagan (1), K. L. Bowen (1), B. E. Gamble (2). (1) Auburn University, Auburn, AL, U.S.A.; (2) Wiregrass Research and Extension Center, Headland, AL, U.S.A.
- 256-P Effective implementation of disease-suppressive crops in potato rotations.**
R. P. LARKIN (1), J. M. Halloran (1). (1) USDA ARS, Orono, ME, U.S.A.
- 257-P Effect of green manure crops on *Verticillium dahliae*'s propagules in soil, potato early dying, and potato yield.**
O. I. MOLINA (1), M. Tenuta (1), A. El Hadrami (2), F. Daayf (1). (1) University of Manitoba, Winnipeg, MB, Canada; (2) OMEX Agriculture Inc., Winnipeg, MB, Canada
- 258-P Cyst nematodes in golf course greens in the western United States.**
C. NISCHWITZ (1), C. Dhiman (1), M. Schmitt (2), M. McClure (2). (1) Utah State University, Logan, UT, U.S.A.; (2) The University of Arizona, Tucson, AZ, U.S.A.
- 259-P Management of *Meloidogyne incognita* with tall fescue grass rotations prior to peach orchard establishment.**
A. P. NYCZEPIR (1), S. L. F. Meyer (2), P. M. Brannen (3). (1) USDA ARS, Byron, GA, U.S.A.; (2) USDA ARS, Beltsville, MD, U.S.A.; (3) University of Georgia, Athens, GA, U.S.A.
- 260-P Fungal and oomycete pathogen detection in the rhizosphere of organic tomatoes grown in cover crop treated soil.**
C. SUMMERS (1), A. Dunn (2), C. Smart (2), B. McSpadden-Gardener (3), K. Everts (4), S. Park (3). (1) Cornell University, Geneva, NY, U.S.A.; (2) Cornell University, Ithaca, NY, U.S.A.; (3) Ohio State University, Wooster, OH, U.S.A.; (4) University of Maryland, Nanticoke, MD, U.S.A.
- 261-P Managing Phytophthora blight with biofumigation.**
M. T. MCGRATH (1), S. R. Menasha (2). (1) Cornell University, Riverhead, NY, U.S.A.; (2) Cornell Cooperative Extension-Suffolk County, Riverhead, NY, U.S.A.
- GENETICS OF RESISTANCE**
- 262-P Differences in corn hybrid structural responses to infection by *Clavibacter michiganensis* subsp. *nebraskensis*.**
G. C. Y. MBOFUNG (1), A. Robertson (1). (1) Iowa State University, Ames, IA, U.S.A.
- 263-P Relationship between resistance to Stewart's wilt and Goss's wilt in dent corn inbreds.**
C. BLOCK (1), L. Shepherd (2). (1) USDA ARS, Ames, IA, U.S.A.; (2) Iowa State University, Ames, IA, U.S.A.
- 264-P Development of a blight susceptibility index for anthracium cultivars evaluated in a resistance breeding program.**
A. M. ALVAREZ (1), A. S. de Silva (1), T. D. Amore (1). (1) University of Hawaii, Honolulu, HI, U.S.A.
- 265-P New rice resistance genes via targeted genome editing.**
S. Baufumé (1), D. Meynard (2), M. Reschke (3), M. Solé (3), S. Cunnac (1), B. Szurek (1), E. Guiderdoni (2), J. Boch (4), R. KOEBNIK (1). (1) Institut de Recherche pour le Développement, Montpellier, France; (2) Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Montpellier, France; (3) Martin Luther University, Halle (Saale), Germany; (4) Martin Luther University, Halle (Saale), France
- 266-P Genetic transformation of tomato (*Lycopersicon esculentum* cv. Micro-Tom) with a calcium signal modifier gene (CSM-1).**
C. Lott (1), Z. Vilorio (1), D. Henne (2), E. LOUZADA (1). (1) Texas A&M University-Kingsville, Weslaco, TX, U.S.A.; (2) Texas AgriLife Research, Weslaco, TX, U.S.A.
- 267-P Evaluation of wheat, barley, and triticale lines for resistance to *Xanthomonas translucens* pv. *undulosa*.**
S. Sapkota (1), Z. LIU (1). (1) North Dakota State University, Fargo, ND, U.S.A.
- 268-P Evaluating bacterial wilt resistance of tomato rootstocks in North Carolina.**
E. J. SILVERMAN (1), J. Driver (1), J. Kressin (1), D. Panthee (1), F. J. Louws (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 269-P Evaluation of global spring wheat germplasm for resistance to tan spot *Pyrenophora tritici-repentis* race 1.**
S. ALI (1), S. Abdullah (1), K. Glover (1), J. S. Rohila (1). (1) South Dakota State University, Brookings, SD, U.S.A.
- 270-P Association mapping for stripe rust resistance genes in spring wheat germplasm lines.**
M. WANG (1), X. Chen (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA ARS, Pullman, WA, U.S.A.
- 271-P QTL mapping of resistance to stripe rust in spring wheat PI 182103.**
J. FENG (1), M. Wang (1), L. Hou (1), X. Chen (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA ARS, Pullman, WA, U.S.A.
- 272-P QTL mapping to identify new sources of resistance to rice sheath blight in recombinant inbred lines from the cross of two elite Indica cultivars.**
V. L. CASTROAGUDIN (1), R. D. Cartwright (2), M. Jia (3), A. K. Jackson (4), R. G. Fjellstrom (4), F. J. Correa-Victoria (5), J. C. Correll (6). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Cooperative Extension Center, University of Arkansas, Little Rock, AR, U.S.A.; (3) USDA ARS, Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.; (4) USDA ARS, Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.; (5) Rice Tec, Inc., Alvin, TX, U.S.A.; (6) University of Arkansas, Department of Plant Pathology, Fayetteville, AR, U.S.A.
- 273-P  Greenhouse evaluation of commercial soybean varieties adapted to the North Central U.S. for resistance to charcoal rot.**
Z. SEXTON (1), T. Hughes (2). (1) Purdue University, New City, NY, U.S.A.; (2) USDA-ARS, West Lafayette, IN, U.S.A.

- 274-P Comparison of *Fusarium virguliforme* and *F. tucumaniae* isolates on selected soybean genotypes from Argentina and the United States.**
Y. XIANG (1), G. L. Hartman (1). (1) University of Illinois, Urbana, IL, U.S.A.
- 275-P The impact of soil composition on *Meloidogyne incognita* and identifying resistant soybean cultivars in Illinois.**
A. WARD (1), J. Bond (1). (1) Southern Illinois University, Carbondale, IL, U.S.A.
- 276-P Identification of resistance to *Rhizoctonia* root rot in mutant and wild barley (*Hordeum vulgare* subsp. *spontaneum*).**
O. O. AJAYI (1), T. C. Paulitz (2), K. G. Campbell (2), K. M. Murphy (1), S. E. Ullrich (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA ARS, Pullman, WA, U.S.A.
- 277-P Virus induced gene silencing of wheat stem rust, *Puccinia graminis*, genes resulting in reduced pathogenicity.**
S. DOWNEY (1), C. Yin (1), S. Hulbert (1). (1) Washington State University, Pullman, WA, U.S.A.
- 278-P Characterizing virulence phenotypes among U.S. isolates of *Pyricularia oryzae* using IRRI NILs, U.S. germplasm, and NERICA lines.**
F. ROTICH (1), C. Feng (1), Y. Jia (2), J. Correll (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) USDA ARS, Stuttgart, AR, U.S.A.
- 279-P Genotyping imazalil resistance in an international collection of *Penicillium digitatum* isolates.**
M. KELLERMAN (1), I. Beukes (1), L. J. Rose (1), A. Viljoen (1), A. Erasmus (2), G. De Wever (3), P. H. Fourie (4). (1) Stellenbosch University, Stellenbosch, Republic of South Africa; (2) Citrus Research International, Nelspruit, Republic of South Africa; (3) Janssen PMP, Beerse, Belgium; (4) Citrus Research International, Uitenhage, Republic of South Africa
- 280-P Screening strawberry (*Fragaria × ananassa*) germplasm for anthracnose disease resistance using traditional techniques and molecular markers.**
M. A. MILLER-BUTLER (1), K. J. Curry (2), B. R. Kreiser (2), B. J. Smith (1). (1) USDA ARS Thad Cochran Southern Horticultural Laboratory, Poplarville, MS, U.S.A.; (2) University of Southern Mississippi, Hattiesburg, MS, U.S.A.
- 281-P Characterization of fruit rot resistance and inheritance in American cranberry.**
J. POLASHOCK (1), J. Johnson-Cicalese (2), N. Vorsa (2). (1) USDA ARS, Chatsworth, NJ, U.S.A.; (2) Rutgers University, Chatsworth, NJ, U.S.A.
- 282-P Emergence and characterization of powdery mildew on hop cultivars with R6-based resistance.**
E. ECK (1), S. Wolfenbarger (1), C. O'camb (1), D. Gent (2). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) USDA ARS, Oregon State University, Corvallis, OR, U.S.A.
- 283-P Quantitative phenotyping of powdery mildew resistance in grapevine reveals differences in host resistance biology.**
L. CADLE-DAVIDSON (1), A. Nowogrodzki (2), M. Schaub (2), B. Reisch (3), J. Luby (4), P. Hemstad (4), R. Seem (2), D. Gadoury (2). (1) USDA ARS GGRU, Geneva, NY, U.S.A.; (2) Department of Plant Pathology and Plant-Microbe Biology, Cornell University, Geneva, NY, U.S.A.; (3) Cornell University, Geneva, NY, U.S.A.; (4) University of Minnesota, St. Paul, MN, U.S.A.
- 284-P Evaluating soybean germplasm and commercial varieties for resistance to *Phomopsis* seed decay.**
S. LI (1), J. Rupe (2), R. Holland (2), A. Steger (2), P. Chen (2), S. Sun (2), G. Sciumbato (3). (1) USDA ARS CGRU, Stoneville, MS, U.S.A.; (2) University of Arkansas, Fayetteville, AR, U.S.A.; (3) Mississippi State University, Stoneville, MS, U.S.A.
- 285-P Toward a better bean: Improving genetic, genomic, breeding, and disease management resources for lima bean to benefit the Mid-Atlantic region.**
N. DONOFRIO (1), T. A. Evans (1), G. C. Johnson (1), N. F. Gregory (1), R. J. Wisser (1), K. L. Everts (2), B. C. Meyers (1), T. O. Awokuse (1). (1) University of Delaware, Newark, DE, U.S.A.; (2) University of Maryland, College Park, MD, U.S.A.
- 286-P Field evaluation of promising breeding lines and varieties of common bean for tolerance to soilborne pathogens.**
G. S. ABAWI (1), T. C. Porch (2), J. D. Kelly (3). (1) Cornell University, Geneva, NY, U.S.A.; (2) USDA-ARS-TARS, Mayaguez, Puerto Rico, U.S.A.; (3) Department of Plant, Soil and Microbial Sciences, Michigan State University, East Lansing, MI, U.S.A.
- 287-P Simple sequence repeat DNA markers linked with broad-spectrum rust resistance in common bean PI 310762.**
S. H. Shin (1), Q. Song (1), P. B. Cregan (2), M. A. PASTOR-CORRALES (1). (1) SGI Laboratory, Beltsville Agricultural Research Center, ARS-USDA, Beltsville, MD, U.S.A.; (2) SGI Laboratory, Beltsville Agricultural Research Center, ARS-USDA, Beltsville, MA, U.S.A.
- 288-P Association mapping of genes for resistance to *Leptospaeria maculans* in *Brassica juncea*.**
A. Nepal (1), S. Mamidi (2), L. DEL RIO MENDOZA (1). (1) Department of Plant Pathology, North Dakota State University, Fargo, ND, U.S.A.; (2) Department of Plant Sciences, North Dakota State University, Fargo, ND, U.S.A.
- 289-P WITHDRAWN**
- 290-P Field trial evaluation of resistance to *Sclerotinia sclerotiorum* in annual bedding plants.**
M. GRABOWSKI (1), D. Malvick (2). (1) University of Minnesota, Andover, MN, U.S.A.; (2) University of Minnesota, St. Paul, MN, U.S.A.
- 291-P Variability in *Puccinia melanocephala* pathogenicity and sugarcane cultivar resistance in Louisiana.**
M. C. AVELLANEDA (1), J. Bombecini (1), J. W. Hoy (1). (1) Department of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.
- 292-P Response of sugarcane cultivars to natural infections by *Fusarium* spp. associated to sugarcane wilt in Michoacan, Mexico.**
A. REBOLLAR-ALVITER (1), H. V. Silva-Rojas (2), J. Boyzo-Marín (3), E. Flores-Gonzalez (4), J. Gil-Valenzuela (4), A. Valdez-Valero (5). (1) Universidad Autónoma Chapingo, Morelia, Michoacan, Mexico; (2) Colegio de Postgraduados, Montecillo, Texcoco, Mexico; (3) CIIDIR-IPN, Jiquilpan, Michoacan, Mexico; (4) Universidad Autónoma Chapingo, Centro Regional Morelia, Morelia, Michoacan, Mexico; (5) Postgrado en Producción Agroalimentaria del Trópico, Colegio de Postgraduados, Cardenas, Mexico
- 293-P Confirming resistance in bottle gourd germplasm by quantifying powdery mildew conidia using a cellometer.**
C. S. KOUSIK (1), J. L. Ikerd (1). (1) USDA ARS, Charleston, SC, U.S.A.
- 294-P Combined control of late blight, early blight, and *Sep-toria* leaf spot in fresh market tomato through genetic control and supplemental sprays.**
M. A. Mutschler (1), S. M. ZITTER (1), D. M. De Jong (1), T. A. Zitter (1). (1) Cornell University, Ithaca, NY, U.S.A.
- 295-P Development of diploid potato breeding lines with resistance to late blight caused by new clonal lineages of *Phytophthora infestans*.**
A. J. Gevens (1), A. SANCHEZ-PEREZ (1), S. Jansky (2), D. Halterman (3). (1) University of Wisconsin, Madison, WI, U.S.A.; (2) University of Wisconsin, USDA ARS, Madison, WI, U.S.A.; (3) USDA ARS, Madison, WI, U.S.A.
- 296-P Late blight resistance in heirloom and hybrid tomato cultivars against the US-22, US-23, and US-24 clonal lineages of *Phytophthora infestans*.**
A. C. SEIDL (1), A. J. Gevens (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 297-P Novel clonal lineages of *Phytophthora infestans* elicit differential disease and pathogen responses on solanaceous hosts.**
A. J. Gevens (1), A. SANCHEZ-PEREZ (1), D. Halterman (2). (1) University of Wisconsin, Madison, WI, U.S.A.; (2) USDA-ARS, Madison, WI, U.S.A.

298-P Development of transgenic grapefruit cultivars with a calcium signal modifier (CSM-1) gene using a nptII- and GUS-free selection method.

O. Vazquez (1), H. del Rio (1), E. LOUZADA (1). (1) Texas A&M University-Kingsville, Weslaco, TX, U.S.A.

299-P Identification of sources of resistance to *Plasmopara halstedii* in wild annual sunflower (*Helianthus annuus*).

R. HUMANN (1), T. Gulya (2), L. Marek (3), S. Meyer (4), J. Jordahl (4), S. Markell (4). (1) North Dakota State University, Hazleton, ND, U.S.A.; (2) USDA ARS, Northern Crop Science Laboratory, Fargo, ND, U.S.A.; (3) North Central Regional Plant Introduction Station (NCRPIS), Ames, IA, U.S.A.; (4) North Dakota State University, Fargo, ND, U.S.A.

300-P Response of African horned cucumber (*Cucumis metulifer*) to southern root-knot nematode, *Meloidogyne incognita*.

J. THIES (1), A. Levi (2). (1) USDA ARS, Charleston, SC, U.S.A.; (2) U.S. Vegetable Laboratory, USDA ARS, Charleston, SC, U.S.A.

INTEGRATED PEST MANAGEMENT

301-P Pierce's disease in three susceptible grape cultivars grafted on hybrid rootstocks or own-rooted.

A. Sanchez (1), M. BLACK (1), J. Kamas (2) (1) Texas A&M AgriLife Extension Service, Uvalde, TX, U.S.A.; (2) Texas A&M AgriLife Extension Service, College Station, TX, U.S.A.

302-P The presence of the fire blight bacterium *Erwinia amylovora* in asymptomatic apple bud wood: A potential threat to new apple plantings.

K. COX (1), D. Breth (1), E. Borejsza-Wysocka (1), H. S. Aldwinckle (1). (1) Cornell University, Geneva, NY, U.S.A.

303-P Bacterial population changes in fields treated with anaerobic soil disinfestation.

J. HONG (1), K. Martin (2), N. Kokalis-Burelle (1), D. Butler (3), E. Rosskopf (1). (1) USDA ARS, Fort Pierce, FL, U.S.A.; (2) William Paterson University, Wayne, NJ, U.S.A.; (3) The University of Tennessee, Knoxville, TN, U.S.A.

304-P The effect of postharvest treatments on survival of *Xanthomonas citri* pv. *citri* on infected grapefruit leaves.

D. ANCO (1), G. Poole (2), T. Gottwald (2). (1) North Carolina State University, USDA-ARS, Fort Pierce, FL, U.S.A.; (2) USDA-ARS, Fort Pierce, FL, U.S.A.

305-P Effect of planting date on peanut stem rot epidemics and efficacy of early season prothioconazole applications.

Y. C. TSAI (1), T. Brennen (1), K. Rucker (2). (1) Department of Plant Pathology, University of Georgia, Tifton, GA, U.S.A.; (2) Bayer CropScience, Tifton, GA, U.S.A.

306-P Profitability of using warning system for foliar disease of wheat in the Grand-Duchy of Luxembourg.

M. EL JARROUDI (1), L. Kouadio (2), M. Beyer (3), B. Tychon (4), P. Delfosse (3). (1) Université de Liège, Arlon, Belgium; (2) Agriculture and Agri-Food Canada, Lethbridge, AB, Canada; (3) Centre de Recherche Public, Gabriel Lippmann Département Environnement et Agro-Biotechnologies, Belvaux, Luxembourg; (4) Université de Liège, Campus Environnement Arlon, Arlon, Luxembourg

307-P Transmissibility of *Colletotrichum lindemuthianum* by seed from the field with different disease intensity.

M. G. Silva (1), E. A. POZZA (1), J. C. Machado (1). (1) Department of Plant Pathology, Federal University of Lavras, Lavras, Brazil

308-P Evaluation of fertility and fungicide programs on foliar diseases of bermudagrass (*Cynodon dactylon*).

A. PAYNE (1), N. Walker (1), D. Smith (2). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) University of Wisconsin, Madison, WI, U.S.A.

309-P Evaluation of fungicides and biorational products for management of *Pythium* and *Rhizoctonia* damping-off in greenhouse-produced vegetables.

F. Baysal-Gurel (1), S. A. MILLER (1). (1) The Ohio State University, Wooster, OH, U.S.A.

310-P Testing leaf-shredding as a component of an integrated management strategy for apple scab in South African orchards.

S. G. VON DIEST (1), J. C. Meitz-Hopkins (1), W. E. MacHardy (2), C. L. Lennox (1). (1) Stellenbosch University, Stellenbosch, Republic of South Africa; (2) University of New Hampshire, Durham, NH, U.S.A.

311-P Impact of nitrogen source and pH on mycelial growth of the spring dead spot pathogens, *Ophiosphaerella herpotricha* and *O. korrae*.

D. J. COTTRILL (1), G. L. Miller (1). (1) University of Missouri, Albany, MO, U.S.A.

312-P Microbial suppression of soilborne diseases in strawberries.

M. LLOYD (1). (1) University of California, Davis, CA, U.S.A.

313-P Controlling soilborne pathogens using *Trichoderma*: The Integrated Pest Management Innovation Lab's work in Bangladesh, India, and Indonesia.

A. FAYAD (1). (1) Office of International Research, Education, and Development (OIRE), Virginia Tech, Blacksburg, VA, U.S.A.

314-P Multi-year evaluation of standard- and model-timed fungicide applications for the control of *Botrytis* and anthracnose in commercial strawberry fields.

N. A. PERES (1), A. Amiri (2). (1) University of Florida, Wimauma, FL, U.S.A.; (2) University of Florida, GCREC, Wimauma, FL, U.S.A.

315-P Tomato early blight management by organically acceptable products and resistant varieties in West Virginia.

M. RAHMAN (1), L. Jett (1). (1) West Virginia University, Morgantown, WV, U.S.A.

316-P Organic potato variety and production trials.

A. O. CHARKOWSKI (1), R. K. Genger (1), D. Rouse (1). (1) University of Wisconsin, Madison, WI, U.S.A.

317-P Effects of seed type and variety on the agronomic performance of potato minitubers and the incidence of *Potato virus Y*.

A. C. FULLADOLSA PALMA (1), K. E. LaPlant (1), A. O. Charkowski (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

318-P Effect of six sanitation treatments on leaf spot (*Blumeriella jaapii*) in environmentally-benign sour cherry orchards.

I. J. HOLB (1). (1) University of Debrecen, Debrecen, Hungary

319-P An Internet-served forecast system for mummy berry disease in Maine lowbush blueberry fields using weather stations with cellular telemetry.

S. L. ANNIS (1), C. R. Slemmons (1), P. D. Hildebrand (2), R. W. Delbridge (3). (1) University of Maine, Orono, ME, U.S.A.; (2) Agriculture and Agri-Food Canada, Kentville, NS, Canada; (3) Delbridge Disease Management, Kentville, NS, Canada

320-P New products for management of lesion and ring nematode on walnuts.

B. B. WESTERDAHL (1), J. K. Hasey (2), J. A. Grant (3), L. W. Beem (4). (1) University of California, Davis, CA, U.S.A.; (2) University of California Cooperative Extension, Yuba City, CA, U.S.A.; (3) University of California Cooperative Extension, Stockton, CA, U.S.A.; (4) Beem Consulting, Granite Bay, CA, U.S.A.

321-P Working with workgroups: A neighborhood approach to area wide disease management of GLRaV-3 in CA vineyards.

K. ARNOLD (1), D. Golino (1), N. McRoberts (1). (1) University of California-Davis, Davis, CA, U.S.A.

322-P Incidence of *Wheat streak mosaic virus*, *Triticum mosaic virus*, and *High Plains virus* in wheat curl mites in maturing wheat heads.

S. Tatineni (1), G. Hein (1), J. McMechan (1), S. N. WEGULO (1), E. Byamukama (1). (1) University of Nebraska-Lincoln, Lincoln, NE, U.S.A.

POSTHARVEST BIOLOGY


- 323-P** *Aspergillus flavus* in corn ears from Indiana under the drought conditions in 2012.
W. LI (1), C. Woloshuk (1). (1) Purdue University, West Lafayette, IN, U.S.A.
- 324-P** Effect of mutations to *FST1* in *Fusarium verticillioides* on functionality and the regulation of gene expression.
C. NIU (1), G. Payne (2), C. Woloshuk (1). (1) Purdue University, West Lafayette, IN, U.S.A.; (2) North Carolina State University, Raleigh, NC, U.S.A.
- 325-P** Effect of temperature and wetness period on guava stylar end-rot monocycle.
A. F. NOGUEIRA JÚNIOR (1), C. A. D. Bragança (1), I. H. Fischer (2), L. Amorim (1). (1) University of Sao Paulo, Piracicaba, Brazil; (2) APTA Centro Oeste, Bauru, Brazil
- 326-P** Mechanisms of atoxigenicity: Characterizing genetic properties of atoxigenic *A. flavus* isolates.
A. ALMADER (1), K. Callicott (1), C. Probst (2), R. Bandyopadhyay (3), P. Cotty (1). (1) USDA ARS, Tucson, AZ, U.S.A.; (2) Washington State University, Richland, WA, U.S.A.; (3) International Institute of Tropical Agriculture, Ibadan, Nigeria
- 327-P** Factors affecting black dot development in storage.
E. M. Wood (1), T. D. Miles (1), P. S. WHARTON (1). (1) University of Idaho, Aberdeen, ID, U.S.A.
- 328-P** Effect of viruses and water-stress on storage root initiation in sweetpotatoes.
R. R. SWEANY (1), C. A. Clark (1), A. O. Villordon (2). (1) AgCenter, Louisiana State University, Baton Rouge, LA, U.S.A.; (2) AgCenter, Louisiana State University, Chase, LA, U.S.A.
- 329-P WITHDRAWN
- 330-P** Host range of *Penicillium* spp. (blue mold) rotting bulb crops.
F. M. DUGAN (1), S. L. Lupien (1), C. M. Vahling-Armstrong (2), G. A. Chastagner (3), B. K. Schroeder (2). (1) USDA ARS WRPIS, Pullman, WA, U.S.A.; (2) Washington State University, Pullman, WA, U.S.A.; (3) Washington State University, Puyallup, WA, U.S.A.

CROP LOSS ASSESSMENT

- 331-P** Impact of Verticillium wilt on cotton fiber quality.
J. E. WOODWARD (1), J. W. Keeling (1), T. A. Wheeler (1), J. K. Dever (1), C. M. Kelly (1), C. R. Albers (1). (1) Texas A&M AgriLife Research and Extension Center, Lubbock, TX, U.S.A.
- 332-P** Target spot, caused by *Corynesporium cassiicola*, reduces yield of cotton in Alabama.
A. K. HAGAN (1), K. Bowen (1), M. Pegues (2), J. Jones (3). (1) Auburn University, Auburn, AL, U.S.A.; (2) Auburn University, Fairhope, AL, U.S.A.; (3) Auburn University, Fairhope, AL, U.S.A.

DETECTION AND DIAGNOSIS – BACTERIA

- 333-P** Sensitive detection of *Spiroplasma citri* by targeting prophage sequences.
X. Wang (1), R. Yokomi (2), J. CHEN (3). (1) South-West University, Chongqing, China; (2) USDA ARS, Parlier, CA, U.S.A.; (3) USDA ARS PWA, Parlier, CA, U.S.A.
- 334-P** Detection of ‘*Candidatus* Phytoplasma asteris’ in canola in North Dakota.
K. CHITTEM (1), L. E. del Rio (1). (1) North Dakota State University, Fargo, ND, U.S.A.
- 335-P** A pipeline for automated diagnostic primer design based on genomic sequence alignment of target and non-target genomes.
R. Mauleon (1), L. TRIPLETT (2), J. Snelling (2), S. Vazquez (2), R. Corral (2), J. E. Leach (2). (1) International Rice Research Institute, Los Banos, Philippines; (2) Colorado State University, Fort Collins, CO, U.S.A.

- 336-P** Synthetic detection circuits targeting *Xylella* diffusible signal factor in bacteria and plants.
L. TRIPLETT (1), M. Ionescu (2), K. Morey (1), S. E. Lindow (3), J. Medford (1), J. E. Leach (1). (1) Colorado State University, Fort Collins, CO, U.S.A.; (2) University of California-Berkeley, Berkeley, CA, U.S.A.; (3) Department of Plant and Microbial Biology, University of California-Berkeley, Berkeley, CA, U.S.A.
- 337-P** Advances in the detection of ‘*Candidatus* Liberibacter solanacearum’, the causative agent of potato zebra chip disease.
J. G. LEVY (1), A. Ravindran (1), D. C. Gross (1), C. Tamborindeguy (1), E. A. Pierson (1). (1) Texas A&M University, College Station, TX, U.S.A.
- 338-P** *Pseudomonas* sp. found on Loropetalum stem canker in Florida.
X. SUN (1), A. Jeyaprakash (1), D. Davison (2), D. Jones (1), T. Schubert (1), B. Sutton (1). (1) Division of Plant Industry, Florida Department of Agriculture & Consumer Services, Gainesville, FL, U.S.A.; (2) Division of Plant Industry, Florida Department of Agriculture & Consumer Services, Gainesville, FL, U.S.A.
- 339-P** Detection of *Ralstonia solanacearum* using portable surface plasmon resonance technology.
L. Zhao (1), L. Levy (2), R. DI (1). (1) Rutgers University, New Brunswick, NJ, U.S.A.; (2) USDA APHIS PPQ CPHST, Beltsville, MD, U.S.A.
- 340-P**  Loop-mediated isothermal amplification for the detection of *Pseudomonas fuscovaginae*.
G. J. Ash (1), J. M. LANG (2), L. R. Triplett (2), B. J. Stodart (1), V. Verdier (3), J. E. Leach (2). (1) Charles Sturt University, Wagga Wagga, Australia; (2) Colorado State University, Fort Collins, CO, U.S.A.; (3) Institut de Recherche pour le Développement, Montpellier, France
- 341-P** Development of a loop-mediated isothermal amplification for detection of *Burkholderia gluma*.
M. A. CALDERA DOMINGUEZ (1), J. Ham (1), R. Singh (1). (1) Louisiana State University, Baton Rouge, LA, U.S.A.
- 342-P** Quantitative PCR of *Xanthomonas albilineans* in sugarcane tissues as methodology for evaluating resistance.
A. F. GUTIERREZ VIVEROS (1), J. W. Hoy (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.
- 343-P** Development of loop-mediated isothermal amplification for detection of *Leifsonia xyli* subsp. *xyli* in sugarcane.
J. Liu (1), L. Xu (1), J. Guo (1), R. Chen (1), Y. Que (1), M. P. GRISHAM (2). (1) Key Lab of Sugarcane Genetic Improvement, Ministry of Agriculture, Fuzhou, Peoples Republic of China; (2) USDA ARS, Houma, LA, U.S.A.
- 344-P** Molecular diagnosis of bacterial spot pathogens on pepper and tomato in Pennsylvania.
S. H. KIM (1), E. V. Nikolaeva (1), S. Kang (2). (1). Pennsylvania Department of Agriculture, Harrisburg, PA, U.S.A.; (2) Pennsylvania State University, University Park, PA, U.S.A.
- 345-P** Evaluation of seed wash DNA extraction method for the detection of seed-borne plant pathogens.
P. Sudarshana (1), M. Kruijt (2), K. KLEINHESSELINK (1), A. Saif (1), S. Thomas (1). (1) Monsanto Vegetable Seeds, Woodland, CA, U.S.A.; (2) Monsanto Vegetable Seeds, Leeuwenhoekweg, Netherlands
- 346-P** Application of next generation sequencing technologies for developing diagnostic tools for seed borne pathogens.
P. Sudarshana (1), K. KLEINHESSELINK (1), D. Ader (2), C. Wischmeyer (2), A. Saif (1), S. Thomas (1). (1) Monsanto Vegetable Seeds, Woodland, CA, U.S.A.; (2) Monsanto Company, St. Louis, MO, U.S.A.

DETECTION AND DIAGNOSIS – FUNGI AND OOMYCETES

- 347-P** A conventional PCR and qPCR assays to detect *Harpophora maydis*—The causal agent of late wilt of corn.
S. Costanzo (1), K. A. ZELLER (1), M. K. Nakhla (1). (1) USDA APHIS PPQ CPHST, Beltsville, MD, U.S.A.

- 348-P Field screening of soybean lines for *Cercospora* leaf blight resistance.**
J. REZENDE (1), B. Buckley (1), Z. Y. Chen (1). (1) Louisiana State University, Baton Rouge, LA, U.S.A.
- 349-P Fungal diversity by plant section in the Mississippi soybean production system.**
M. TOMASO-PETERSON (1), T. W. Allen (2), J. Standish (1). (1) Mississippi State University, Mississippi State, MS, U.S.A.; (2) Mississippi State University, Delta Research and Extension Center, Stoneville, MS, U.S.A.
- 350-P A sequencing approach to soybean seed microflora assessment.**
K. A. COCHRAN (1), J. Rupe (1), S. Srivastava (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.
- 351-P A quantitative PCR assay for detection of *Fusarium oxysporum* f. sp. *phaseoli* in bean seeds.**
M. VIANA DE SOUSA (1), G. P. Munkvold (2), H. E. Simmons (2), J. da Cruz Machado (1). (1) Universidade Federal de Lavras, Lavras, Brazil; (2) Iowa State University, Ames, IA, U.S.A.
- 352-P Development of SCAR markers and UP-PCR cross-hybridization method for specific detection of brown patch pathogens from infected turfgrasses.**
D. K. LAKSHMAN (1), B. S. Amaradasa (2), B. Horvath (3). (1) USDA ARS, Beltsville, MD, U.S.A.; (2) University of Nebraska-Lincoln, Lincoln, NE, U.S.A.; (3) University of Tennessee, Knoxville, TN, U.S.A.
- 353-P A multi-state screen to identify seedling fungal pathogens of soybean.**
A. J. WARNER (1), E. Arano (1), A. Srour (1), T. Behrens (1), K. Hagen (1), P. Oshea (1), J. P. Bond (1), A. M. Fakhoury (1). (1) Southern Illinois University-Carbondale, Carbondale, IL, U.S.A.
- 354-P Use of PCR technology for the speciation of fungi recovered from dried fruits and tree nuts.**
V. H. TOURNAS (1), N. S. Niazi (2), E. J. Katsoudas (3). (1) Food and Drug Administration/CFSAN, College Park, MD, U.S.A.; (2) JIFSAN/University of Maryland, College Park, MD, U.S.A.; (3) Food and Drug Administration/ORANERL, Jamaica, NY, U.S.A.
- 355-P Real-time PCR detection and differentiation of four *Colletotrichum* species causing soybean anthracnose.**
H. C. YANG (1), J. S. Haudenschild (2), G. L. Hartman (3). (1) University of Illinois-Urbana, Urbana, IL, U.S.A.; (2) USDA ARS, Urbana, IL, U.S.A.; (3) USDA ARS, University of Illinois-Urbana, Urbana, IL, U.S.A.
- 356-P Root rot disease of wheat survey in South Dakota.**
P. GAUTAM (1), S. Ali (1). (1) South Dakota State University, Brookings, SD, U.S.A.
- 357-P Identification of fungi associated with maize (*Zea mays* L.) growing in different planting dates at northern Tamaulipas.**
H. Y. MARTINEZ (1), I. Cruz (1), J. Garcia (1), J. L. Hernandez (1), M. Cantu (2), C. Reyes (2), G. Vazquez (3), S. Hernandez (1), N. Mayek (1). (1) Instituto Politecnico Nacional, Reynosa, Mexico; (2) INIFAP, Rio Bravo, Mexico; (3) INIFAP, Texcoco, Mexico
- 358-P WITHDRAWN
- 359-P Genome data mining and diagnostic marker development of *Tilletia indica* for agri-food system detection screening.**
P. Kesanakurti (1), R. Setia (1), K. Temple (1), S. Hambleton (1), A. LEVESQUE (1), C. T. Lewis (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON, Canada
- 360-P Tall fescue endophytes: Utilization, quality assurance, and characterization.**
J. E. TAKACH (1), G. A. Swoboda (1), S. Mittal (1), A. A. Hopkins (2), L. L. Trammell (1), M. A. Trammell (1), C. A. Young (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; (2) Dow AgroSciences, York, NE, U.S.A.
- 361-P Development of a loop-mediated isothermal amplification (LAMP) assay for rapid detection of *Colletotrichum acutatum* on strawberry.**
X. ZHANG (1), J. C. Batzer (1), M. L. Gleason (1), T. C. Harrington (1). (1) Iowa State University, Ames, IA, U.S.A.
- 362-P Fungi and oomycete pathogens causing stem blight and root rots on blueberry in central Mexico.**
A. REBOLLAR-ALVITER (1), J. Boyzo-Marin (2), H. V. Silva-Rojas (3), G. Ramirez (4). (1) Universidad Autónoma Chapingo, Morelia, Mich, Mexico; (2) CIIDIR-IPN, Jiqualpan, Mexico; (3) Colegio de Postgraduados, Montecillo, Texoco, Mexico; (4) Universidad Autónoma Chapingo, Chaping, Mex, Mexico
- 363-P Functional analysis of grapevine stilbene synthase genes.**
R. DAI (1), F. Gao (1), W. Gassmann (1), W. Qiu (2). (1) University of Missouri, Columbia, MO, U.S.A.; (2) Missouri State University, Springfield, MO, U.S.A.
- 364-P Distinct SNPs present in the ITS2 region of *Elsinoë australis* organism detected from citrus in Florida.**
X. Sun (1), A. STRAYER (2), A. Jeyaprakash (1), D. Jones (1), T. Schubert (1). (1) Division of Plant Industry, Florida Department of Agriculture & Consumer Services, Gainesville, FL, U.S.A.; (2) Plant Pathology Department, University of Florida, Gainesville, FL, U.S.A.
- 365-P Molecular diagnostics for the boxwood blight fungus, *Calonectria pseudonaviculata*: Strategies for early detection.**
R. E. MARRA (1), J. A. Crouch (2), J. B. Hebert (3), B. I. Hillman (3). (1) Connecticut Agricultural Experiment Station, New Haven, CT, U.S.A.; (2) USDA ARS, Beltsville, MD, U.S.A.; (3) Rutgers University, New Brunswick, NJ, U.S.A.
- 366-P Identification of *Cercospora*-resistant sugar beet lines using multi-sensory and molecular detection systems.**
S. SCHMITTGEN (1), S. Bergsträsser (1), M. Jansen (1), F. Fiorani (1), U. Rascher (1). (1) Forschungszentrum Jülich GmbH, Jülich, Germany
- 367-P *Fusarium* stalk blight and rot in sugar beet.**
L. E. HANSON (1), T. R. Goodwill (1), M. McGrath (1). (1) USDA ARS, East Lansing, MI, U.S.A.
- 368-P WITHDRAWN
- 369-P *Fusarium lactis* and *F. mexicanum* associated with galls of *Swietenia* in Mexico.**
A. Soto-Plancarte (1), I. Betancourt-Resendes (1), S. P. Fernandez-Pavia (1), C. S. Lima (2), L. H. Pfenning (3), G. RODRIGUEZ-ALVARADO (1). (1) Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Mexico; (2) Universidade Federal Rural de Pernambuco, Garanhuns, Brazil; (3) Universidade Federal de Lavras, Lavras, Brazil
- 370-P Development of detection tools for 10 of Canada's "most unwanted" forest pathogens.**
J. LAMARCHE (1), P. Tanguay (1), A. Potvin (1), G. Pelletier (1), D. Stewart (1), G. J. Bilodeau (2), S. Briere (2), R. C. Hamelin (3). (1) Natural Resources Canada/Canadian Forest Service, Quebec, QC, Canada; (2) Canadian Food Inspection Agency, Ottawa, ON, Canada; (3) University of British Columbia, Vancouver, BC, Canada
- 371-P Entomological and physiological factors predisposing beech to infection by *Neonectria* pathogens in beech bark disease aftermath forests.**
J. A. CALE (1), J. L. West (1), S. A. Teale (1), J. D. Castello (1), M. T. Johnston (2). (1) SUNY ESF, Syracuse, NY, U.S.A.; (2) SUNY ESF, Ranger School, Wanakena, NY, U.S.A.
- 372-P Novel PCR-RFLP assay for genetic diversity studies of *Elsinoë australis* isolates causing scab on citrus.**
S. Costanzo (1), P. Yang (1), K. A. ZELLER (1), M. K. Nakhla (1). (1) USDA APHIS PPQ CPHST, Beltsville, MD, U.S.A.
- 373-P DNA based diagnostic markers for detection and differentiation of North American *Heterobasidion* spp.**
S. F. SHAMOUN (1), I. Kassatenko (1), C. Hammett (1), R. Kowbel (1), X. Li (2). (1) Canadian Forest Service, Victoria, BC, Canada; (2) Canadian Food Inspection Agency, Charlottetown, PE, Canada

- 374-P Armillaria root disease in peach orchards of the state of Mexico, Mexico: Characterization of *Armillaria* species and assessment of disease impact.**
R. D. Elías-Román (1), R. A. Guzmán-Plazola (2), D. Alvarado-Rosales (2), G. Calderón-Zavala (1), J. A. Mora-Aguilera (2), R. García-Espinosa (2), M. S. Kim (3), A. L. ROSS-DAVIS (4), J. W. Hanna (4), N. B. Klopfenstein (4). (1) Colegio de Postgraduados, Campus Montecillo, Recursos Genéticos y Productividad-Fruticultura, Texcoco, Mexico; (2) Colegio de Postgraduados, Campus Montecillo, Fitosanidad-Fitopatología, Texcoco, Mexico; (3) Department of Forestry, Environment, and Systems, Kookmin University, Seoul, South Korea; (4) USDA FS, Rocky Mountain Research Station, Moscow, ID, U.S.A.
- 375-P Distribution and host range of *Colletotrichum acutatum* on Salicaceae in San Francisco's North Bay area.**
S. SWAIN (1), S. T. Koike (2). (1) University of California, Novato, CA, U.S.A.; (2) University of California Cooperative Extension, Salinas, CA, U.S.A.
- 376-P Identification of the fungal pathogen complex causing fruit rot of rambutan (*Nephelium lappaceum* L.) in Puerto Rico.**
L. SERRATO-DIAZ (1), L. I. Rivera-Vargas (2), R. Goenaga (3), R. D. French - Monar (1). (1) Texas A&M AgrLife Extension Service, Amarillo, TX, U.S.A.; (2) University of Puerto Rico, Mayaguez, Puerto Rico, U.S.A.; (3) USDA ARS, Mayaguez, Puerto Rico, U.S.A.
- 377-P *Fusarium mexicanum* is the main pathogen causing mango malformation in the central western region of Mexico.**
I. Betancourt-Resendes (1), R. Ortega-Arreola (2), J. J. Velazquez-Monreal (3), S. P. Fernandez-Pavia (1), G. RODRIGUEZ-ALVARADO (1). (1) Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Mexico; (2) Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, La Huerta, Mexico; (3) Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias, Tecomán, Mexico
- 378-P Detection of *Fusarium mexicanum* causing malformation in mango nursery plants.**
A. Soto-Plancarte (1), S. P. Fernandez-Pavia (1), N. Gómez-Dorantes (1), P. Osuna Avila (2), G. RODRIGUEZ-ALVARADO (1). (1) Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Mexico; (2) Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Mexico
- 379-P History of brown rust of sugarcane in Florida.**
J. C. COMSTOCK (1), S. Sood (1), R. N. Raid (2). (1) USDA ARS, Sugarcane Field Station, Canal Point, FL, U.S.A.; (2) University of Florida, IFAS, Everglades Research and Education Center, Belle Glade, FL, U.S.A.
- 380-P Introduction of orange rust caused by *Puccinia kuehnmii* into the Louisiana sugarcane industry.**
M. P. GRISHAM (1), J. S. Haudenschild (2), J. W. Hoy (3), N. Glynn (4), J. Comstock (5), G. L. Hartman (6). (1) USDA ARS, Houma, LA, U.S.A.; (2) USDA ARS, Urbana, IL, U.S.A.; (3) Department of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (4) Syngenta, Longmont, CO, U.S.A.; (5) USDA ARS, Sugarcane Field Station, Canal Point, FL, U.S.A.; (6) USDA ARS, University of Illinois-Urbana, Urbana, IL, U.S.A.
- 381-P *Fusarium kyuyense*, *F. andiyazi*, and *F. nelsonii*, three new species associated to sugarcane wilt in Mexico.**
H. V. SILVA-ROJAS (1), A. Rebollar-Alviter (2), J. R. Sanchez-Pale (3), A. Valdez-Balero (4), J. Boyzo-Marin (5), E. Flores-Gonzalez (2), P. X. Olivares-Mercado (1), J. M. Aguirre-Rayon (6), T. B. Uribe-Cortes (1). (1) Colegio de Postgraduados, Campus Montecillo, Texcoco, Edo. de Mexico, Mexico; (2) Universidad Autonoma Chapingo, Centro Regional Morelia, Morelia, Michoacan, Mexico; (3) Universidad Autonoma del Estado de Mexico, Toluca, Mexico; (4) Colegio de Postgraduados, Campus Tabasco, Cardenas, Tabasco, Mexico; (5) CIIDIR-IPN, Michoacan, Mexico; (6) Instituto Tecnológico de Ciudad Altamirano, Guerrero, Mexico
- 382-P WITHDRAWN
- 383-P Ceratobasidium root rot, a new disease of watermelon in Arizona.**
C. NISCHWITZ (1), P. Chitrapalam (2), M. Olsen (3). (1) Utah State University, Logan, UT, U.S.A.; (2) North Dakota State University, Fargo, ND, U.S.A.; (3) University of Arizona, Tucson, AZ, U.S.A.
- 384-P Density and in vitro viability of *Sclerotium cepivorum* Berk. sclerotia are not correlated in soil samples of Guanajuato state, Mexico.**
L. PEREZ-MORENO (1), M. J. Navarro-León (1), B. Mendoza-Celedon (1), R. Ramírez-Malagon (1), H. G. Nuñez-Palenius (1). (1) University of Guanajuato, Irapuato, Mexico
- 385-P Modification of oligo design for enhanced sensitivity of a DNA microarray for detection of fungal onion bulb rot pathogens.**
M. ARIF (1), C. M. Vahling-Armstrong (1), J. Knerr (1), S. Lupien (1), F. Dugan (1), L. du Toit (2), B. K. Schroeder (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) Washington State University, Mt. Vernon, WA, U.S.A.
- 386-P A simple and rapid method to generate full sequence reads from small qPCR amplicons using direct sequencing.**
M. ARIF (1), M. Perez Garcia (2), S. Dobhal (2), F. M. Ochoa-Corona (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.
- 387-P Characterization of *Pythium* species associated with Prunus replant disease.**
L. S. SCHMIDT (1), G. T. Browne (1). (1) USDA-ARS, Davis, CA, U.S.A.
- 388-P Downy mildew (*Pseudoperonospora cubensis*) pathogenicity on melon and other cucurbits in Costa Rica.**
M. BLANCO-MENESES (1), R. Zamora-Segura (1), F. Arauz-Cavallini (1). (1) Universidad de Costa Rica, San Pedro, Costa Rica
- 389-P Isolation and detection of *Phytophthora rubi* in raspberry (*Rubus idaeus*) production in the western United States.**
J. E. Stewart (1), D. Kroese (2), V. Fieland (3), I. A. Zasada (2), N. J. GRUNWALD (4). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) USDA ARS, Corvallis, OR, U.S.A.; (3) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.; (4) Horticultural Crops Research Laboratory, USDA ARS, Corvallis, OR, U.S.A.
- 390-P Oomycetes isolated from soybeans with damping-off in South Dakota.**
T. E. CHASE (1), P. B. Bartlett (1). (1) South Dakota State University, Brookings, SD, U.S.A.
- 391-P First detection and molecular identification of *Phytophthora parasitica* from annual vinca in Nevada.**
S. WANG (1), J. Buk (2). (1) Nevada Department of Agriculture, Sparks, NV, U.S.A.; (2) University of Nevada Cooperative Extension, Reno, NV, U.S.A.
- 392-P Initial detection of *Phytophthora ramorum* at two New York nurseries through sampling of water in retention ponds.**
K. L. SNOVER-CLIFT (1), M. L. Daughtrey (2), M. Swartwood Towne (1), K. King (3), M. Kelly (3). (1) Cornell University, Ithaca, NY, U.S.A.; (2) Cornell University, LIHREC, Riverhead, NY, U.S.A.; (3) New York State Department of Agriculture and Markets, Albany, NY, U.S.A.
- 393-P Genomics-based diagnostic marker development for *Pythium* and *Phytophthora*.**
J. R. IBARRA CABALLERO (1), M. Zerillo (1), N. Tisserat (1). (1) Colorado State University, Fort Collins, CO, U.S.A.
- 394-P WITHDRAWN
- DETECTION AND DIAGNOSIS – NEMATODES**
- 395-P Genomic sequence comparisons between isolates of *Globodera rostochiensis*.**
M. ROTT (1), B. Mimeo (2), M. Belton (1). (1) Canadian Food Inspection Agency, Sidney, BC, Canada; (2) Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC, Canada
- 396-P Pathogen detection step one: Getting the DNA out of the sample.**
B. AMSDEN (1), P. Vincelli (1). (1) University of Kentucky, Lexington, KY, U.S.A.

397-P CANARY and LiNK technologies for rapid detection of plant pathogens.
H. M. Bowman (1), Z. LIU (1), L. Levy (2), M. Nakhla (1). (1) USDA APHIS PPQ S&T CPHST, Beltsville, MD, U.S.A.; (2) USDA APHIS PPQ CPHST, Riverdale, MD, U.S.A.

398-P Towards defining plant diagnostic tool development standards: Ensuring accuracy and universal communications across plant diagnostic laboratories.
C. LAPAIRE HARMON (1). (1) University of Florida, Plant Diagnostic Center, Gainesville, FL, U.S.A.

DETECTION AND DIAGNOSIS – VIRUSES

399-P Development and validation of quantitative polymerase chain reaction protocols for detection of *Soybean vein necrosis virus*.
D. L. SMITH (1), C. L. Groves (1), C. Fritz (1), D. K. Willis (2). (1) University of Wisconsin, Madison, WI, U.S.A.; (2) USDA ARS, Vegetable Crops Research Unit; and University of Wisconsin-Madison, Department of Plant Pathology, Madison, WI, U.S.A.

400-P SYBR green and Taqman qRT-PCR, helicase dependent amplification, end-point RT-PCR and Razor Ex BioDetection System for detection of *High plains virus*.
M. Arif (1), G. S. Aguilar Moreno (2), A. Wayadande (1), J. Fletcher (1), F. M. OCHOA-CORONA (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) Universidad Autonoma Chapingo, Chapingo, Mexico

401-P Development of end-point multiplex RT-PCR and helicase dependent amplification for detection of *CMV*, *HVX*, *INSV*, *TMV*, and *TSWV*.
M. Arif (1), A. Mendoza Yerbafria (2), G. S. Aguilar Moreno (2), M. Perez Garcia (2), J. Olson (1), D. Smith (1), F. M. OCHOA-CORONA (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) Universidad Autonoma Chapingo, Texcoco, Mexico

402-P Development of loop mediated isothermal amplification reaction and TaqMan real-time PCR for the detection of *Gooseberry vein banding associated virus*.
M. WANG (1), J. Postman (2), R. Li (1). (1) USDA ARS, Beltsville, MD, U.S.A.; (2) USDA ARS, Corvallis, OR, U.S.A.

403-P Development and validation of a multiplex one-step RT-PCR for the improved detection of four nepoviruses infecting imported germplasm.
D. D. Picton (1), G. Wei (1), K. J. Owens (1), M. K. NAKHLA (1). (1) USDA-APHIS-PPQ-S&T-CPHST, Beltsville, MD, U.S.A.

404-P Characterization of tree fruit and grapevine viruses by next generation sequencing.
M. ROTT (1), Y. Xiang (2), H. Saeed (1), M. Belton (1), E. Clarke (1), B. B. Aadum (1). (1) Canadian Food Inspection Agency, Sidney, BC, Canada; (2) Agriculture and Agri-Foods Canada, Summerland, BC, Canada

405-P Surveying stone fruit trees for viruses in Texas: 2011-2013.
M. GIESBRECHT (1), L. Lindley (1), K. Ong (1). (1) Texas A&M AgriLife Extension Service, College Station, TX, U.S.A.

406-P A routine crop-specific diagnostic macroarray for profiling viral infections in grapevine.
J. THOMPSON (1), M. Fuchs (2), H. McLane (2), F. Toprak-Celebi (3), J. Potter (4), J. Vargas (2), K. L. Perry (2). (1) Cornell University, Ithaca, NY, U.S.A.; (2) Cornell University, Ithaca, NY, U.S.A.; (3) Pamukkale University, Denizli, Turkey; (4) Houghton College, Houghton, NY, U.S.A.

407-P Comparison of the Pennsylvania and Ontario *Plum pox virus* survey and eradication programs.
A. Gougherty (1), K. Pazdernik (2), M. Kaiser (2), F. W. NUTTER (1). (1) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.; (2) Department of Statistics, Iowa State University, Ames, IA, U.S.A.

408-P A novel endornavirus infecting lima bean (*Phaseolus lunatus*) and its occurrence in lima bean genotypes.
N. Abou Ghanem-Sabanadzovic (1), S. Khankhum (2), R. A. Valverde (2), S. SABANADZOVIC (1). (1) Mississippi State University, Mississippi State, MS, U.S.A.; (2) AgCenter, Louisiana State University, Baton Rouge, LA, U.S.A.

409-P A begomovirus infecting Gold Veined Oxalis.
F. Herrera (1), N. Abou Ghanem-Sabanadzovic (2), R. VALVERDE (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (2) Institute for Genomics, Biocomputing & Biotechnology, Mississippi State University, Mississippi State, MS, U.S.A.

410-P Survey tools for begomovirus and curtovirus detection: A flexible and sensitive approach to virus screening.
L. LUTES (1), D. Carbonaro (2), J. K. Brown (2), D. Groth-Helms (1). (1) Agdia, Inc., Elkhart, IN, U.S.A.; (2) University of Arizona, Tucson, AZ, U.S.A.

411-P Association of a monopartite begomovirus and defective betasatellite with okra leaf curl disease in Jazan, Saudi Arabia.
M. Al-Saleh (1), I. Al-Shahwan (1), O. Abdalla (1), M. Amer (2), A. IDRIS (2). (1) KAUST, Riyadh, Saudi Arabia; (2) KAUST, Thuwal, Saudi Arabia

412-P Next generation sequencing and its application as a biosecurity tool.
J. DANIELS (1), W. L. Schneider (2), J. Fletcher (1), F. M. Ochoa-Corona (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) USDA ARS, FDWSRU, Fort Detrick, MD, U.S.A.

413-P Simultaneous detection and differentiation of three sweet potato potyviruses by one-step RT-PCR.
P. LAN (1), F. Li (2), J. Abad (3), R. Li (1). (1) USDA ARS, Beltsville, MD, U.S.A.; (2) Yunnan Agricultural University, Kunming, China; (3) USDA APHIS, Beltsville, MD, U.S.A.

414-P Development and validation of a multiplex one-step qRT-PCR for the detection of three sweet potato potyviruses infecting imported germplasm.
K. J. Owens (1), D. D. Picton (1), G. Wei (2), M. K. NAKHLA (1). (1) USDA APHIS PPQ S&T CPHST, Beltsville, MD, U.S.A.; (2) USDA APHIS PPQ S&T CPHST, Beltsville, MD, U.S.A.

415-P WITHDRAWN

416-P Interception and identification by deep sequencing of a “caulimo-like” virus in a potato germplasm accession imported from South America.
J. A. ABAD (1), R. Li (2), S. Fuentes (3), J. F. Kreuzer (3), C. Loschinkohl (4), P. Bandla (4). (1) USDA APHIS PPQ PGQP, Beltsville, MD, U.S.A.; (2) USDA ARS, National Germplasm Resources Laboratory, Beltsville, MD, U.S.A.; (3) International Potato Center, Lima, Peru; (4) USDA APHIS PPQ FO, Plant Germplasm Quarantine Program, Beltsville, MD, U.S.A.

417-P Genetic diversity of viruses causing mosaic in Louisiana sugarcane.
A. T. WASHINGTON-KEIZERWEERD (1), K. Z. Warnke (1), M. P. Grisham (1). (1) USDA ARS, Sugarcane Research Unit, Houma, LA, U.S.A.

418-P Presence and relative incidence of viruses infecting *Lactuca sativa* in Queretaro, Mexico.
L. PÉREZ-MORENO (1), G. H. Niño-Mendoza (1), B. Mendoza-Celedón (1), F. Leon-Galvan (1), H. G. Nuñez-Palenius (1). (1) University of Guanajuato, Irapuato, Mexico

419-P Presence and relative incidence of viruses infecting *Cichorium intybus* in Guanajuato, Mexico.
L. PEREZ-MORENO (1), G. Castro-Beltran (1), H. G. Nunez-Palenius (1), B. Mendoza-Celedon (1), R. Ramirez-Malagon (1), M. J. Navarro-Leon (1). (1) University of Guanajuato, Irapuato, Mexico

NEW AND EMERGING DISEASES – BACTERIA

420-P WITHDRAWN

421-P Importance of potato volunteers as a source of ‘*Candidatus Liberibacter solanacearum*’ in the Columbia Basin of Oregon and Washington.

J. E. EGGERS (1), S. I. Rondon (1), A. F. Murphy (1), P. B. Hamm (1). (1) Oregon State University, Hermiston, OR, U.S.A.

422-P Identification of bacteria associated with decline of ironwood trees (*Casuarina equisetifolia*) in Guam.

C. M. Ayin (1), R. L. Schlub (2), A. M. ALVAREZ (1). (1) University of Hawaii, Honolulu, HI, U.S.A.; (2) University of Guam, Mangilao, Guam, U.S.A.

423-P *Casuarina equisetifolia* decline in Guam linked to colonization of woody tissues by bacteria.

R. L. SCHLUB (1), R. Kubota (2), A. M. Alvarez (2). (1) University of Guam, Mangilao, Guam, U.S.A.; (2) University of Hawaii, Honolulu, HI, U.S.A.

424-P *Ralstonia solanacearum*, a new pathogen of highbush blueberry.

N. Patel (1), P. V. OUDEMANS (2), D. Kobayashi (1), C. Constantelos (3). (1) Department of Plant Biology and Pathology, Rutgers University, New Brunswick, NJ, U.S.A.; (2) Department of Plant Biology and Pathology, Rutgers University, Chatsworth, NJ, U.S.A.; (3) Rutgers University, Chatsworth, NJ, U.S.A.

425-P WITHDRAWN

426-P Assessment of citrus huanglongbing (HLB) in Dominica.

X. SUN (1), E. Rohrig (1), S. Jones (2), R. Anselm (3). (1) Division of Plant Industry, Florida Department of Agriculture & Consumer Services, Gainesville, FL, U.S.A.; (2) Caribbean Agricultural Research and Development Institute, Roseau, Dominica; (3) Division of Agriculture, Ministry of Agriculture & Forestry, Roseau, Dominica

NEW AND EMERGING DISEASES – FUNGI AND OOMYCETES

427-P Development of a Smartphone app to increase accuracy and early detection of new or invasive diseases.

D. L. CLEMENT (1), M. K. Malinoski (1), N. Dawson (2), C. Barger (3). (1) University of Maryland, Ellicott City, MD, U.S.A.; (2) University of Maryland, Queenstown, MD, U.S.A.; (3) University of Georgia, Tifton, GA, U.S.A.

428-P New occurrences of rapid blight (*Labyrinthula terrestris*) and other labyrinthulids associated with turfgrasses.

M. OLSEN (1), G. Douhan (2), D. Pagliaccia (2), P. Chitrampalam (3), C. Nischwitz (4), N. Goldberg (5), B. Leinauer (5). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) University of California-Riverside, Riverside, CA, U.S.A.; (3) North Dakota State University, Fargo, ND, U.S.A.; (4) Utah State University, Logan, UT, U.S.A.; (5) New Mexico State University, Las Cruces, NM, U.S.A.

429-P A postharvest fruit rot of apple caused by *Lambertella* sp. in Washington State.

M. S. WISEMAN (1), F. M. Dugan (2), C. L. Xiao (3). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.; (3) USDA-ARS, Parlier, CA, U.S.A.

430-P Diversity of sooty blotch and flyspeck fungi from apples in Spain.

J. BATZER (1), M. Miñarro (2), J. Svendsen (1), E. O'Neill (1), M. Gleason (1). (1) Iowa State University, Ames, IA, U.S.A.; (2) Servicio Regional de Investigación y Desarrollo Agroalimentario, Asturias, Spain

431-P Genetic variability suggests that *Ceratocystis fimbriata* is native to Rio Grande do Sul, Brazil, where it is causing a new wilt disease on kiwifruit.

M. A. FERREIRA (1), T. C. Harrington (2), G. Piveta (3), A. C. Alfenas (4). (1) Universidade Federal de Lavras, Lavras, Brazil; (2) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.; (3)

Universidade Federal de Santa Maria, Santa Maria, Brazil; (4) Universidade Federal de Viçosa, Viçosa, Brazil

432-P Genetic variability of *Ceratocystis fimbriata* isolates from mango in Brazil, Oman, and Pakistan.

L. S. OLIVEIRA (1), T. C. Harrington (2), M. B. Damacena (1), L. M. Guimarães (1), A. C. Alfenas (1). (1) Universidade Federal de Viçosa, Viçosa, Brazil; (2) Iowa State University, Ames, IA, U.S.A.

433-P First detection and pathogenicity of *Rhizoctinia solani* AG-1 1A on peanut in Arkansas.

T. R. FASKE (1), K. M. Hurd (2), T. N. Spurlock (1), C. S. Rothrock (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) University of Arkansas, Lonoke, AR, U.S.A.

434-P Susceptibility of commercial boxwood cultivars to *Cylindrocladium buxicola*, the causal agent of box blight.

M. L. GANCI (1), D. M. Benson (1), K. L. Ivors (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

435-P Thousand cankers disease in California English walnut: Incidence, distribution, and characterization of *Geosmithia morbida*.

M. A. YAGHMOUR (1), T. L. Nguyen (1), T. V. Roubtsova (1), J. Hasey (2), C. DeBuse (1), E. J. Fichtner (3), R. Hoenisch (1), S. Seybold (4), R. M. Bostock (1). (1) University of California, Davis, CA, U.S.A.; (2) University of California Cooperative Extension, Yuba, CA, U.S.A.; (3) University of California Cooperative Extension, Tulare, CA, U.S.A.; (4) USDA Forest Service, Davis, CA, U.S.A.

436-P *Melampsora* rusts on weeping willows in the United States.

M. TOOME (1), M. C. Aime (1). (1) Purdue University, West Lafayette, IN, U.S.A.

437-P Tracking the distribution of the pandemic *Puccinia psidii* genotypes.

A. L. ROSS-DAVIS (1), R. N. Graça (2), A. C. Alfenas (2), T. L. Peever (3), J. W. Hanna (1), J. Y. Uchida (4), R. D. Hauff (5), C. Y. Kadooka (4), M. S. Kim (6), P. G. Cannon (7), S. Namba (8), N. Minato (8), S. Simento (9), C. A. Perez (10), M. B. Rayamajhi (11), M. Morán (12), D. J. Lodge (13), M. Arguedas (14), R. Medel-Ortiz (15), M. A. López-Ramírez (15), P. Tennant (16), M. Glen (17), N. B. Klopfenstein (1). (1) USDA Forest Service, Rocky Mountain Research Station, Moscow, ID, U.S.A.; (2) Departamento de Fitopatologia, Universidade Federal de Viçosa, Viçosa, Brazil; (3) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (4) Department of Plant and Environmental Protection Sciences, College of Tropical Agriculture and Human Resources, University of Hawaii-Manoa, Honolulu, HI, U.S.A.; (5) Division of Forestry and Wildlife, DLNR, Honolulu, HI, U.S.A.; (6) Department of Forestry, Environment, and Systems, Kookmin University, Seoul, South Korea; (7) USDA Forest Service, Forest Health Protection, Vallejo, CA, U.S.A.; (8) Laboratory of Plant Pathology, Department of Agricultural and Environmental Biology, Graduate School of Agricultural and Life Sciences, Faculty of Agriculture, The University of Tokyo, Tokyo, Japan; (9) Programa Forestal, INIA Tacuarembó, Tacuarembó, Uruguay; (10) Fitopatología, EEMAC, Departamento de Protección Vegetal, Facultad de Agronomía, Universidad de la República, Paysandú, Uruguay; (11) USDA ARS, Invasive Plant Research Laboratory, Fort Lauderdale, FL, U.S.A.; (12) Desarrollos Madereros S.A., Hernandarias, Paraguay; (13) USDA Forest Service, Northern Research Station, Luquillo, Puerto Rico, U.S.A.; (14) Escuelade Ingeniería Forestal, Instituto Tecnológico de Costa Rica, Cartago, Costa Rica; (15) Universidad Veracruzana, Instituto de Investigaciones Forestales, Xalapa, Mexico; (16) The Biotechnology Centre, University of the West Indies, Kingston, Jamaica; (17) Tasmanian Institute of Agriculture, University of Tasmania, Hobart, Australia

438-P Foliar disease incidence associated with giant miscanthus (*Miscanthus x giganteus*) and switchgrass (*Panicum virgatum*) cultivars in Mississippi.

M. D. GILLEY (1), M. Tomaso-Peterson (1), T. W. Allen (1), B. S. Baldwin (1). (1) Mississippi State University, Mississippi State, MS, U.S.A.

439-P Building an index of pathogens of alder.

G. ADAMS (1), L. Winton (2). (1) University of Nebraska, Lincoln, NE, U.S.A.; (2) USDA Forest Service, Anchorage, AK, U.S.A.

440-P Histopathology of bronze leaf disease of *Populus*.

M. E. Ostry (1), J. J. JACOBS (2), M. J. Moore (1), N. A. Anderson (1). (1) USDA Forest Service, St. Paul, MN, U.S.A.; (2) USDA Forest Service, Forest Health, Albuquerque, NM, U.S.A.

441-P The origin of a new race of *Cronartium ribicola*, virulent on previously immune blackcurrant cultivars, and rapidly spreading in eastern North America.

P. Tanguay (1), M. J. Bergeron (1), C. Tsui (2), S. Brar (2), J. LAMARCHE (1), F. S. Chamberg (3), R. Harakava (4). (1) Natural Resources Canada/Canadian Forest Service, Quebec, QC, Canada; (2) University of British Columbia, Vancouver, BC, Canada

442-P A new aquatic cellulose-degrading chytrid in the Chytridiales.

M. J. POWELL (1), P. M. Letcher (1), W. H. Blackwell (1). (1) The University of Alabama, Tuscaloosa, AL, U.S.A.

443-P A new species of *Mucor* from a Cerrado reserve in Southeast Brazil.

J. I. DE SOUZA (1), A. V. Marano (1), C. L. A. Pires-Zottarelli (1), T. Y. James (2), F. S. Chamberg (3), R. Harakava (4). (1) Instituto de Botanica, Nucleo de Pesquisa em Micologia, Sao Paulo, Brazil; (2) University of Michigan, Department of Ecology and Evolutionary Biology, Ann Arbor, MI, U.S.A.; (3) Universidade de São Paulo, Escola de Artes, Ciências e Humanidades (EACH-USP), Sao Paulo, Brazil; (4) Instituto Biologico, Laboratorio de Bioquímica Fitopatologica, Sao Paulo, Brazil

444-P A new species of *Alternaria* from Korea.

S. H. YU (1). (1) Chungnam National University, Daejeon, South Korea

445-P Two new *Ophiodothella* species on two host genera of the Myrtaceae from the Brazilian Cerrado.

M. M. D. Santos (1), M. M. E. Boiteux (2), L. S. Boiteux (2), R. B. Medeiros (1), J. C. DIANESE (1). (1) Departamento de Fitopatologia, Universidade de Brasília, Brasília, Brazil; (2) EMBRAPA Hortaliças, Brasília, Brazil

446-P Molds isolated from New Jersey residential buildings damaged during Superstorm Sandy.

S. U. MORATH (1), S. Padhi (1), J. W. Bennett (1). (1) Rutgers, State University of New Jersey, New Brunswick, NJ, U.S.A.

447-P *Phytophthora nicotianae* as a re-emerging pathogen in Florida citrus groves.

R. S. DONAHO (1), J. F. Collins (1), P. D. Roberts (2). (1) University of Florida, Immokalee, FL, U.S.A.; (2) SWFREC, University of Florida, Immokalee, FL, U.S.A.

448-P *Pythium brassicum*: A novel host family-specific root pathogen.

M. STANGHELLINI (1), M. Mohammadi (1), J. Adaskaveg (1), H. Forster (1). (1) University of California, Riverside, CA, U.S.A.

449-P Pathogenicity of *Pythium* species affecting corn and soybean in Iowa at three temperatures using two assay methods.

R. L. MATTHIESEN (1), A. E. Robertson (1). (1) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.

450-P Susceptibility of garden phlox (*Phlox paniculata*) to *Phytophthora nicotianae*.

D. T. DRECHSLER (1), S. N. Jeffers (1). (1) Clemson University, Clemson, SC, U.S.A.

451-P WITHDRAWN

NEW AND EMERGING DISEASES – VIRUSES

452-P Prevalence of grapevine (*Vitis vinifera*) viruses in Georgia.

P. M. BRANNEN (1), C. M. Deom (1), M. Westmoreland (1), P. Collins (1), O. Alabi (2), N. Rayapati (2). (1) University of Georgia, Athens, GA, U.S.A.; (2) Washington State University, Prosser, WA, U.S.A.

453-P Virus outbreak in several Nova Scotia strawberry nurseries affects fruit growers in the United States.

R. R. MARTIN (1), N. A. Peres (2), A. J. Whidden (3). (1) USDA ARS, Corvallis, OR, U.S.A.; (2) University of Florida, Wimauma, FL, U.S.A.; (3) University of Florida, Hillsborough County Extension, Seffner, FL, U.S.A.

454-P Two distinct carlaviruses detected in elderberry.

K. E. Keller (1), A. L. Thomas (2), D. F. Quito-Avila (3), R. R. MARTIN (4). (1) USDA ARS, Horticultural Crops Research Laboratory, Corvallis,

OR, U.S.A.; (2) University of Missouri, Mt. Vernon, MO, U.S.A.; (3) Centro de Investigaciones Biotechnológicas del Ecuador (CIBE-ESPOL), Guayaquil, Ecuador; (4) USDA ARS, Corvallis, OR, U.S.A.

455-P A new *Raspberry bushy dwarf virus* isolate from Ecuador exhibits an aberrant genetic feature.

D. F. QUITO-AVILA (1), E. L. Peralta (1), M. A. Ibarra (1), R. A. Alvarez (1), R. R. Martin (2). (1) CIBE-ESPOL, Guayaquil, Ecuador; (2) USDA-ARS, Corvallis, OR, U.S.A.

456-P New marafivirus identified in yellow vein disease-affected blackberries.

Q. Lu (1), N. Abou Ghanem-Sabanadzovic (2), P. Ghimire (2), I. E. Tzanetakis (3), A. Lawrence (2), S. SABANADZOVIC (2). (1) Sericultural Research Institute, Chinese Academy of Agricultural Science, Zhenjiang, China; (2) Mississippi State University, Mississippi State, MS, U.S.A.; (3) University of Arkansas, Fayetteville, AR, U.S.A.

457-P Association of a DNA virus with grapevines affected by red blotch disease in northern California.

M. Al Rwahnih (1), A. Dave (2), M. M. Anderson (1), A. Rowhani (1), J. K. Uyemoto (2), M. R. SUDARSHANA (2). (1) University of California-Davis, Davis, CA, U.S.A.; (2) USDA ARS, Davis, CA, U.S.A.

458-P *Grapevine red blotch-associated virus* is widespread in California and U.S. vineyards.

M. R. SUDARSHANA (1), A. Gonzalez (1), A. Dave (1), A. Wei (2), R. Smith (3), M. M. Anderson (3), A. M. Walker (3). (1) USDA ARS, Davis, CA, U.S.A.; (2) Agri-Analysis LLC, West Sacramento, CA, U.S.A.; (3) University of California-Davis, Davis, CA, U.S.A.

459-P *Blueberry shock virus* (BShV) sampling efficiency and cold hardiness studies in blueberry.

A. C. SCHILDER (1), J. M. Gillett (1). (1) Michigan State University, East Lansing, MI, U.S.A.

460-P A bioinformatic pipeline for use in metagenomic virus discovery.

A. STOBBE (1), W. Schneider (2), U. Melcher (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) USDA ARS, Fort Detrick, MD, U.S.A.

461-P *Panicum mosaic virus*—A potential threat to biofuel switchgrass production.

C. L. STEWART (1), G. Y. Yuen (1), K. Vogel (2), J. D. Pyle (3), K. B. G. Scholthof (3). (1) University of Nebraska, Lincoln, NE, U.S.A.; (2) USDA ARS, Lincoln, NE, U.S.A.; (3) Texas A&M University, College Station, TX, U.S.A.

462-P Identification and characterization of a monopartite begomovirus infecting *Sida* spp. in Mali, West Africa.

A. J. CAMPBELL (1), T. Kon (2), T. Melgarejo (1), M. Noussourou (3), R. L. Gilbertson (1). (1) University of California-Davis, Davis, CA, U.S.A.; (2) Iwate University, Morioka, Iwate Prefecture, Japan; (3) Institut D'Economie Rurale, Bamako, Mali

463-P Emergence and impact of two tospoviruses in Florida.

C. G. Webster (1), G. Frantz (2), H. C. Mellinger (2), E. McAvoy (3), J. Funderburk (4), S. ADKINS (1). (1) USDA-ARS-USHRL, Fort Pierce, FL, U.S.A.; (2) Glades Crop Care, Inc., Jupiter, FL, U.S.A.; (3) University of Florida/IFAS Extension, LaBelle, FL, U.S.A.; (4) University of Florida, Quincy, FL, U.S.A.

464-P The first report of *Tomato apical stunt viroid* (TASVd) and *Potato spindle tuber viroid* (PSTVd) in tomatoes in Ghana.

O. BATUMAN (1), M. K. Osei (2), M. B. Mochiah (2), J. N. Lamptey (2), S. Miller (3), R. L. Gilbertson (1). (1) University of California-Davis, Davis, CA, U.S.A.; (2) CSIR-Crops Research Institute, Kumasi, Ghana; (3) The Ohio State University, Wooster, OH, U.S.A.

465-P A torradovirus complex in Sinaloa, Mexico.

A. G. MCRAE (1), A. M. Cochran (1), S. A. Trinh (1), R. Felix-Gastelum (2), G. Herrera-Rodriguez (2), N. Yu (1), Z. Xiong (1). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) Universidad de Occidente, Los Mochis, Sinaloa, Mexico

■ PLANT STRESS AND ABIOTIC DISORDERS

466-P WITHDRAWN

467-P Additional hosts for *Balansia epicblae* in tall fescue pastures.

C. W. BACON (1), D. M. Hinton (2). (1) USDA ARS, Athens, GA, U.S.A.; (2) USDA ARS, Russell Research Center, Athens, GA, U.S.A.

468-P Pathogenicity of *Phomopsis* and *Diaporthe* isolates from Minnesota and susceptibility of soybean varieties.

D. MALVICK (1). (1) University of Minnesota, St. Paul, MN, U.S.A.

469-P Isolation and characterization of rhizobacteria Jdm1 antagonist of root-knot nematodes.

L. WEI (1). (1) Jiangsu Academy of Agricultural Sciences, Nanjing, China

470-P Expression of *Pythium* root disease on common bean (*Phaseolus vulgaris*) affected by short period of waterlogging.

Y. LI (1), M. J. Barbetti (1), M. You (1), T. D. Colmer (1). (1) The University of Western Australia, Nedlands, Australia

471-P Interaction of future climate change scenarios of elevated tropospheric ozone and decreased rainfall amounts with loblolly pine decline.

J. CHIEPPA (1), L. G. Eckhardt (1), A. H. Chappelka (1). (1) Auburn University, Auburn, AL, U.S.A.

472-P Proteomic analysis reveals that the changes induced by RBSDV infection in rice are associated with an elevated accumulation of hydrogen peroxide.

Q. XU (1), Y. Zhou (1). (1) Jiangsu Academy of Agricultural Sciences, Nanjing, China

■ ANALYTICAL AND THEORETICAL PLANT PATHOLOGY

473-P Long-term survival and seed transmission of *Acidovorax citrulli* in citron melon (*Citrullus lanatus* var. *citroides*) seeds.

B. DUTTA (1), R. Gitaitis (1), D. Langston (1), H. Sanders (1), C. Booth (1), S. Smith (1), K. Parris (1). (1) University of Georgia, Tifton, GA, U.S.A.

474-P Local dispersal of *Puccinia striiformis* f.sp. *tritici* from single source lesions.

D. FARBER (1), L. Estep (1), K. Sackett (1), C. Mundt (1). (1) Oregon State University, Corvallis, OR, U.S.A.

475-P Spatial patterns of ergot in fields of Kentucky bluegrass and perennial ryegrass grown for seed in the Columbia Basin of Oregon and Washington.

J. K. S. DUNG (1), D. L. Walenta (2), S. C. Alderman (3), P. B. Hamm (1). (1) Oregon State University, Hermiston, OR, U.S.A.; (2) Oregon State University, La Grande, OR, U.S.A.; (3) USDA-ARS National Forage Seed Production Research Center, Corvallis, OR, U.S.A.

476-P Inoculum density of *Podosphaera aphanis*, infection efficiency, and apparent susceptibility of the upper and lower surfaces of strawberry leaves.

B. Asalf (1), A. STENSVAND (2), D. M. Gadoury (3), R. C. Seem (3), A. M. Tronsmo (1). (1) Norwegian University of Life Sciences (UMB), Aas, Norway; (2) Bioforsk, Aas, Norway; (3) Cornell University, Geneva, NY, U.S.A.

477-P Networks of stored grain diseases and pests: Strategies for sampling and mitigation.

J. F. HERNANDEZ NOPSA (1), C. M. Scoglio (2), G. Daglish (3), T. W. Phillips (4), S. Thomas (1), K. Garrett (1). (1) Department of Plant Pathology, Kansas State University, Manhattan, KS, U.S.A.; (2) Department of Electrical & Computer Engineering, Kansas State University, Manhattan, KS, U.S.A.; (3) Department of Agriculture, Fisheries and Forestry, Agri-Science Queensland, Brisbane, Queensland, Australia; (4) Department of Entomology, Kansas State University, Manhattan, KS, U.S.A.

478-P Estimating the effectiveness of management strategies to reduce seed degeneration in vegetatively-propagated crops: A theoretical framework.

S. THOMAS (1), J. Andrade-Piedra (2), M. C. Yepes (3), J. H. Nopsa (1), P. Kromann (2), J. Legg (4), J. Yuen (5), G. Forbes (6), K. Garrett (1). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) International Potato Center, Quito, Ecuador; (3) International Center for Tropical Agriculture, Cali, Colombia; (4) International Institute of Tropical Agriculture, Dar es Salaam, Tanzania; (5) Swedish University of Agricultural Sciences, Uppsala, Sweden; (6) International Potato Center, Beijing, China

■ CROPPING SYSTEMS – SUSTAINABILITY AND PATHOGEN-VECTOR INTERACTIONS

479-P Effect of winter rye and wheat used as cover crops to reduce *Pseudomonas syringae* disease incidence and severity in squash.

V. TOUSSAINT (1), M. Ciotola (1), M. Cadieux (1). (1) Agriculture and Agri-Food Canada, St-Jean-sur-Richelieu, QC, Canada

480-P Sources and availability of *Sphaeropsis pyriputrescens* inoculum in apple orchards.

C. L. XIAO (1), R. J. Boal (2). (1) USDA ARS, Parlier, CA, U.S.A.; (2) Washington State University, Wenatchee, WA, U.S.A.

481-P Effects of agricultural management practices on soil microbial communities and disease development in vegetable production.

T. WU (1), H. Milner (1), V. Parkunan (2), P. Ji (2). (1) Georgia Southern University, Statesboro, GA, U.S.A.; (2) University of Georgia, Tifton, GA, U.S.A.

482-P Aflatoxin B₁ contamination of groundnut *Arachis hypogaea* L. in eastern Zambia.

S. NJOROGE (1), F. Waliyar (2), M. Siambi (1), K. Kanenga (3), A. Seetha (1), E. Chilumpha (1), J. Maruwo (1), E. Monyo (4). (1) ICRISAT, Lilongwe, Malawi; (2) ICRISAT, Bamako, Mali; (3) Zambia Agriculture Research Institute, Chipata, Zambia; (4) ICRISAT, Nairobi, Kenya

483-P Salinity and wilt caused by *Ceratocystis fimbriata* impacts on growth of mango seedlings of different rootstock-graft combinations.

A. G. SOUZA (1), H. M. Murta (1), R. B. Fernandes (1), L. A. Maffia (1). (1) Universidade Federal de Vicosa, Vicosa, Brazil

484-P Salinity impacts on the intensity of wilt caused by *Ceratocystis fimbriata* on mango seedlings of different rootstock-graft combinations.

H. M. Murta (1), A. G. Souza (1), R. B. Fernandes (1), L. A. MAFFIA (1). (1) Universidade Federal de Vicosa, Vicosa, Brazil

485-P Effect of crop rotation on *Pythium* spp. population composition in Arkansas soybean fields.

K. E. URREA (1), J. C. Rupe (1), C. S. Rothrock (1), A. J. Steger (1), M. M. Anders (1), A. J. Rojas (2), M. I. Chilvers (2). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Michigan State University, East Lansing, MI, U.S.A.

486-P Effects of management systems on stem and leaf spot diseases in lowbush blueberry.

S. ANNIS (1), C. R. Slemmons (1). (1) University of Maine, Orono, ME, U.S.A.

487-P Effect of different drainage systems on soybean root rot.

G. HAN (1), L. Leandro (1), M. Helmers (2), D. Mueller (1). (1) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.; (2) Department of Agriculture and Biosystems Engineering, Iowa State University, Ames, IA, U.S.A.

488-P Significance of soil inoculum in the epidemiology of boxwood blight caused by *Calonectria pseudonaviculata*.

N. L. DART (1), C. Hong (2). (1) Virginia Department of Agriculture & Consumer Services, Richmond, VA, U.S.A.; (2) Virginia Tech Hampton Roads AREC, Virginia Beach, VA, U.S.A.

- 489-P Identification and temporal distribution of potential insect vectors of *Erwinia tracheiphila*, the causal agent of bacterial wilt of cucurbits.**
V. TOUSSAINT (1), M. Ciotola (1), M. Cadieux (1), G. Racette (1), M. O. Duceppe (1), B. Mimee (1). (1) Agriculture and Agri-Food Canada, Saint-Jean-sur-Richelieu, QC, Canada
- 490-P Lateral transfer of a phytopathogenic symbiont among native and exotic ambrosia beetles.**
R. PLOETZ (1), J. Ploetz (1), A. Campbell (2), D. Carrillo (1), R. Duncan (1). (1) University of Florida, Homestead, FL, U.S.A.; (2) University of Florida, Gainesville, FL, U.S.A.
- 491-P Fungi isolated from four ambrosia beetle species emerged from stressed black walnut.**
S. Reed (1), J. Juzwik (2), J. ENGLISH (1). (1) University of Missouri, Columbia, MO, U.S.A.; (2) U.S. Forest Service, St. Paul, MN, U.S.A.
- 492-P Effects of nitrogen fertilization on risks and impacts of wheat streak mosaic disease.**
Z. MILLER (1), M. Burrows (2), F. Menalled (1). (1) Montana State University, Department of Land Resources and Environmental Sciences, Bozeman, MT, U.S.A.; (2) Montana State University, Department of Plant Science and Plant Pathology, Bozeman, MT, U.S.A.
- 493-P Estimating susceptibility to *Wheat streak mosaic virus* infection in non-crop grasses.**
M. BURROWS (1), Z. Miller (2), F. Menalled (3). (1) Montana State University, Department of Plant Sciences and Plant Pathology, Bozeman, MT, U.S.A.; (2) Montana State University, Bozeman, MT, U.S.A.; (3) Montana State University, Department of Land Resources and Environmental Sciences, Bozeman, MT, U.S.A.
- 494-P Onion thrips (*Thrips tabaci*) and *Iris yellow spot virus* survival throughout Colorado winters.**
S. SZOSTEK (1), H. Schwartz (1). (1) Colorado State University, Fort Collins, CO, U.S.A.
- 495-P  Modeling control strategies for maize streak disease.**
R. A. CHOUDHURY (1), N. McRoberts (1). (1) University of California, Davis, CA, U.S.A.
- 496-P Multiplex PCR identification of high consequence *Bemisia tabaci* biotypes and *Trialeurodes vaporariorum*.**
S. ANDREASON (1), M. Arif (2), J. K. Brown (3), F. M. Ochoa-Corona (4), J. Fletcher (1), A. Wayadande (4). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) Washington State University, Pullman, WA, U.S.A.; (3) Plant Sciences, The University of Arizona, Tucson, AZ, U.S.A.; (4) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.
- 497-P Seasonal pattern of virus uptake by the grape mealybug in a leafroll-diseased vineyard.**
M. FUCHS (1), G. Loeb (1). (1) Cornell University, Geneva, NY, U.S.A.
- 498-P Plant growth promoting characteristics of *Bacillus* species associated with *Chenopodium quinoa*.**
A. TESTEN (1), P. Backman (1). (1) Pennsylvania State University, University Park, PA, U.S.A.
- PHYLLOPLANE AND RHIZOSPHERE ECOLOGY**
- 499-P  Oxytetracycline resistance in *Xanthomonas arboricola* pv. *pruni* (causal agent of bacterial spot of stone fruit).**
S. J. BARDSLEY (1), M. d. Jimenez-Gasco (1). (1) Pennsylvania State University, University Park, PA, U.S.A.
- 500-P Within-field spatial and temporal analysis of *Clavibacter michiganensis* subsp. *nebraskensis* and Goss's leaf blight of corn in Iowa.**
M. M. Diaz-Arias (1), S. Toperek (2), F. W. Nutter (2), A. ROBERTSON (2). (1) Monsanto, St. Louis, MO, U.S.A.; (2) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.
- 501-P Effect of rain and simulated rain events on deoxynivalenol levels in grain from winter wheat plants affected by *Fusarium* head blight.**
E. Milus (1), M. PUN (1), Y. Dong (2). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) University of Minnesota, St. Paul, MN, U.S.A.
- 502-P Pseudothecial and ascus densities of *Venturia inaequalis* in a warm and a cold winter region in the Western Cape, South Africa.**
S. G. VON DIEST (1), A. A. Rabie (1), W. E. MacHardy (2), C. L. Lennox (1). (1) Stellenbosch University, Stellenbosch, Republic of South Africa; (2) University of New Hampshire, Durham, NH, U.S.A.
- 503-P Phenology of infection on apple fruit by sooty blotch and flyspeck fungi in Iowa apple orchards.**
S. I. ISMAIL (1), J. C. Batzer (1), T. C. Harrington (1), M. L. Gleason (1). (1) Iowa State University, Ames, IA, U.S.A.
- 504-P Fungi in a drought: The diversity of thermophilic fungi in corn.**
K. P. SANDONA (1), T. Tobias (1), A. Porras-Alfaro (1). (1) Western Illinois University, Macomb, IL, U.S.A.
- 505-P Persistent effects of wildfire on foliar endophytes of *Quercus hypoleucoides* and *Juniperus deppeana* in southeastern Arizona.**
Y. L. HUANG (1), M. M. Devan (1), S. H. Furr (1), A. E. Arnold (1). (1) School of Plant Sciences, The University of Arizona, Tucson, AZ, U.S.A.
- 506-P Host affiliations and geographic distributions of fungal symbionts of aquatic plants.**
D. C. SANDBERG (1), L. J. Battista (1), A. E. Arnold (1). (1) University of Arizona, Tucson, AZ, U.S.A.
- 507-P Effects of rainfall on leaf endophyte communities associated with five grass species.**
E. WORCHEL (1), C. V. Hawkes (1). (1) The University of Texas-Austin, Austin, TX, U.S.A.
- 508-P Putting endophytic and epiphytic fungi into a meaningful phylogenetic context: A study of the vine *Smilax rotundifolia*.**
C. B. ZAMBELL (1). (1) Rutgers University, New Brunswick, NJ, U.S.A.
- 509-P WITHDRAWN
- 510-P Regulatory effect of soil matric water potentials on a unique tripartite (*Cucumis-Monosporascus-Olpidium*) host-specific rhizosphere interaction.**
M. STANGHELLINI (1), M. Mohammadi (1), J. Adaskaveg (1). (1) University of California, Riverside, CA, U.S.A.
- 511-P Soil microbes in organic vs. conventional vegetable production: Capturing the active players through soil RNA analysis.**
L. GOMEZ-MONTANO (1), A. Jumpponen (2), M. Kennelly (1), K. A. Garrett (1). (1) Department of Plant Pathology, Kansas State University, Manhattan, KS, U.S.A.; (2) Division of Biology, Kansas State University, Manhattan, KS, U.S.A.
- 512-P Fungi associated with diseased roots of strawberry runner plants after transplanting.**
J. C. MERTELY (1), M. Chamorro (2), D. Tompkins (3), J. A. Mertely (1), N. A. Peres (1). (1) University of Florida, GCREC, Wimauma, FL, U.S.A.; (2) University of Seville, Seville, Spain; (3) University of Florida, Gainesville, FL, U.S.A.
- 513-P Flooding duration affects severity of soybean sudden death syndrome.**
N. ABDELSAMAD (1), L. F. Leandro (1). (1) Iowa State University, Ames, IA, U.S.A.
- 514-P Living in the city: Arbuscular mycorrhizal fungi in Phoenix and the surrounding desert.**
J. C. STUTZ (1), H. L. Bateman (1). (1) Arizona State University, Mesa, AZ, U.S.A.
- 515-P WITHDRAWN

516-P What determines *Alnus*-associated ectomycorrhizal community diversity and specificity? A comparison of host and habitat effects.

M. Roy (1), J. Rochet (1), S. Manzi (1), P. Jargeat (1), H. Gryta (1), P. A. Moreau (2), G. MONIQUE (1). (1) University of Toulouse 3, Toulouse, France; (2) University of Lille 2, Lille, France

517-P An update on the biology of the pecan truffle (*Tuber lyonii*) in the southeastern USA.

M. E. SMITH (1), G. Bonito (2), J. Sharma (3), T. B. Brennehan (4), R. Healy (5). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Duke University, Durham, NC, U.S.A.; (3) Texas Tech University, Lubbock, TX, U.S.A.; (4) University of Georgia, Tifton, GA, U.S.A.; (5) University of Minnesota, St. Paul, MN, U.S.A.

518-P Spatial structure of ectomycorrhizal fungi within individual trees and across forest stands of the neotropical tree *Dicymbe corymbosa*.

M. E. SMITH (1), T. W. Henkel (2), M. C. Aime (3), G. C. Williams (4), G. Bonito (4), R. Vilgalys (4). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Humboldt State University, Arcata, CA, U.S.A.; (3) Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN, U.S.A.; (4) Duke University, Durham, NC, U.S.A.

519-P Composition, diversity, and resilience of fungal communities colonizing the roots of native and exotic hosts in an urban environment.

K. LOTHAMER (1), S. P. Brown (1), J. D. Mattox (2), A. Jumpponen (1). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) City of Manhattan, Manhattan, KS, U.S.A.

520-P Acid protease production by fungal root endophytes.

M. Mayerhofer (1), E. Fraser (1), G. KERNAGHAN (1). (1) Mount Saint Vincent University, Halifax, NS, Canada

521-P Changes in the apple rhizosphere microbiome associated with orchard system resilience conferred by *Brassicaceae* seed meal amendment.

M. MAZZOLA (1), S. L. Strauss (1). (1) USDA ARS, Wenatchee, WA, U.S.A.

522-P Metagenomic approaches for surveying forest soil microbial communities on permanent plots.

A. L. ROSS-DAVIS (1), J. E. Stewart (2), J. D. Shaw (3), M. S. Kim (4), N. B. Klopfenstein (1). (1) USDA Forest Service-RMRS, Moscow Forestry Sciences Laboratory, Moscow, ID, U.S.A.; (2) Department of Plant Pathology, University of Georgia, Athens, GA, U.S.A.; (3) USDA Forest Service-RMRS, Forest Inventory and Analysis, Ogden, UT, U.S.A.; (4) Department of Forestry, Environment, and Systems, Kookmin University, Seoul, South Korea

523-P Microbial communities associated with the suppression of tuber blight infection in soils from Chimborazo province, Ecuador.

C. I. DIAZ (1), K. Ponce (2), R. Oliva (3), C. Garzon (1), A. R. Koch (2), J. Gia (2), M. S. Benitez (4). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) Escuela Politécnica del Ejército, Sangolquí, Ecuador; (3) International Rice Research Institute, Los Baños, Philippines; (4) Duke University, Durham, NC, U.S.A.

POPULATION BIOLOGY GENETICS

524-P CRISPR systems in plant pathogens: A new tool for epidemiological surveillance.

K. Jeong (1), A. Munoz Bodnar (1), L. Poulin (1), N. Arias Rojas (1), L. M. Rodríguez-R. (1), L. Gagnevin (2), O. Pruvost (2), R. KOEBNIK (1). (1) Institut de Recherche pour le Développement, Montpellier, France; (2) Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Saint-Pierre - La Réunion, France

525-P Fluorescent *Pseudomonas* associated with cranberry (*Vaccinium macrocarpon* Ait.) roots and soils.

S. D. SOBY (1), S. R. Gadagkar (1), Z. J. Hummel (2), A. M. Holmberg (1), F. L. Caruso (3). (1) Department of Biomedical Sciences, College of Health Sciences, Midwestern University, Glendale, AZ, U.S.A.; (2) College of Dental Medicine-Illinois, Midwestern University, Downers Grove, IL, U.S.A.; (3) Cranberry Station, University of Massachusetts, East Wareham, MA, U.S.A.

526-P Reuse of spent mushroom compost for *Agaricus bisporus* production.

E. L. WARNSTROM (1). (1) Pennsylvania State University, State College, PA, U.S.A.

527-P Evaluation of *Fusarium graminearum* isolates from wheat roots for their ability to cause crown rot.

P. GAUTAM (1), S. Ali (1). (1) South Dakota State University, Brookings, SD, U.S.A.

528-P Characterization and quantification of *Fusarium* spp. on wheat roots from Nebraska farms.

B. LIU (1), H. H. Wei (2), W. Shen (2), H. Smith (2), R. Klein (2), R. Harveson (3). (1) University of Nebraska-Lincoln, North Platte, NE, U.S.A.; (2) West Central Research and Extension Center, University of Nebraska-Lincoln, North Platte, NE, U.S.A.; (3) Panhandle Research and Extension Center, Scottsbluff, NE, U.S.A.

529-P Morphological and molecular characterization of *Fusarium* isolates collected from date palm in Saudi Arabia.

M. H. EL-KOMY (1), A. A. Saleh (1), A. Arnthodi (1), Y. Y. Molan (1). (1) King Saud University, Riyadh, Saudi Arabia

530-P Diversity of *Rhizoctonia solani* associated with canola, wheat, and pea in Alberta, Manitoba, and Saskatchewan.

M. Parker (1), M. Melzer (1), G. Boland (1), K. BRODERS (2). (1) University of Guelph, Guelph, ON, Canada; (2) University of New Hampshire, Durham, NH, U.S.A.

531-P Soilborne pathogen and beneficial microbial populations were affected by herbicide treatment.

B. LIU (1), H. H. Wei (2), W. Shen (2), H. Smith (2), G. Kruger (1). (1) University of Nebraska-Lincoln, North Platte, NE, U.S.A.; (2) West Central Research and Extension Center, University of Nebraska-Lincoln, North Platte, NE, U.S.A.

532-P Temporal dynamic of *Aspergillus flavus* community structure in soils of fields treated with the atoxigenic biocontrol *A. flavus* AF36 in Arizona.

R. JAIME (1), P. J. Cotty (2). (1) School of Plant Sciences, University of Arizona, Tucson, AZ, U.S.A.; (2) USDA ARS, School of Plant Sciences, University of Arizona, Tucson, AZ, U.S.A.

533-P Assessing genetic diversity of *Anisogramma anomala* isolates found throughout North America.

M. F. MUEHLBAUER (1), J. M. Capik (1), J. A. Honig (1), G. Cai (1), B. Hillman (1), T. J. Molnar (1). (1) Rutgers The State University of New Jersey, New Brunswick, NJ, U.S.A.

534-P Molecular characterization of apple scab populations from the Eastern and Western Cape Provinces of South Africa.

T. A. KOOPMAN (1), J. C. Meitz-Hopkins (2), C. Bester (1), K. R. Tobutt (1), C. L. Lennox (2). (1) ARC Infruitec, Stellenbosch, Republic of South Africa; (2) University of Stellenbosch, Stellenbosch, Republic of South Africa

535-P Microbial and nematode communities in soils from Nebraska soybean farms.

B. LIU (1), H. H. Wei (2), W. Shen (2), H. Smith (2), O. Perez-Hernandez (3), L. Giesler (4). (1) University of Nebraska-Lincoln, North Platte, NE, U.S.A.; (2) West Central Research and Extension Center, University of Nebraska-Lincoln, North Platte, NE, U.S.A.; (3) Department of Plant Pathology, University of Nebraska-Lincoln, Lincoln, NE, U.S.A.; (4) Department of Plant Pathology, University of Nebraska-Lincoln, North Platte, NE, U.S.A.

536-P Where is *Phytophthora ramorum* now? An update on clonal populations in the U.S.

S. E. EVERHART (1), M. M. Larsen (2), N. J. Grunwald (2). (1) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.; (2) Horticultural Crops Research Laboratory, USDA ARS, Corvallis, OR, U.S.A.

537-P Assessing the genetic structure of *Phellinus noxius* and the dissemination pattern of brown root rot disease in Taiwan.

C. L. CHUNG (1), Y. C. Huang (1), S. S. Tzean (1), C. C. Yang (2), R. F. Liou (1). (1) Department of Plant Pathology and Microbiology, National Taiwan University, Taipei City, Taiwan; (2) Master Program for Plant Medicine, National Taiwan University, Taipei City, Taiwan

538-P Genetic variation of *Cochliobolus sativus* isolates collected from wheat, barley, and grasses.

Y. Leng (1), S. Ali (2), R. Wang (1), K. D. Puri (1), S. ZHONG (1). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) South Dakota State University, Brookings, SD, U.S.A.

539-P High genetic diversity in North American populations of *Phaeoemoniella chlamydospora*, causal agent of Petri disease and esca of grapevine.

R. TRAVADON (1), P. Rolshausen (2), W. D. Gubler (1), J. R. Úrbez-Torres (3), K. Baumgartner (4). (1) University of California, Davis, CA, U.S.A.; (2) University of California, Riverside, CA, U.S.A.; (3) Agriculture and Agri-Food Canada, Pacific Agri-Food Research Centre, Summerland, BC, Canada; (4) USDA ARS, Davis, CA, U.S.A.

540-P An atoxigenic vegetative compatibility group of *Aspergillus flavus* widely adapted to maize production in Africa and North America.

T. OGUNBAYO (1), K. Callicott (1), C. Probst (2), P. Cotty (1). (1) USDA ARS, Tucson, AZ, U.S.A.; (2) Washington State University, Richland, WA, U.S.A.

541-P Epidemiology and population diversity of fungicide resistant and sensitive strains of *Cercospora sojina*, the causal agent of frogeye leaf spot.

H. M. YOUNG KELLY (1), K. H. Lamour (2). (1) University of Tennessee, Jackson, TN, U.S.A.; (2) University of Tennessee, Knoxville, TN, U.S.A.

542-P Population biology of *Microcyclus ulei*, the causal agent of South American leaf blight of rubber trees in Latin America.

B. T. HORA JUNIOR (1), L. A. Maffia (1), E. S. G. Mizubuti (1). (1) Departamento de Fitopatologia, Universidade Federal de Viçosa, Viçosa, Brazil

543-P Influence of hosts with partial resistance on the genetic structure of the pathogen *Microcyclus ulei* in *Hevea* spp.

B. T. Hora Junior (1), L. A. Maffia (1), E. S. G. MIZUBUTI (1). (1) Departamento de Fitopatologia, Universidade Federal de Viçosa, Viçosa, Brazil

544-P Host generalism in fungal pathogen and endophytes of seedlings and forest community dynamics.

M. S. BENITEZ (1), M. H. Hersh (2), L. Becker (1), R. Vilgalys (1), J. S. Clark (1). (1) Duke University, Durham, NC, U.S.A.; (2) Eastern Michigan University, Ypsilanti, MI, U.S.A.

545-P Spring morel fruit body emergence is primarily conditioned by soil temperature.

J. MIHAIL (1). (1) University of Missouri, Columbia, MO, U.S.A.

546-P Determining the genetic structure within one population of the gasteromycete *Guyanagaster necrorhiza* in the Pakaraima Mountains of Guyana.

R. A. KOCH (1), M. C. Aime (1). (1) Purdue University, West Lafayette, IN, U.S.A.

547-P Biodiversity of the fungal community present in sweetpotato (*Ipomoea batatas* L. Lam.).

C. E. STOKES (1), R. A. Arancibia (1), R. E. Baird (1). (1) Mississippi State University, Mississippi State, MS, U.S.A.

548-P Fungi of the healthy human gut.


H. HALLEN-ADAMS (1), I. Martinez (1), J. Kim (1), R. Legge (1), M. Suhr (1). (1) University of Nebraska-Lincoln, Lincoln, NE, U.S.A.

549-P The *poppr* R package for genetic analysis of populations with mixed (clonal/sexual) reproduction.

Z. N. Kamvar (1), J. F. Tabima (1), N. GRUNWALD (2). (1) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.; (2) Horticultural Crops Research Laboratory, USDA ARS, Corvallis, OR, U.S.A.

550-P Differentiation of *Pseudoperonospora* species and subpopulations of *Pseudoperonospora cubensis* using microsatellite loci.

D. HADZIABDIC (1), D. Dean (1), P. Wadl (1), M. Cubeta (2), M. Windham (1), R. Trigiano (1). (1) University of Tennessee, Knoxville, TN, U.S.A.; (2) North Carolina State University, Raleigh, NC, U.S.A.

551-P  A new genetic clade of the pythiosis pathogen, *Pythium insidiosum*, revealed by environmental sampling in Florida.

E. M. GOSS (1), J. Presser (1). (1) University of Florida, Gainesville, FL, U.S.A.

RISK ASSESSMENT

552-P A comparison of culture and bioassay for detecting citrus canker.

C. H. BOCK (1), J. H. Graham (2), T. R. Gottwald (3). (1) USDA-ARS, SEFTNRL, Byron, GA, U.S.A.; (2) Citrus Research and Education Center, University of Florida, Lake Alfred, FL, U.S.A.; (3) USDA-ARS, USHRL, Fort Pierce, FL, U.S.A.

553-P WITHDRAWN

554-P Street-tree incidence and severity of bacterial leaf scorch of oak in the New Jersey urban forest.


A. GOULD (1), G. Hamilton (1), M. Vodak (1), J. Grabosky (1), J. Lashomb (1). (1) Rutgers University, New Brunswick, NJ, U.S.A.

555-P Early monitoring of stripe rust and leaf rust on wheat and their causal agents based on near infrared spectroscopy.

X. L. LI (1), H. G. Wang (1), Z. H. Ma (1). (1) China Agricultural University, Beijing, China

556-P Stripe rust epidemics of wheat and barley and races of *Puccinia striiformis* identified in the United States in 2012.

A. WAN (1), X. Chen (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA ARS, Pullman, WA, U.S.A.

557-P  Effect of levels of wheat residue on the severity of *Stagonospora nodorum* blotch in winter wheat.

L. MEHRA (1), C. Cowger (1), P. S. Ojiambo (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

558-P Yield losses in oats due to crown rust in Alabama.

K. L. BOWEN (1), A. K. Hagan (1). (1) Auburn University, Auburn, AL, U.S.A.

559-P Seasonal and daily patterns of *Magnaporthe oryzae* conidia availability in gray leaf spot-perennial ryegrass pathosystem.

Y. LI (1), W. Uddin (2), J. E. Kaminski (2), N. S. Dufault (3). (1) Pennsylvania State University, State College, PA, U.S.A.; (2) Pennsylvania State University, University Park, PA, U.S.A.; (3) University of Florida, Gainesville, FL, U.S.A.

560-P Epidemiological study on laurel wilt.

H. L. ER (1), M. Hughes (1), J. Smith (1), G. Pruett (2), J. Konkol (2), R. Ploetz (3), J. Marois (4), A. van Bruggen (1). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Tropical Research and Education Center, Homestead, FL, U.S.A.; (3) Tropical Research and Education Center, Gainesville, FL, U.S.A.; (4) North Florida Research and Education Center, Quincy, FL, U.S.A.

561-P The concentration of sporangia or zoospores of *Phytophthora ramorum* required for infection of host roots.

N. SHISHKOFF (1). (1) USDA ARS FDWSRU, Frederick, MD, U.S.A.

562-P Effect of plant age on downy mildew of basil.

J. S. PATEL (1), S. Zhang (2), Z. Mersha (3). (1) University of Florida, IFAS, Homestead, FL, U.S.A.; (2) University of Florida, Homestead, FL, U.S.A.; (3) Lincoln University in Missouri, Jefferson City, MO, U.S.A.

563-P Influence of environmental factors on aerial concentrations of *Pseudoperonospora cubensis* sporangia and cucumber downy mildew disease severity.

L. GRANKE (1), J. Morrice (1), M. VanOverbeke (1), G. Carnago (1), A. Pianosi (1), M. K. Hausbeck (1). (1) Michigan State University, East Lansing, MI, U.S.A.

564-P Three novel *Phytophthora* species from irrigation water in Mississippi.

X. YANG (1), W. E. Copes (2). (1) Virginia Tech, Virginia Beach, VA, U.S.A.; (2) USDA-ARS, Poplarville, MS, U.S.A.

565-P Logical areas of collection: A precision concept for management of *Rhizoctonia solani* AG1-IA.

T. N. SPURLOCK (1), C. S. Rothrock (1), W. S. Monfort (2). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Clemson University, Blackville, SC, U.S.A.

566-P Differential virulence of the pathogenic chytrid fungus (*Batrachochytrium dendrobatidis*) among panzootic, novel, and hybrid genotypes.

C. M. BETANCOURT-ROMÁN (1), T. S. Jenkinson (1), C. L. Searle (1), L. F. Toledo (2), J. E. Longcore (3), K. R. Zamudio (4), D. da Silva Leite (5), T. Y. James (1). (1) Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, MI, U.S.A.; (2) Museu de Zoologia "Prof. Adão José Cardoso," Instituto de Biologia, Universidade Estadual de Campinas, Campinas, Brazil; (3) School of Biology and Ecology, University of Maine, Orono, ME, U.S.A.; (4) Department of Ecology and Evolutionary Biology, Cornell University, Ithaca, NY, U.S.A.; (5) Departamento Genética, Evolução e Bioagentes, Instituto de Biologia, Universidade Estadual de Campinas, Campinas, Brazil

567-P Evaluating human exposure to aflatoxins: A case study on aflatoxin-albumin adduct levels in end stage liver disease patients in India.

A. SEETHA (1), F. Waliyar (2), H. K. Sudini (3), R. R. Digumarti (4). (1) ICRISAT, Lilongwe, Malawi; (2) ICRISAT, Bamako, Mali; (3) ICRISAT, Hyderabad, India; (4) NIMS, Hyderabad, India

568-P Human exposure to aflatoxin in mesquite pod flour produced for personal consumption, cottage industry, and commercial markets in southeastern Arizona.

N. P. GARBBER (1), J. Allen (2), P. J. Cotty (3). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) Aravaipa Heirlooms, Winkelman, AZ, U.S.A.; (3) USDA ARS, University of Arizona, Tucson, AZ, U.S.A.

SYSTEMATICS/EVOLUTION

569-P The genetic characterization and radiation of bacterial leaf scorch of oak in New Jersey.

G. BEHRINGER (1), D. Kobayashi (2). (1) Rutgers University, New Brunswick, NJ, U.S.A.; (2) Department of Plant Biology and Pathology, Rutgers University, New Brunswick, NJ, U.S.A.

570-P Reclassification of bacteria causing corky root of lettuce.


I. M. FRANCIS (1), M. Gillis (2), P. De Vos (2), A. H. C. van Bruggen (1). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Ghent University, Ghent, Belgium

571-P Multilocus sequence analysis of xanthomonads causing common bacterial blight disease of common bean.

M. L. O'LEARY (1), R. L. Gilbertson (1). (1) University of California-Davis, Davis, CA, U.S.A.

572-P Diversity and evolutionary relationships of bacteria affiliated with tropical seeds and seed-associated fungi.

K. GARCIA (1), J. P. Shaffer (1), C. Sarmiento (2), P. C. Zalamea (2), J. W. Dalling (3), A. Davis (4), D. A. Baltrus (1), R. E. Gallery (1), A. E. Arnold (1). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) Smithsonian Tropical Research Institute, Balboa, Ancón, Panama; (3) University of Illinois Urbana-Champaign, Urbana, IL, U.S.A.; (4) USDA ARS, Urbana, IL, U.S.A.

573-P  Preliminary studies of biogeography, genetic diversity and host range of the causal agents of beech bark disease (BBD) and related species.

C. SALGADO-SALAZAR (1), Y. Hirooka (2), A. Y. Rossman (3), W. Y. Zhuang (4), P. Chaverri (1). (1) University of Maryland. Department of Plant Science and Landscape Architecture, College Park, MD, U.S.A.; (2) Forestry & Forest Products Research Institute, Department of Forest Microbiology, Tsukuba, Japan; (3) USDA-ARS, Beltsville, MD, U.S.A.; (4) Key Laboratory of Systematic Mycology and Lichenology Laboratory, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China

574-P Phylogenetic relationships within *Phellinus sensu stricto* (Basidiomycota, Hymenochaetales) from northern North America.

N. J. BRAZEE (1). (1) University of Massachusetts, Amherst, MA, U.S.A.

575-P Two new species of *Diphymyces* (Fungi, Laboulbeniales) from Borneo.

D. HAELEWATERS (1), D. H. Pfister (1). (1) Harvard University, Cambridge, MA, U.S.A.

576-P Phylogenetic relationships and diversity of endohyphal bacteria of plant-associated *Pezizomycotina*.

J. P. SHAFER (1), R. E. Gallery (1), D. A. Baltrus (1), A. E. Arnold (1). (1) University of Arizona, Tucson, AZ, U.S.A.

577-P Critical reassessment of specificity in the evolutionary ecology of *Pterospora andromedea* and its *Rhizopogon* spp. mycobionts.

N. J. DOWIE (1), S. M. Trowbridge (1), L. C. Grubisha (2), M. R. Klooster (2), S. L. Miller (1). (1) University of Wyoming, Laramie, WY, U.S.A.; (2) Centre College, Danville, KY, U.S.A.

578-P The southern states of the United States as the part of a possible Caribbean center of fungal biodiversity.

L. VASILYEVA (1). (1) Institute of Biology & Soil Science, Vladivostok, Russia

579-P The tropical tree pathogen, *Rhizomorpha corynephora* (Agaricales, Marasmiaceae), is transported by birds in Belize.

D. J. LODGE (1), M. C. Aime (2), K. K. Nakasone (3). (1) USDA Forest Service, Luquillo, Puerto Rico, U.S.A.; (2) Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN, U.S.A.; (3) USDA Forest Service, Madison, WI, U.S.A.

580-P A multilocus database for the identification of *Aspergillus* and *Penicillium* species.

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581-P An inordinate fondness for *Fusarium*: Phylogenetic diversity of fusaria cultivated by *Euuallacea* ambrosia beetles on avocado and other plant hosts.

M. T. Kasson (1), K. O'Donnell (2), A. P. Rooney (3), S. Sink (2), R. C. Ploetz (4), J. N. Ploetz (4), J. L. Konkol (4), D. Carrillo (4), S. Freeman (5), Z. Mendel (5), J. A. Smith (6), A. W. Black (6), J. Hulcr (6), C. Bateman (6), K. Stefkova (6), P. R. Campbell (7), A. D. W. Geering (7), E. K. Dann (7), A. Eskalen (8), K. Mohotti (9), D. P. G. Short (10), T. Aoki (11), K. A. Fenstermacher (12), D. D. Davis (12), D. M. GEISER (12). (1) Department of Plant Pathology, Physiology, and Weed Science, Virginia Tech University, Blacksburg, VA, U.S.A.; (2) USDA ARS NCAUR, Bacterial Foodborne Pathogens and Mycology Unit, Peoria, IL, U.S.A.; (3) USDA ARS NCAUR, Crop Bioprotection Research Unit, Peoria, IL, U.S.A.; (4) University of Florida, IFAS Tropical Research & Education Center, Homestead, FL, U.S.A.; (5) Institute of Plant Protection, ARO, The Volcani Center, Bet Dagan, Israel; (6) School of Forest Resources and Conservation, University of Florida, Gainesville, FL, U.S.A.; (7) Queensland Department of Agriculture, Fisheries and Forestry & The Queensland Alliance for Agriculture and Food Innovation, The University of Queensland, Ecosciences Precinct, Dutton Park, Australia; (8) Department of Plant Pathology and Microbiology, University of California-Riverside, Riverside, CA, U.S.A.; (9) Entomology and Nematology Division, Tea Research Institute of Sri Lanka, Talawakele, Sri Lanka; (10) Department of Plant Pathology, University of California-Davis, Salinas, CA, U.S.A.; (11) National Institute of Agrobiological Sciences, Genetic Resources Center, Tsukuba, Japan; (12) Department of Plant Pathology and Environmental Microbiology, Pennsylvania State University, University Park, PA, U.S.A.

582-P The ADiv project: Analyzing rates of diversification in the Agaricales.

G. J. SZARKÁNDI (1), B. Dima (1), S. Kocsubé (1), C. Vágvölgyi (1), T. Papp (1), L. G. Nagy (2). (1) Department of Microbiology, University of Szeged, Szeged, Hungary; (2) Department of Microbiology, University of Szeged; Department of Biology, Clark University, Worcester, MA, U.S.A.

583-P Ectomycorrhizal fungi associated with *Dicymbe altsonii* trees and *Coccoloba lianas* at Mabura Ecological Reserve, Guyana.

J. K. UEHLING (1), T. W. Henkel (2), H. D. Clarke (3), M. C. Aime (4), R. Vilgalys (1), M. E. Smith (5). (1) Duke University, Durham, NC, U.S.A.; (2) Humboldt State University, Arcata, CA, U.S.A.; (3) University of North Carolina-Ashville, Ashville, NC, U.S.A.; (4) Purdue University, West Lafayette, IN, U.S.A.; (5) University of Florida, Gainesville, FL, U.S.A.

584-P The systematics of *Endoraecium* in Australia.

A. R. MCTAGGART (1), C. Doungsa-ard (1), A. Geering (2), M. C. Aime (3), R. G. Shivas (4). (1) University of Queensland, Brisbane, Australia; (2) Queensland Alliance for Agriculture and Food Innovation, Brisbane, Australia; (3) Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN, U.S.A.; (4) Department of Agriculture, Fisheries and Forestry, Brisbane, Australia

585-P Inoculation-based assessment of infection susceptibility to another smut disease (*Microbotryum* spp.) among wild species of the Montiaceae.

E. HEPPENHEIMER (1), E. Goldberger (1), M. Serpi (1), J. Mena-Ali (1). (1) Franklin & Marshall College, Lancaster, PA, U.S.A.

586-P WITHDRAWN**587-P Molecular phylogenetic diversity and distribution of *Mycodiplosis* larvae on Pucciniales.**

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588-P Thermophilic fungi across diverse latitudes and elevations in the western United States.

M. I. HUTCHINSON (1), K. Sauer (1), J. Herrera (2), A. Porras-Alfaro (3), K. Sandona (3), T. Tobias (3), A. J. Powell (4), D. O. Natvig (1). (1) University of New Mexico, Albuquerque, NM, U.S.A.; (2) Truman State University, Kirksville, MO, U.S.A.; (3) Western Illinois University, Macomb, IL, U.S.A.; (4) Sandia National Laboratories, Albuquerque, NM, U.S.A.

589-P Diversity of Blastocladiomycota and Chytridiomycota of the “Parque Estadual da Ilha do Cardoso” (PEIC), Cananéia, São Paulo State, Brazil.

G. H. Jerônimo (1), J. I. de Souza (1), T. Y. JAMES (2), A. V. Marano (1), A. L. Jesus (1), S. C. O. Rocha (1), F. H. Gleason (3), C. L. A. Pires-Zottarelli (1). (1) Instituto de Botânica, Núcleo de Pesquisa em Micologia, Sao Paulo, Brazil; (2) Department of Ecology and Evolutionary Biology, University of Michigan, Ann Arbor, MI, U.S.A.; (3) University of Sydney, Sydney, Australia

590-P Comparative analysis of 35 basidiomycete genomes.

R. RILEY (1), A. Salamov (1), Basidiomycota Consortium (2), R. Blanchette (3), D. Hibbett (4), I. Grigoriev (1). (1) U.S. DOE Joint Genome Institute, Walnut Creek, CA, U.S.A.; (2) international locations; (3) University of Minnesota, St. Paul, MN, U.S.A.; (4) Clark University, Worcester, MA, U.S.A.

591-P Phylogeny and species delimitation in the genus *Antrodia* (Polyporales, Basidiomycota).

B. ORTIZ-SANTANA (1), D. L. Lindner (1), O. Miettinen (2), A. Justo (3), D. S. Hibbett (4). (1) U.S. Forest Service, Northern Research Station, CFMR, Madison, WI, U.S.A.; (2) Botanical Museum, University of Helsinki, Helsinki, Finland; (3) Clark University, Worcester, MA, U.S.A.; (4) Biology Department, Clark University, Worcester, MA, U.S.A.

592-P Characterization of LSU and ITS rDNA for automated fungal classification.

A. PORRAS-ALFARO (1), T. Tobias (1), K. P. Sandona (1), K. L. Liu (2), G. Xie (3), C. Kuske (3). (1) Western Illinois University, Macomb, IL, U.S.A.; (2) National Cheng Kung University, Tainan, Taiwan; (3) Los Alamos National Laboratory, Los Alamos, NM, U.S.A.

593-P Diversity and community structure of marine ascomycetes from twelve coastal beaches of the western Gulf of Mexico.

P. VELEZ (1), M. C. González (1), E. Rosique-Gil (2), S. Capello-García (2), R. T. Hanlin (3). (1) Universidad Nacional Autónoma de México, Mexico City, Mexico; (2) Universidad Juárez Autónoma de Tabasco, Villahermosa, Mexico; (3) University of Georgia, Bogart, GA, U.S.A.

594-P Formulation development of nontoxigenic biocontrol strain of *Aspergillus flavus*: Wetting agent selection and physical property comparison.

X. JIN (1), H. K. Abbas (2), M. A. Weaver (2). (1) USDA ARS MSA, Stoneville, MS, U.S.A.; (2) USDA ARS MSA BCPRU, Stoneville, MS, U.S.A.

595-P Testing the use of ITS rDNA and protein-coding genes in the generic and species delimitation of the lichen genus *Usnea* (Lecanoromycetes, Ascomycota).

C. TRUONG (1), P. K. Divakar (2), R. Yahr (3), A. Crespo (2), P. Clerc (4). (1) Duke University, Durham, NC, U.S.A.; (2) Departamento de Biología Vegetal II, Facultad de Farmacia, Universidad Complutense, Madrid, Spain; (3) Royal

Botanic Garden-Edinburgh, Edinburgh, United Kingdom; (4) Conservatoire et Jardin Botaniques de la Ville de Geneve, Chambesy, Switzerland

596-P Resolving species boundaries in the lichen-forming *Peltigera canina* complex (Lecanoromycetes, Ascomycota).


C. TRUONG (1), J. Miadlikowska (1), M. Gajdeczka (1), E. Rivas-Plata (1), N. Magain (1), F. Lutzoni (1). (1) Duke University, Durham, NC, U.S.A.

597-P Relationships of Coleoptera and Oklahoma fungi.

J. Price (1), C. L. OVREBO (1), W. D. Lord (1), C. J. Koenigs (1). (1) University of Central Oklahoma, Edmond, OK, U.S.A.

598-P Assessment of soil nematode biodiversity in preserved soil samples nematodes.

F. Solano (1), J. Beacham (1), S. Thomas (1), Y. Steinberger (2), S. HANSON (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.; (2) Bar Ilan University Israel, Ramat Gan, Israel

BIOCHEMISTRY AND CELL BIOLOGY OF HOST RESISTANCE**599-P  QTL mapping of fruit rot resistance to the plant pathogen *Phytophthora capsici* L. in a recombinant inbred line *Capsicum annuum* L. population.**

R. NAEGELE (1), H. A. Ashrafi (2), T. Hill (2), S. Reyes Chin-Wo (2), A. Van Deynze (2), M. Hausbeck (1). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) University of California, Davis, CA, U.S.A.

600-P Uncovering salicylic acid-mediated defense network in two cultivated strawberries (*Fragaria x ananassa*).

J. Y. LIAO (1), N. C. Lin (2), H. H. Yeh (1), C. L. Chung (1). (1) Department of Plant Pathology and Microbiology, National Taiwan University, Taipei, Taiwan; (2) Department of Agricultural Chemistry, National Taiwan University, Taipei, Taiwan

601-P Alteration of the ergot alkaloid profile through chromosome end knockoff.

S. FLOREA (1), M. L. Farman (1), D. G. Panaccione (2), C. A. Young (3), C. L. Schardl (1). (1) University of Kentucky, Lexington, KY, U.S.A.; (2) West Virginia University, Morgantown, WV, U.S.A.; (3) Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

602-P In silico identification and characterization of NB-LRR-encoding resistance genes in the bioenergy plant switchgrass (*Panicum virgatum* L.).


T. FRAZIER (1), F. Xie (2), B. Zhang (2), B. Zhao (1). (1) Virginia Tech, Blacksburg, VA, U.S.A.; (2) East Carolina University, Greenville, NC, U.S.A.

603-P The peptide originated from a defense-related protein of *Lilium* has antimicrobial potential.

C. H. Lin (1), C. Y. CHEN (1). (1) National Taiwan University, Taipei, Taiwan Republic of China

604-P The potential roles of WRKY transcription factors in regulating maize defense responses against *Aspergillus flavus* infection.

J. C. Fountain (1), Y. Raruang (1), M. Luo (2), R. L. Brown (3), Z. Y. CHEN (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (2) Louisiana State University Health Sciences Center, New Orleans, LA, U.S.A.; (3) USDA ARS Southern Regional Research Center, New Orleans, LA, U.S.A.

605-P  Rice phenylalanine ammonia lyase 4 gene (*OsPAL4*) is associated with broad spectrum disease resistance.

P. M. Manosalva (1), B. W. TONNESSEN (2), J. M. Lang (2), M. Baraoidan (3), A. Bordeos (3), H. Leung (4), J. E. Leach (2). (1) Boyce Thompson Institute for Plant Research, Ithaca, NY, U.S.A.; (2) Colorado State University, Fort Collins, CO, U.S.A.; (3) International Rice Research Institute (IRRI), Metro Manila, Philippines; (4) International Rice Research Institute (IRRI), Los Baños, Philippines

606-P Characterization of *Arabidopsis* CRT1 in plant immunity and genome stability.

Y. BORDIYA (1), H. G. Mang (1), H. W. Choi (2), P. Manosalva (2), D. F. Klessig (2), H. G. Kang (1). (1) Texas State University, San Marcos, TX, U.S.A.; (2) Boyce Thompson Institute for Plant Research, Ithaca, NY, U.S.A.

607-P Comparative analysis of the disease resistance gene space of rosaceous species.

J. BRADEEN (1). (1) University of Minnesota, St. Paul, MN, U.S.A.

608-P Structure and function of the blue grama grass rhizosphere microbiome under global environmental change scenarios in an American aridland ecosystem.


A. J. POWELL (1), M. I. Hutchinson (2), D. O. Navtig (2), J. Redfern (2), S. L. Collins (2), J. Herrera (3), A. Porras-Alfaro (4). (1) Sandia National Laboratories, Albuquerque, NM, U.S.A.; (2) Department of Biology, University of New Mexico, Albuquerque, NM, U.S.A.; (3) Department of Biology, Truman State University, Kirksville, MO, U.S.A.; (4) Department of Biological Sciences, Western Illinois University, Macomb, IL, U.S.A.

609-P WITHDRAWN

BIOCHEMISTRY AND CELL BIOLOGY OF PATHOGENESIS

610-P Functional characterization of two toxin-antitoxin systems of *Xylella fastidiosa*.

M. W. Lee (1), C. C. Tan (1), E. E. Rogers (1), D. C. STENGER (1). (1) USDA-ARS, Parlier, CA, U.S.A.

611-P  Isolation of monoclonal scFv phage that bind to polygalacturonases produced by two bacterial pathogens of grapevines.

J. WARREN (1), B. Kirkpatrick (1). (1) University of California-Davis, Davis, CA, U.S.A.

612-P CsrA is a positive regulator of virulence factors in *Erwinia amylovora*.

V. ANCONA (1), Y. Zhao (1). (1) University of Illinois, Urbana, IL, U.S.A.

613-P Glancing at host adaptation in *Ralstonia solanacearum* through comparative genomics of highly host-adapted lineages.

F. AILLOUD (1), G. Cellier (2), D. Roche (3), C. Allen (4), P. Prior (5). (1) CIRAD, Saint-Pierre, France; (2) ANSES, Saint-Pierre, France; (3) Genoscope, Evry, France; (4) University of Wisconsin-Madison, Madison, WI, U.S.A.; (5) INRA, Saint-Pierre, France

614-P Twitching motility and a type VI secretion system contribute to virulence in P673, a cool virulent strain of *Ralstonia solanacearum*.

A. M. BOCSANCZY (1), D. J. Norman (1). (1) University of Florida, MREC, Apopka, FL, U.S.A.

615-P Genome sequencing and analysis of P673, a cool virulent strain of *Ralstonia solanacearum* can reveal virulence factors at low temperatures.

A. M. BOCSANCZY (1), J. C. Huguet-Tapia (2), D. J. Norman (3). (1) University of Florida, Apopka, FL, U.S.A.; (2) University of Florida, Gainesville, FL, U.S.A.; (3) University of Florida, MREC, Apopka, FL, U.S.A.

616-P Pan-genome analysis of *Xanthomonas citri* subsp. *citri* provides insights into bacterial evolution and pathogenicity.

N. JALAN (1), X. Deng (2), J. Jones (3), N. Wang (1). (1) University of Florida, Lake Alfred, FL, U.S.A.; (2) South China Agricultural University, Guangzhou, China; (3) University of Florida, Gainesville, FL, U.S.A.

617-P Draft genome sequence and partial annotation of *Xanthomonas arboricola* pv. *corylina*.

J. R. IBARRA CABALLERO (1), M. Zerillo (1), J. Snelling (1), C. Boucher (1), N. Tisserat (1). (1) Colorado State University, Fort Collins, CO, U.S.A.

618-P Transformation of *Liberibacter crescens* using two wide host range shuttle vectors.

M. JAIN (1), Y. Zhang (1), L. A. Fleites (1), D. W. Gabriel (1). (1) University of Florida, Gainesville, FL, U.S.A.

619-P RNA editing of *Didymium iridis* mitochondrial genes.

F. Marquez (1), M. Francis (1), M. SILLIKER (1). (1) Department of Biological Sciences, DePaul University, Chicago, IL, U.S.A.

620-P Xylanase production by *Lasiodiplodia theobromae* using two inducers.

L. R. VELAZQUEZ-LIANO (1), R. Hernandez-Martinez (1). (1) Department of Microbiology, Center for Scientific Research and Higher Education of Ensenada (CICESE), Ensenada, Baja California, Mexico

621-P An oxalate decarboxylase gene functions in the early infection processes of *Sclerotinia sclerotiorum*.

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622-P WITHDRAWN

623-P WITHDRAWN

624-P Association of single nucleotide polymorphism markers based on secreted protein genes of *Puccinia striiformis* f. sp. *tritici* to avirulence genes.

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625-P Characterization of hypothetical proteins in *Cercospora* resistance to the toxin cercosporin.

A. BESELI (1), M. E. Daub (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

626-P WITHDRAWN

627-P Sensing stomata: The circadian regulation of pathogenicity in *Cercospora zeaе-maydis*.

R. L. HIRSCH (1), Y. B. Ramegowda (1), B. H. Bluhm (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.

628-P Role of deoxynivalenol production by *Fusarium graminearum* in seedling infection of soybean, wheat, and maize.

T. BRUNS (1), G. Munkvold (1). (1) Iowa State University, Ames, IA, U.S.A.

629-P *Fusarium verticillioides* FvStr2, a putative fungal strigatin-interacting protein, participates in maize stalk rot virulence.

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630-P Identifying genes involved in asexual reproduction in *Fusarium graminearum* using the developmental mutant, 8B5.

J. B. RIDENOUR (1), A. Thompkins (2), S. Atkinson (2), M. Sexton (2), J. Smith (1), R. L. Hirsch (1), B. H. Bluhm (1), J. Flaherty (2). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Coker College, Hartsville, SC, U.S.A.

631-P Nitric oxide detoxification by *Fusarium verticillioides* involves flavohemoglobins and the denitrification pathway.

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632-P Interspecific hybrids between *Fusarium fujikuroi* and *Fusarium proliferatum*.

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633-P Specific discrimination of *Fusarium proliferatum* using inter-simple sequence repeats (ISSRs) and simple sequence repeats (SSRs).

I. MONCRIEF (1), C. Garzon (1), S. Marek (1), J. Stack (2), A. Gamliel (3), Y. Issac (4), H. Dehne (5), J. Fletcher (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) Kansas State University, Manhattan, KS, U.S.A.; (3) Agricultural Research Organization (ARO) Volcani Center, Bet Dagan, Israel; (4) Agricultural Research Organization (ARO) Volcani Center, Bet Dagan, Israel; (5) INRES, Institute of Crop Science and Resource Conservation, Bonn, Germany

634-P High density genotyping of *Sclerotinia sclerotiorum*.

R. S. BRUEGGEMAN (1), C. Qiu (1), B. D. Nelson (1). (1) North Dakota State University, Fargo, ND, U.S.A.

635-P Whole genome sequences and genome wide analysis of mutagenesis in grapevine canker pathogens.

W. ZHANG (1), M. Xue (1), A. Liu (1), M. Liu (1), X. Li (1), J. Yan (1). (1) Beijing Academy of Agriculture & Forestry Sciences, Beijing, China

636-P Genetic diversity of *Monilinia laxa* isolates from Hungary using PCR-based ISSR technique.

I. J. HOLB (1). (1) University of Debrecen, Debrecen, Hungary

637-P Analysis of a population of *Pyrenophora teres f. maculata* for virulence/avirulence factors using association mapping.

K. M. KINZER (1), R. S. Brueggeman (1). (1) North Dakota State University, Fargo, ND, U.S.A.

638-P *Sarcodon* in the neotropics—New species and the emerging circum-Caribbean distribution.

A. GRUPE (1), T. Henkel (1), T. Baroni (2), D. J. Lodge (3), M. Smith (4). (1) Humboldt State University, Arcata, CA, U.S.A.; (2) SUNY-Cortland, Cortland, NY, U.S.A.; (3) USDA Forest Service, Loquillo, Puerto Rico, U.S.A.; (4) University of Florida, Gainesville, FL, U.S.A.

639-P WITHDRAWN

640-P Comparative genomic analysis of phenotypically and genotypically diverse isolates of *Phytophthora ramorum*.

F. LICHTER (1), K. Blasioli (1), G. Gleeson (1), K. Coats (2), M. Elliot (2), C. Hammett (3), R. Hamelin (4), S. Shamoun (3), K. Broders (1). (1) University of New Hampshire, Durham, NH, U.S.A.; (2) Washington State University, Pullman, WA, U.S.A.; (3) Canadian Forest Service, Victoria, BC, Canada; (4) University of British Columbia, Vancouver, BC, Canada

641-P Using next-gen sequencing to identify genes in *Macrophomina phaseolina* involved in the biosynthesis of phaseolinone.

B. MUSUNGU (1), N. Azarmanesh (1), A. Srour (1), B. H. Bluhm (2), J. P. Bond (1), M. M. Geisler (1), A. M. Fakhoury (1). (1) Southern Illinois University-Carbondale, Carbondale, IL, U.S.A.; (2) University of Arkansas, Fayetteville, AR, U.S.A.

642-P Characterizing GATA factor control of nitrogen scavenging by the rice blast fungus *Magnaporthe oryzae* and its implications for hemibiotrophy.

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MOLECULAR ASPECTS OF EFFECTORS AND THEIR HOST TARGETS

643-P CHP-7, a putative serine protease effector from *Clavibacter michiganensis* subsp. *sepedonicus*, acts in the tobacco leaf apoplast.

Y. LU (1), C. A. Ishimaru (1), J. Glazebrook (1). (1) University of Minnesota, St. Paul, MN, U.S.A.

644-P Diverse TAL effectors converge on a single host susceptibility gene in citrus canker.

Y. HU (1), J. Zhang (2), H. Jia (3), F. F. White (2), N. Wang (3), B. Yang (4), J. B. Jones (5). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Kansas State University, Manhattan, KS, U.S.A.; (3) University of Florida, Lake Alfred, FL, U.S.A.; (4) Iowa State University, Ames, IA, U.S.A.; (5) Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.

645-P Impacts of temperature on expression of TAL effector-activated susceptibility genes in rice.

R. CORRAL (1), H. Liu (2), S. K. Srivastava (3), A. Pereira (3), V. Verdier (1), J. E. Leach (1). (1) Colorado State University, Fort Collins, CO, U.S.A.; (2) Chinese Academy of Agricultural Sciences, Beijing, China; (3) University of Arkansas, Fayetteville, AR, U.S.A.

646-P Deciphering specificities of TAL effectors in *Xanthomonas citri* and prospects in citrus.

D. SHANTHARAJ (1), J. Minsavage (1), R. E. Stall (1), T. Lahaye (2), A. Strauss (2), Y. Hu (1), D. Horvath (3), J. B. Jones (1). (1) Plant Pathology Department, University of Florida, Gainesville, FL, U.S.A.; (2) Department of Biology-Genetics, Ludwig Maximilian University of Munich, Munich, Germany; (3) Two Blades Foundation, Evanston, IL, U.S.A.

647-P A cyclophilin binding domain present in XopAG(AvrGf2) effector determines the elicitation of HR in grapefruit.

A. M. GOCHEZ (1), N. Potnis (2), N. Wang (3), J. B. Jones (2). (1) Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.; & Citrus Pathology, EEA INTA Bella Vista, Bella Vista, Corrientes, Argentina; (2) Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.; (3) Citrus Research and Education Center, Lake Alfred, FL, U.S.A.

648-P AvrRxo1 is a virulence factor that suppresses growth of eukaryotic and prokaryotic cells.

L. TRIPLETT (1), L. Deblais (1), R. Corral (1), E. Daniells (1), J. E. Leach (1). (1) Colorado State University, Fort Collins, CO, U.S.A.

649-P Characterization of host transcription in response to infection by the rice pathogen *Xanthomonas oryzae*.

T. MAHMOOD (1), G. Antony (1), F. F. White (1). (1) Kansas State University, Manhattan, KS, U.S.A.

650-P The co-evolutionary stepwise relationships between *AvrPik* and *Pik* alleles in the rice blast pathosystem.

W. Wu (1), L. Wang (1), S. Zhang (1), Z. Li (1), Y. Zhang (1), L. Wang (1), F. Lin (1), Q. PAN (1). (1) National Key Laboratory for Conservation and Utilization of Subtropical Agrobioresources, Rice Blast Research Center, South China Agricultural University, Guangzhou, China

651-P Functional analyses of effector proteins encoded by the *2A05* and *20E03* cyst nematode parasitism genes.

M. LEACH (1), N. Hamamouch (2), J. Chiera (1), C. Li (1), M. G. Mitchum (3), T. J. Baum (4), E. L. Davis (1). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) Longwood University, Farmville, VA, U.S.A.; (3) University of Missouri, Columbia, MO, U.S.A.; (4) Iowa State University, Ames, IA, U.S.A.

MOLECULAR PLANT-MICROBE INTERACTIONS – BACTERIA

652-P Control of the HrpL regulon by global regulatory systems in the gall-forming bacterium *Pantoea agglomerans* pv. *gypsophilae*.

L. Chalupowicz (1), M. Panijel (2), G. Sessa (2), S. Manulis-Sasson (1), I. BARASH (2). (1) ARO, The Volcani Center, Bet Dagan, Israel; (2) Tel Aviv University, Tel Aviv, Israel

653-P Global expression patterns of *Xanthomonas axonopodis* pv. *glycines* genes within soybean leaves determined with RNA-seq.

T. CHATNAPARAT (1), S. Prathuangwong (1), S. E. Lindow (2). (1) Department of Plant Pathology, Kasetsart University, Bangkok, Thailand; (2) Department of Plant and Microbial Biology, University of California-Berkeley, Berkeley, CA, U.S.A.

654-P Pathogenic and genetic variations among isolates of *Xanthomonas cucurbitae* from Illinois.

A. RAVANLOU (1), C. M. Wai (1), M. Babadoost (1). (1) University of Illinois, Urbana, IL, U.S.A.

655-P Functional characterization of virulence genes of ‘*Candidatus Liberibacter solanacearum*’, bacterium associated with potato zebra chip (ZC) disease.

M. RoyChowdhury (1), D. C. GROSS (2), H. Lin (3). (1) Department of Plant Pathology and Microbiology, Texas A&M University and USDA ARS, CDPG, San Joaquin Valley Agricultural Sciences Center, College Station, TX, U.S.A.; (2) Texas A&M University, College Station, TX, U.S.A.; (3) USDA ARS, CDPG, San Joaquin Valley Agricultural Sciences Center, Parlier, CA, U.S.A.

656-P Investigating the role of motility in *Salmonella enterica* root colonization.

L. HAO (1), J. Barak (1). (1) University of Wisconsin, Madison, WI, U.S.A.

657-P Dissecting the mechanism of avirulence factor AvrGf1 of *Xanthomonas citri* in inducing hypersensitive response (HR) on citrus.

X. ZHOU (1), J. B. Jones (2), N. Wang (1). (1) University of Florida, Lake Alfred, FL, U.S.A.; (2) University of Florida, Gainesville, FL, U.S.A.

658-P Genomic characterization of bacteriophages Cp1 and Cp2, the strain-typing agents for *Xanthomonas axonopodis* pv. *citri*.

M. Ogawa (1), T. Kawasaki (2), M. Fujie (2), T. Yamada (2), A. AHMAD (2). (1) Department of Molecular Biotechnology, Graduate School of Advanced Sciences of Matter, Hiroshima University, Higashihiroshima, Japan; (2) Department of Molecular Biotechnology, Graduate School of Advanced Sciences of Matter, Hiroshima University, Higashi-Hiroshima, Japan

659-P Identifying host targets for *Ralstonia solanacearum* type III effectors in *Solanum lycopersicon*.

A. KHAN (1), G. S. Ali (1), D. J. Norman (2). (1) University of Florida, Apopka, FL, U.S.A.; (2) University of Florida, MREC, Apopka, FL, U.S.A.

660-P Flg22 derived from *Xanthomonas citri* subsp. *citri* and ‘*Candidatus Liberibacter asiaticus*’ trigger similar defense responses in mandarin and grapefruit.

Q. Shi (1), V. FEBRES (1), A. Khalaf (1), G. Moore (1). (1) University of Florida, Gainesville, FL, U.S.A.

661-P Identifying novel bacterial disease resistance sources for rice.

A. M. BOSSA-CASTRO (1), C. Raghavan (2), C. Vera-Cruz (2), H. Leung (2), G. M. Mosquera (3), V. Verdier (4), J. E. Leach (1). (1) Colorado State University, Fort Collins, CO, U.S.A.; (2) International Rice Research Institute (IRRI), Los Baños, Philippines; (3) International Center for Tropical Agriculture (CIAT), Palmira, Colombia; (4) Institut de Recherche pour le Développement, Montpellier, France

662-P Lytic cycle genes of ‘*Ca. Liberibacter asiaticus*’ prophage were strongly induced in periwinkle but not citrus, even following heat treatment.

L. A. FLEITES (1), S. Zhang (2), D. W. Gabriel (1). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Integrated Plant Genetics, Inc., Alachua, FL, U.S.A.

663-P Construction and expression of roGFP in *Pantoea agglomerans* as a bioreporter for host surface redox potential in plant-microbe interactions.

T. H. LIU (1), M. A. Yaghmour (1), M. H. Lee (2), J. Leveau (1), R. M. Bostock (1). (1) University of California, Davis, CA, U.S.A.; (2) National Chung Hsing University, Taichung, Taiwan

664-P Characterization of *Xylella fastidiosa* popP gene required for pathogenicity.

X. SHI (1), L. Tian (1), H. Lin (2). (1) Department of Plant Science, University of California-Davis, Davis, CA, U.S.A.; (2) USDA-ARS, Parlier, CA, U.S.A.

MOLECULAR PLANT-MICROBE INTERACTIONS – FUNGI AND OOMYCETES

665-P Genome expression of soybean roots and leaves in response to *Fusarium virguliforme* toxins.

O. Radwan (1), L. LEANDRO (2), S. Covert (3). (1) Department of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign, Urbana, IL, U.S.A.; (2) Department of Plant Pathology and Microbiology, Iowa State University, Ames, IA, U.S.A.; (3) Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA, U.S.A.

666-P Real-time PCR assay for assessing the interaction of *Sphacelotheca reiliana* with maize seedlings.

S. ANDERSON (1), M. Beattie (1), T. Lubberstedt (1), G. P. Munkvold (1). (1) Iowa State University, Ames, IA, U.S.A.

667-P Maize lipoxygenase LOX2 regulates pathogenesis of mycotoxin-producing *Aspergillus flavus*.

P. C. HUANG (1), O. Franco (1), Y. Yan (1), N. P. Keller (2), M. V. Kolomiets (1). (1) Department of Plant Pathology and Microbiology, Texas A&M University, College Station, TX, U.S.A.; (2) Department of Medical Microbiology & Immunology, University of Wisconsin-Madison, Madison, WI, U.S.A.

668-P Molecular and genetic basis guiding the establishment of a mutualistic relationship between *Epichloë festucae* and perennial ryegrass.

S. BEC (1), J. Liu (2), C. Schardl (2). (1) University of Kentucky, Department of Plant Pathology, Lexington, KY, U.S.A.; (2) University of Kentucky, Lexington, KY, U.S.A.

669-P Characterization and targeted deletion of Bin1 in *Magnaporthe oryzae* and its effect on fungal development and plant infection process.

G. A. TEIXEIRA (1), E. Alves (1), M. d. R. Faria (1), S. I. Moreira (1), S. M. Mathioni (1), N. Donofrio (2). (1) Universidade Federal de Lavras, Lavras, Brazil; (2) University of Delaware, Newark, DE, U.S.A.

670-P Identification of Wscs and Mid2 as putative upstream sensors of the cell wall integrity signaling in *Magnaporthe oryzae*.

X. ZHANG (1), J. R. Xu (1). (1) Purdue University, West Lafayette, IN, U.S.A.

671-P The interactome of pathogenicity factors in the rice blast fungus *Magnaporthe oryzae*.

Y. LI (1), X. Zhou (1), K. B. Jayasundera (2), A. Iliuk (2), A. Tao (2), J. R. Xu (1). (1) Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN, U.S.A.; (2) Department of Biochemistry, Purdue University, West Lafayette, IN, U.S.A.

672-P Spatial assessment of oxidative and enzymatic reactions in brown rotted wood.

J. R. MENKE (1), J. S. Ryu (2), G. H. Presley (1), S. M. Duncan (1), J. A. Jurgens (1), R. A. Blanchette (1), T. R. Filley (3), K. E. Hammel (2), J. S. Schilling (1). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) University of Wisconsin-Madison, WI, U.S.A.; (3) Purdue University, West Lafayette, IN, U.S.A.

673-P Oxidized lipids control disease development during *Aspergillus* infection of maize.

E. J. BORREGO (1), M. A. Segoviano (1), R. Mushinski (1), N. P. Keller (2), M. V. Kolomiets (1). (1) Texas A&M University, College Station, TX, U.S.A.; (2) University of Wisconsin-Madison, Madison, WI, U.S.A.

674-P WITHDRAWN

675-P Functional analysis of conserved genes from rust fungi *Puccinia graminis* pv. *tritici*.

C. YIN (1), X. Chen (1), M. Pumphrey (1), L. Szabo (2), A. Kleinhofs (1), S. Hulbert (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) University of Minnesota, St. Paul, MN, U.S.A.

676-P Not all *Trichoderma* is created equal: Responses in plants to volatile organic compounds (VOCs) from different species and strains.

S. LEE (1), R. Hung (1), J. W. Bennett (1). (1) Rutgers, The State University of New Jersey, New Brunswick, NJ, U.S.A.

677-P Gut-inhabiting yeasts from the gut of Australian passalid beetles.

H. URBINA (1), J. Bartlett (2), A. McTaggart (2), R. Shivas (3), M. Blackwell (1). (1) Louisiana State University, Department of Biological Sciences, Baton Rouge, LA, U.S.A.; (2) Plant Biosecurity, Department of Agriculture, Fisheries and Forestry, Ecosciences Precinct, Dutton Park, Brisbane, Australia; (3) Plant Biosecurity, Department of Agriculture, Fisheries and Forestry, Ecosciences Precinct, Dutton Park, Brisbane, Australia

678-P *Neotyphodium* endophyte infections in a native grass, *Poa alsodes*, across latitudinal range.

T. SHYMANOVICH (1), S. H. Faeth (1), N. D. Charlton (2), C. A. Young (2). (1) University of North Carolina-Greensboro, Greensboro, NC, U.S.A.; (2) Noble Foundation, Ardmore, OK, U.S.A.

679-P Domestication of cereal grains: Effects on root-associated fungal communities.

D. BOKATI (1), R. Poudel (1), J. Herrera (1). (1) Truman State University, Kirksville, MO, U.S.A.

680-P Seed endophytes associated with dominant plants in the alpine tundra in Colorado.

T. TOBIAS (1), S. Hicks (2), R. Sinsabaug (2), K. Suding (3), A. Porras-Alfaro (4). (1) Western Illinois University, Augusta, IL, U.S.A.; (2) University of New Mexico, Albuquerque, NM, U.S.A.; (3) University of California Berkeley, Berkeley, CA, U.S.A.; (4) Western Illinois University, Macomb, IL, U.S.A.

681-P Records of *Entolomataceae* species with cuboid basidiospores from Brazil based on morphological and multi-locus phylogenetic analyses.

F. KARSTEDT (1), S. E. Bergemann (2), M. Capelari (1). (1) Instituto de Botânica, São Paulo, Brazil; (2) Middle Tennessee State University, Murfreesboro, TN, U.S.A.

682-P Cantharellaceae of the Guiana Shield: New species of *Craterellus*, and new distribution records for *Cantharellus guyanensis* and *Craterellus excelsus*.

T. HENKEL (1), A. Wilson (2), M. C. Aime (2), M. Roy (3), J. Uehling (4), G. Mueller (5). (1) Humboldt State University, Arcata, CA, U.S.A.; (2) Purdue University, West Lafayette, IN, U.S.A.; (3) Université Paul Sabatier, Toulouse, France; (4) Duke University, Durham, NC, U.S.A.; (5) Chicago Botanic Garden, Glencoe, IL, U.S.A.

683-P WITHDRAWN

684-P New swainsonine producing *Undifilum* species from the locoweed *Astragalus pubentissimus*.

D. BAUCOM (1), D. Cook (2), R. Creamer (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.; (2) USDA ARS, Logan, UT, U.S.A.

685-P WITHDRAWN

686-P Friend or foe: Defense response and growth regulation of *Zea mays* in response to *Phialocephala fortinii*.

J. TUTER (1), Z. Gossage (1), T. Tobias (1), S. Hum-Musser (1), R. Musser (1), A. Porras-Alfaro (1). (1) Western Illinois University, Macomb, IL, U.S.A.

687-P Variation in fungal soil community structure across substrate age and elevation gradients in native forests on Hawaii Island, USA.

S. M. VANDRUFF (1). (1) University of Hawaii-Hilo, Hilo, HI, U.S.A.

688-P WITHDRAWN

689-P Effects of root-knot nematode parasitism on host gene silencing.

E. WALSH (1), G. Pengue (1), V. Carballo (2), H. Marella (3), L. McIntyre (4), A. Morse (4), K. Koch (4), C. G. Taylor (1). (1) Ohio State University, OARDC, Wooster, OH, U.S.A.; (2) The Donald Danforth Plant Science Center, St. Louis, MO, U.S.A.; (3) Bridgewater State University, Bridgewater, MA, U.S.A.; (4) University of Florida, Gainesville, FL, U.S.A.

690-P Are polysaccharide lyase genes critical for the infection of soybeans by *Phytophthora sojae*?

H. Komar (1), M. OSPINA-GIRALDO (1). (1) Lafayette College, Easton, PA, U.S.A.

691-P The chitin synthase gene in oomycete genomes: Sequence and expression analyses.

M. Ospina-Giraldo (1), A. Maramba (1), J. Ewer (1), L. HINKEL (1). (1) Lafayette College, Easton, PA, U.S.A.

692-P Involvement of the Halliwell-Asada pathway in the photosynthesis shutdown during the potato and *Phytophthora infestans* compatible interaction.

M. Cárdenas (1), P. Jimenez (2), S. RESTREPO (1). (1) Universidad de los Andes, Bogota, Colombia; (2) Universidad Militar Nueva Granada, Bogota, Colombia

MOLECULAR PLANT-MICROBE INTERACTIONS – VIRUSES

693-P Evaluating the silencing suppressor activity of proteins encoded by *Maize rayado fino virus*.

R. W. Hammond (1), J. HAMMOND (2). (1) USDA ARS, Beltsville, MD, U.S.A.; (2) USDA ARS FNPRU, Beltsville, MD, U.S.A.

694-P Interactions between tospovirus proteins in mixed infections using bimolecular fluorescence complementation (BiFC).

D. TRIPATHI (1), M. Goodin (2), R. G. Dietzgen (3), H. Pappu (4). (1) Washington State University, Pullman, WA, U.S.A.; (2) Department of Plant Pathology, University of Kentucky, Lexington, KY, U.S.A.; (3) Queensland Agricultural Biotechnology Centre, The University of Queensland, St. Lucia, Australia; (4) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.

695-P Interactions between *Potato virus S* and *Potato virus Y* in different genetic backgrounds of potato.

H. PAPPU (1), K. Naveed (2). (1) Washington State University, Pullman,

WA, U.S.A.; (2) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.

696-P Molecular mechanisms of eIF4E-mediated resistance against potato viruses.

E. ARCIBAL (1), M. M. Jahn (1), A. M. Rakotondrafara (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

697-P Fine structure mapping of the silencing suppressor activity of a tospovirus (*Bunyaviridae*, *Tospovirus*).

H. PAPPU (1), Y. Zhai (1). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.

698-P *Citrus tristeza virus* seedling yellows symptom induction changes microRNA expression levels.

S. HARPER (1), W. O. Dawson (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

699-P Interaction between *Curtoivirus* capsid protein and GroEL-like protein produced by leafhopper endosymbiont.

R. Creamer (1), T. NUSAYR (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.

700-P A novel recombinant of *Bean common mosaic virus*.

X. FENG (1), A. Karasev (1). (1) University of Idaho, Moscow, ID, U.S.A.

701-P Cost to *Soybean mosaic virus* for gain of virulence on *Rsv1*-genotype soybeans.

B. Khatabi (1), R. H. Wen (1), M. HAJIMORAD (1). (1) University of Tennessee, Knoxville, TN, U.S.A.

702-P Cryptic viruses in the flora of the Great Smoky Mountains National Park.

S. SABANADZOVIC (1), N. Abou Ghanem-Sabanadzovic (1). (1) Mississippi State University, Mississippi State, MS, U.S.A.

703-P The coat protein of *Tobacco necrosis virus* acts elicits HR in *Nicotiana* species belonging to section *Alatae*.

M. FERREIDOUNI (1), A. Rodriguez (1), S. Valdes (1), C. Angel (1), J. Schoelz (1). (1) University of Missouri, Columbia, MO, U.S.A.

704-P Investigation of the role for CHUP1 and class XI myosins during infection of *Arabidopsis thaliana* by *Cauliflower mosaic virus*.

C. ANGEL (1), Y. Zhang (1), X. S. Ding (2), R. Nelson (2), J. Schoelz (1). (1) University of Missouri, Columbia, MO, U.S.A.; (2) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

705-P Survey for *Grapevine red blotch-associated virus* in the Foundation Plant Services vineyards at the University of California-Davis.

M. Al Rwahnih (1), V. Klaassen (1), C. Islas (1), K. Umeda (1), D. GOLINO (1), A. Rowhani (1). (1) University of California-Davis, Davis, CA, U.S.A.

PLANT DEFENSE RESPONSES

706-P A bacterial effector targets a non-canonical signaling pathway for suppressing *Arabidopsis* defenses.


A. GANGADHARAN (1), S. Mysore-Venkatara (2), J. Whitehill (3), J. H. Ham (4), D. Mackey (5). (1) Department of Molecular Genetics, The Ohio State University, Columbus, OH, U.S.A.; (2) University of Arkansas, Stuttgart, AR, U.S.A.; (3) University of British Columbia, Michael Smith Laboratories, Vancouver, BC, Canada; (4) Department of Plant Pathology and Crop Physiology, Louisiana State University, Baton Rouge, LA, U.S.A.; (5) Department of Horticulture and Crop Science, The Ohio State University, Columbus, OH, U.S.A.

707-P Wound response and ROS production in blue mold resistant wild apple germplasm from Kazakhstan and central Asia.

W. J. Janisiewicz (1), W. JURICK (2), B. Evans (3), K. A. Peter (4), G. Bauchan (5), C. T. Chao (6). (1) USDA-ARS, Kearneysville, WV, U.S.A.; (2) USDA-ARS, Food Quality Laboratory, Beltsville, MD, U.S.A.; (3) USDA-ARS, AFRS, Kearneysville, WV, U.S.A.; (4) Pennsylvania State University, Department of Plant Pathology and Environmental Microbiology, Biglerville, PA, U.S.A.; (5) USDA-ARS, Beltsville, MD, U.S.A.; (6) USDA-ARS, Geneva, NY, U.S.A.

708-P Increased resistance to leaf pathogens of a 9-lipoxygenase mutant is mediated by constitutive ISR-like signaling derived from roots.

N. CONSTANTINO (1), R. Damarwinasis (2), K. Feussner (3), C. Kenerley (2), I. Feussner (3), X. Gao (2), M. Kolomiets (2). (1) Texas A&M University, Bryan, TX, U.S.A.; (2) Texas A&M University, College Station, TX, U.S.A.; (3) Georg-August-University, Albrecht-von-Haller-Institute for Plant Science, Department of Plant Biochemistry, Göttingen, Germany

709-P  Expression of germin-like protein genes in response to *Sclerotinia homoeocarpa* infection.

R. RIOUX (1), D. K. Willis (2), A. Bent (1), J. Kerns (3). (1) University of Wisconsin-Madison, Department of Plant Pathology, Madison, WI, U.S.A.; (2) USDA ARS, Vegetable Crops Research Unit; and University of Wisconsin-Madison, Department of Plant Pathology, Madison, WI, U.S.A.; (3) North Carolina State University, Department of Plant Pathology, Raleigh, NC, U.S.A.

710-P Unraveling *Bacillus subtilis* induced tolerance to damping-off in cotton.

F. H. V. MEDEIROS (1), R. M. Souza (1), F. C. L. Medeiros (2), H. M. Zhang (3), T. Wheeler (4), P. Payton (5), H. M. Ferro (1), P. W. Pare (6). (1) Universidade Federal de Lavras, Lavras, Brazil; (2) Syngenta Proteção de Cultivos Ltda, Lavras, Brazil; (3) Purdue University, West Lafayette, IN, U.S.A.; (4) Texas AgriLife, Lubbock, TX, U.S.A.; (5) USDA, Lubbock, TX, U.S.A.; (6) Texas Tech University, Lubbock, TX, U.S.A.

711-P Enhance resistance against *Colletotrichum gloeosporioides* in strawberry by overexpressing the *Arabidopsis NPR1* gene.

K. J. P. SILVA (1), A. M. Brunings (1), N. A. Peres (1), K. M. Folta (1), Z. Mou (1). (1) University of Florida, Gainesville, FL, U.S.A.

712-P WITHDRAWN

713-P Quantification of reactive oxygen species in plants using the fluorimetric probe Amplex Red.

S. Chakraborty (1), A. L. Hill (1), S. Gautam (1), A. Ahmed (1), G. L. Wang (1), M. David (1), P. BONELLO (1). (1) Ohio State University, Columbus, OH, U.S.A.

714-P Metabolomic analysis of non-host pathogen induced resistance in chile pepper (*Capsicum annuum*).

R. STAMLER (1), B. Dungan (1), O. Holguin (1), S. Sanogo (1), N. Goldberg (1), T. Schaub (1), J. Randall (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.

715-P Can constitutive phenolic biomarkers be used to predict coast live oak resistance to *Phytophthora ramorum*?

A. O. CONRAD (1), B. McPherson (2), D. Wood (2), P. Bonello (1). (1) The Ohio State University, Columbus, OH, U.S.A.; (2) University of California-Berkeley, Berkeley, CA, U.S.A.

716-P WITHDRAWN

717-P Eicosapolyenoic fatty acids induce resistance in tomato to root and crown infection by *Phytophthora capsici*.

S. M. ROBERTS (1), M. F. Pye (1), K. Dehesh (1), R. M. Bostock (1). (1) University of California, Davis, CA, U.S.A.

718-P Investigation of biocontrol and plant response to reduce interactions of enteric pathogens on leafy greens.

S. M. MARKLAND (1), H. P. Bais (1), K. E. Kniel (1). (1) University of Delaware, Newark, DE, U.S.A.

OUTREACH AND TEACHING

719-P The Macrofungi Collection Consortium (MaCC) project: Unlocking a biodiversity resource for research and conservation.

B. THIERS (1), S. Bates (2), R. E. Halling (1). (1) The New York Botanical Garden, Bronx, NY, U.S.A.; (2) University of Colorado-Boulder, Boulder, CO, U.S.A.

720-P Increasing awareness of soybean cyst nematode in North Dakota.

L. K. OLSON (1), G. L. Tylka (2), J. Jordhal (3), S. Meyer (3), J. Goltz (4), J. Kringler (5), T. Helms (3), S. Markell (3). (1) North Dakota State University Extension Service, Grand Forks, ND, U.S.A.; (2) Iowa State University, Ames, IA, U.S.A.; (3) North Dakota State University, Fargo, ND, U.S.A.; (4) North Dakota State University Extension Service, Wahpeton, ND, U.S.A.; (5) North Dakota State University Extension Service, Fargo, ND, U.S.A.

721-P Uncertainty and agricultural decision making under climate change: When do decision support systems fail, become more important, or require updating?

J. F. HERNANDEZ NOPSA (1), G. M. Ramirez (1), B. Natarajan (2), V. P. V. Prasad (3), S. Thomas (1), M. E. Young (4), K. A. Garrett (1). (1) Department of Plant Pathology, Kansas State University, Manhattan, KS, U.S.A.; (2) Department of Electrical & Computer Engineering, Kansas State University, Manhattan, KS, U.S.A.; (3) Department of Agronomy, Kansas State University, Manhattan, KS, U.S.A.; (4) Department of Psychological Sciences, Kansas State University, Manhattan, KS, U.S.A.

722-P Corn disease risk perceptions from the 2009 Midwestern crop management survey.

D. A. Shah (1), P. D. ESKER (2), C. A. Bradley (3), A. E. Robertson (4), P. A. Paul (5). (1) Independent Consultant, Lewiston, NY, U.S.A.; (2) Universidad de Costa Rica, San José, Costa Rica; (3) University of Illinois, Urbana, IL, U.S.A.; (4) Iowa State University, Ames, IA, U.S.A.; (5) The Ohio State University, Wooster, OH, U.S.A.

723-P Protecting plant resources while facilitating trade in North America.

R. A. LEE (1). (1) North American Plant Protection Association, Ottawa, ON, Canada

724-P IPM Innovation Lab successful delivery of IPM technologies in the developing world: Capacity building through long- and short-term training.

A. FAYAD (1). (1) Office of International Research, Education, and Development (OIRE), Virginia Tech, Blacksburg, VA, U.S.A.

725-P Diagnostic outreach trainings in the Caribbean, and Central and South Americas.

A. Vitoreli (1), C. LAPAIRE HARMON (1). (1) University of Florida, Plant Diagnostic Center, Gainesville, FL, U.S.A.

726-P CSI in a tomato disease plot: Engaging 4-H youth and educators in STEM through investigative plant pathology.

J. Daniels (1), A. Stobbe (1), A. Espindola (1), W. Schneider (2), J. Sallee (1), T. Blagden (1), F. Ochoa Corona (1), C. Garzon (1), J. FLETCHER (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) USDA ARS, Fort Detrick, MD, U.S.A.

727-P Integrating foundational topics in an undergraduate biology curriculum.

C. WIESE (1). (1) Misericordia University, Dallas, PA, U.S.A.

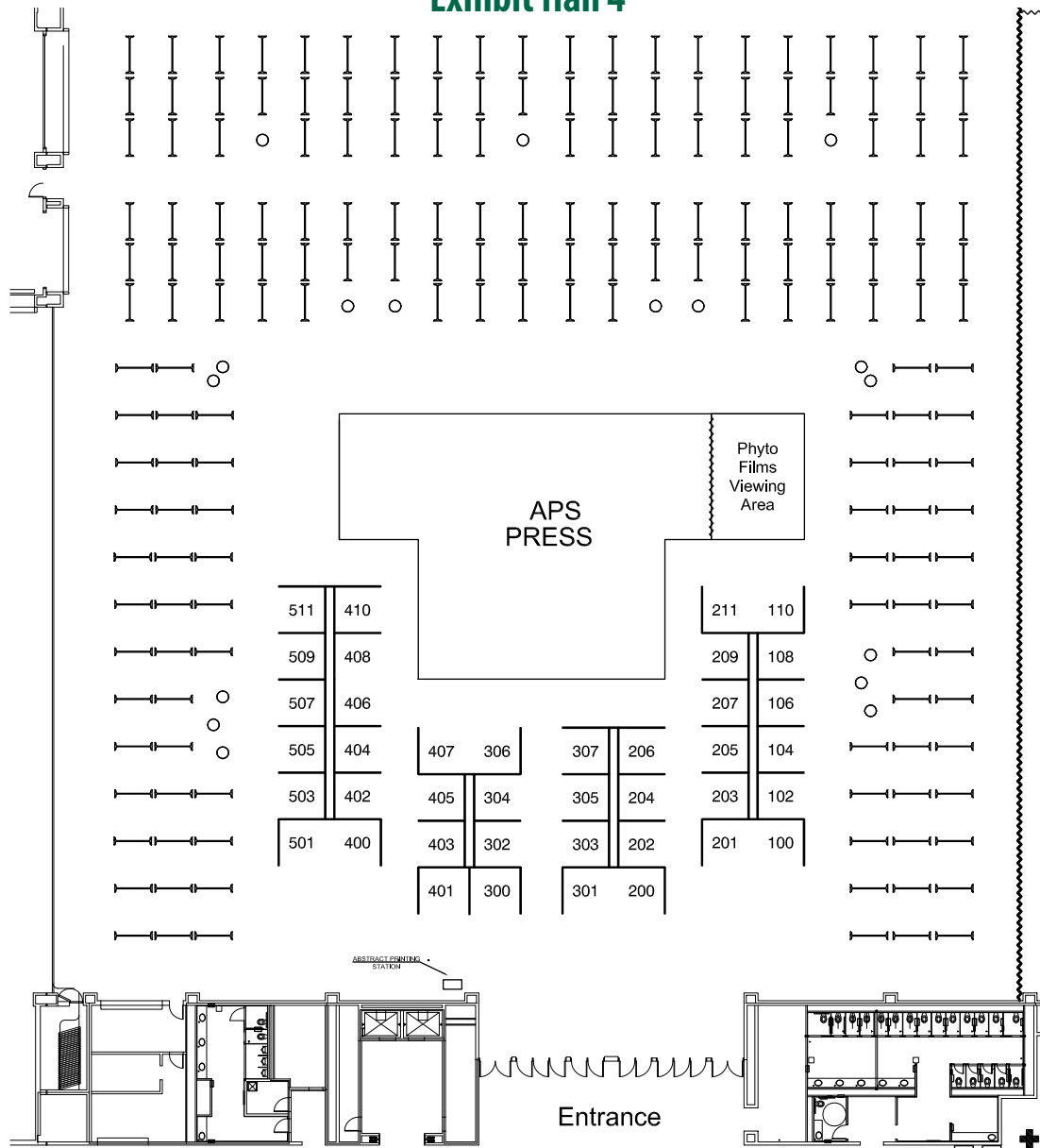
728-P A hands-on project to help students understand Koch's postulates.

S. LU (1). (1) Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS, U.S.A.

EXHIBIT HALL FLOOR PLAN

2013 APS-MSA Joint Meeting

Exhibit Hall 4



Exhibitor list in numerical order of assigned booth numbers.

100/201	DuPont Crop Protection	209	Gylling Data Management Inc.	404	Biopesticide Industry Alliance
102	AC Diagnostics Inc.	300	American Peat Technology LLC	405	MO BIO Laboratories, Inc.
104	2014 APS-CPS Joint Meeting	302	Campbell Scientific, Inc.	406/408	Springer
106	MANA	303	Dow AgroSciences LLC	407/306	Biotechnology Regulatory Services (BRS), APHIS, USDA
108	Conviron	304	APS Public Policy Board (PPB)	410	Natural Industries Inc.
110/211	PhytoTechnology Laboratories	305	APS Diagnostics Committee	503	Bayer CropScience
200/301	EnviroLogix Inc.	306/407	USDA APHIS PPQ	505	British Society for Plant Pathology
202	OptiGene Limited	307	BigC: Dino-Lite Scopes	507	APS Conversations with Council
203	University of Florida Doctor of Plant Medicine (DPM) Program	400/501	Agdia Inc.	509	Pro-Lab Diagnostics
204	Decagon Devices, Inc.	401	BIOREBA AG/Eurofins STA Laboratories Inc.	511	Spectrum Technologies Inc.
205	Romer Labs	402	APS Office of Public Relations and Outreach (OPRO)		
206	Percival Scientific Inc.	403	BioChambers Incorporated		
207	Norgen Biotek Corporation				

2013 APS—MSA JOINT MEETING EXHIBITORS

Representatives from leading industry suppliers will be at this year's joint meeting to answer questions and share information on products and services. Exhibitors are listed as of June 4, 2013. Visit www.apsnet.org/meet for updates. Floor plan can also be found on the mobile app. Exhibitor list in alphabetical order with descriptions.

- 102 AC Diagnostics Inc. *Sustaining Associate***
1131 W. Cato Springs Road, Fayetteville, AR 72701;
Phone: +1.479.595.0320 or +1.479.251.1960;
Fax: +1.479.251.1791; Web: www.ACDiaInc.com or
www.NanoDiaInc.com.
ACD Inc., a leading diagnostic company, provides high-quality diagnostic products with affordable rates. ACD Inc. offers ELISA reagents/kits for testing more than 300 plant pathogens and new product immunocapture PCR kits and also provides nano products, testing services, and contract research for customer requirements.
- 400/501 Agdia Inc. *Sustaining Associate***
30380 County Road 6, Elkhart, IN 46514; Phone:
+1.574.264.2615 or 1.800.622.4342;
Fax: +1.574.206.9360; E-mail: info@agdia.com; Web:
www.agdia.com.
For more than 30 years, Agdia Inc. has provided the agricultural industry with testing solutions to assist in the diagnosis and management of disease-causing plant pathogens. Agdia offers the most comprehensive line of testing options in the industry, including ELISA, ImmunoStrip on-site test kits, molecular diagnostics, and a full-service testing services laboratory. Today, Agdia remains committed to providing industry-leading products and services so that all sizes of growing operations, worldwide, can be more confident at growing healthy and profitable crops. The Agdia team looks forward to meeting with you at our booth to learn more about your diagnostic needs. We are also always available to meet with you outside exhibit hours.
- 300 American Peat Technology LLC *Sustaining Associate***
1132 Airpark Drive, Aitkin, MN 56431;
Phone: +1.218.927.7888 or +1.218.831.3893; Fax:
+1.218.927.3272; Web: www.AmericanPeatTech.com.
American Peat Technology (APT) is a leader in the manufacturing of microbial carriers using reed sedge peat. APT is a leading supplier of media for the rhizobia/soybean inoculant industry. Product is available in granular and powdered forms, has superior shelf life, and has proven to be an excellent microbe carrier.
- 104 2014 APS-CPS Joint Meeting**
APS: 3340 Pilot Knob Road, St. Paul, MN 55121;
Phone: +1.651.454.7250; Fax: +1.651.454.0766;
Web: www.apsnet.org.
Be sure to stop by our booth to see what APS and the Canadian Phytopathological Society (CPS) have planned for you at the 2014 joint meeting in Minneapolis, Minnesota, U.S.A.! It will be APS's fourth meeting in Minneapolis, the city of lakes, and we can't think of a better location to showcase the latest research and innovations in plant pathology. Stop by, say hi, and get ready for another exceptional meeting!
- 507 APS Conversations with Council**
- 305 APS Diagnostics Committee**
3340 Pilot Knob Road, St. Paul, MN 55121;
Phone: +1.651.454.7250; Fax: +1.651.454.0766;
Web: www.apsnet.org.
The mission of the APS Diagnostics Committee is to encourage networking and discussion among our members, to facilitate learning related to diagnostics, and to increase visibility of diagnostics within the profession of plant pathology and APS. Stop by our booth and test your plant disease knowledge with Diagnostics Jeopardy.
- 402 APS Office of Public Relations and Outreach (OPRO)**
3340 Pilot Knob Road, St. Paul, MN 55121;
Phone: +1.651.454.7250; Fax: +1.651.454.0766;
Web: www.apsnet.org/members/outreach/opro.
OPRO's mission is to demonstrate the value of plant pathology to society and provide resources for members to use in outreach efforts. Find out how you can share the plant pathology message; stop by the OPRO booth at the annual meeting.
- 304 APS Public Policy Board (PPB)**
3340 Pilot Knob Road, St. Paul, MN 55121;
Phone: +1.651.454.7250; Fax: +1.651.454.0766;
Web: www.apsnet.org/members/outreach/ppb.
PPB provides scientific input on public policy issues to policy makers and agency personnel; advocates for increased funding for agricultural research, extension, and education; and works with other scientific organizations and coalitions to increase the awareness of the science of plant pathology. Stop by the PPB booth to "Become Engaged" and discover how easy it is to bring awareness to your members of Congress about the importance of maintaining funding for plant pathology-related programs.
- 503 Bayer CropScience *Sustaining Associate***
2 T. W. Alexander Drive, Research Triangle Park, NC 27709; Phone: +1.919.549.2000;
Web: www.bayercropscienceus.com.
Bayer CropScience is one of the world's leading innovative crop science companies in the areas of crop protection, seeds, and plant biotechnology. Bayer CropScience offers an outstanding range of products and support for modern sustainable agriculture. Crop protection products to be highlighted include Stratego YLD, Luna brands, Proline, and ProSaro.
- 307 BigC: Dino-Lite Scopes**
20655 S. Western Avenue, Suite 116, Torrance, CA 90501; Phone: 1.888.668.2442; Fax: +1.877.978.2787;
Web: www.bigc.com.
We offer the Dino-Lite portable digital microscope that provides high-quality microscopy video interfacing to PC and MAC with clear and steady imaging and 10X–200X magnification. The included software "DinoCapture" makes it easy and convenient to take snapshots, record videos, manipulate images, and save and e-mail discoveries. A single lens device with diverse applications.

- 403 BioChambers Incorporated *Sustaining Associate***
477 Jarvis Avenue, Winnipeg, MB R2W 3A8, Canada;
Phone: +1.204.589.8900; Fax: +1.204.582.1024; E-mail:
info@biochambers.com; Web: www.biochambers.com.
BioChambers manufactures a wide range of products that
range in size from reach-in plant growth chambers that
provide a growth area as little as 8 ft² to walk-in rooms
that provide a growth area exceeding 400 ft². Together
with lighting and temperature control, we create environ-
ments ideal for your research needs. Please stop by our
booth and pick up our latest information.
- 404 Biopesticide Industry Alliance**
P.O. Box 465, McFarland, WI 53558;
Phone: +1.202.536.4602 or +1.608.268.7040;
Fax: +1.608.268.7040;
E-mail: bstoneman@biopesticideindustryalliance.org.
Biopesticides are used to control pests, pathogens, and
weeds by a variety of means. The Biopesticide Industry
Alliance (BPIA) advocates for the use of biopesticides
through increased awareness about their effectiveness and
full range of benefits to a progressive pest management
program.
- 401 BIOREBA AG/Eurofins STA Laboratories Inc.**
Sustaining Associate
1821 Vista View Drive, Longmont, CO 80504;
Phone: +1.303.651.6417 or +1.408.846.9964;
Fax: +1.303.772.4003; E-mail: bioreba@eurofinsus.com;
Web: www.eurofinsus.com/stalabs/products-services-
bioreba-ag.html.
Eurofins STA Laboratories and BIOREBA AG are
partners in providing agrobiagnostic products and services
for results you can trust. Eurofins STA Laboratories, a
leading independent diagnostic laboratory, is the exclusive
distributor of BIOREBA products in the United States.
Eurofins STA offers effective seed quality, plant pathogen
diagnosis, and disease eradication services for agricultural
industries. BIOREBA's R&D laboratory develops and
produces reagents and complete ready-to-use kits for the
detection of plant pathogens.
- 306/407 Biotechnology Regulatory Services (BRS),
APHIS, USDA**
4700 River Road, Unit 98, Riverdale, MD 20737;
Phone: +1.301.851.3941; Fax +1.301.734.8669;
E-mail: biotechquery@aphis.usda.gov;
Web: www.aphis.usda.gov/biotechnology/brs_main.shtml.
Biotechnology Regulatory Services (BRS) of the USDA's
Animal & Plant Health Inspection Service protects
and enhances U.S. agricultural and natural resources
using a dynamic, science-based regulatory framework
to ensure the safe importation, interstate movement,
and environmental release of organisms derived through
biotechnology.
- 505 British Society for Plant Pathology (The)**
c/o Society of Biology, Charles Darwin House, 12 Roger
Street, London WC1N 2JU, United Kingdom;
Phone: +44 1603 450286; E-mail: publicity@bspp.org.uk;
Web: www.bspp.org.uk.
The British Society for Plant Pathology supports the
professional interests of plant pathologists worldwide.
We publish articles in the high-quality journals *Molecular
Plant Pathology* and *Plant Pathology* (no page charges,
except color). Members can apply for travel awards, short-
term visiting fellowships, summer student funds, and
conference support and funds to promote plant pathology
to the public.
- 302 Campbell Scientific, Inc.**
815 West 1800 North, Logan, UT 84321-1784;
Phone: +1.435.227.9000; Fax: +1.435.227.9001;
E-mail: info@campbellsci.com; Web: www.campbellsci.com.
Campbell Scientific manufactures reliable, stand-alone
measurement and control systems for a variety of
environmental applications. Our systems directly measure
most commercially available sensors and feature low
power usage and powerful on-board instruction sets. Our
instrumentation is known for its flexibility, precision
measurements, and dependability—even in harsh, remote
environments.
- 108 Conviron *Sustaining Associate***
590 Berry Street, Winnipeg, MB R3H 0R9, Canada;
Phone: +1.204.786.6451; Fax: +1.204.786.7736;
E-mail: info@conviron.com; Web: www.conviron.com.
Conviron is a global supplier of controlled environment
systems for plant science research. We offer an extensive
product portfolio of single and multitier chambers and
rooms as well as research greenhouses, much of which
is customized to a client's specific requirements. To
help ensure project success, we also offer specialized
services from early-stage engineering and design through
installation, project commissioning, and on-going
maintenance and support.
- 204 Decagon Devices, Inc.**
2365 NE Hopkins Court, Pullman, WA 99163;
Phone: 1.800.755.2751 or +1.509.332.2756; E-mail:
sales@decagon.com; Website: www.decagon.com.
Decagon Devices, Inc. is the world leader in research-
grade environmental instrumentation with applications
in agriculture, forestry, and soil science. Whether you're
looking to measure plant canopy characteristics or soil-
water interactions, we have the instrument for you. Stop
by our booth to see our new products.
- 303 Dow AgroSciences LLC *Sustaining Associate***
9330 Zionsville Road, Indianapolis, IN 46268-1054;
Phone: +1.317.337.1000; Web: www.dowagro.com.
Dow AgroSciences combines the power of science and
technology with the "human element" to discover and
develop agricultural solutions for a more sustainable
world. We are committed to increase crop productivity
through higher yields, better varieties, and targeted pest
management by developing innovative chemical and
biotechnology solutions to meet the food, feed, and fiber
needs of the world.

- 100/201 DuPont Crop Protection *Sustaining Associate***
P.O. Box 30, Newark, DE 19714; Phone: +1.302.366.5704;
Web: www2.dupont.com/Agriculture/en_US.
DuPont's mission in agriculture is to deliver global nutrition through higher, better-quality crop yields and healthier foods, while developing solutions to help meet the world's energy needs. To help meet these goals, DuPont Crop Protection continues to develop and bring to the market new fungicides, such as penthiopyrad, proquinazid, and picoxystrobin.
- 200/301 EnviroLogix Inc. *Sustaining Associate***
500 Riverside Industrial Parkway, Portland, ME 04103;
Phone: 1.866.408.4597; Fax: +1.207.797.7533;
E-mail: info@envirologix.com; Web: www.envirologix.com.
EnviroLogix Inc. develops immunoassay (ELISA) and DNA-based (DNable) test kits for the detection of multiple plant pathogens and GMO events. Product lines also include mycotoxin and toxin test kits. EnviroLogix specializes in custom assay development using ELISA and DNable technologies, leading the horticultural market in cutting-edge rapid diagnostic development.
- 209 Gylling Data Management Inc. *Sustaining Associate***
405 Martin Boulevard, Brookings, SD 57006;
Phone: +1.605.693.4150; Web: www.gdmdata.com.
Research management software since 1982. Our new ARM Tablet Data Collector makes short work of entering assessments, taking plot pictures, and recording GPS locations. Use ARM to establish, manage, analyze, and report information for crop experiments, including field and greenhouse protocols and trials. ST analyzes and reports a trial series; it also links with ARM Trial Database.
- 106 MANA *Sustaining Associate***
3120 Highwoods Blvd., Suite 100, Raleigh, NC 27604;
Phone: +1.919.256.9300; Fax: +1.919.256.9308; Web: www.manainc.com.
MANA offers the most comprehensive and diversified product portfolio in the crop protection industry, with more than 60 formulations of insecticides, nematicides, fungicides, herbicides, plant growth regulators, and harvest aids. As the North American arm of the world's seventh largest agrochemical company, MANA provides best-in-class formulations, regulatory capabilities, field research, and a science-based approach to defend and maintain vital active ingredients
- 405 MO BIO Laboratories, Inc.**
2746 Loker Avenue, Carlsbad, CA 92010;
Phone: +1.760.929.9911 or 1.800.606.6246; Fax: +1.760.929.0109; E-mail: customercare@mobio.com;
Web: www.mobio.com.
MO BIO Laboratories, Inc. is a global leader in solutions for nucleic acid purification, offering innovative tools for research in plant biology. Our patented Inhibitor Removal Technology ensures isolation of high-quality, inhibitor-free nucleic acids from even the toughest plant samples, removing phenolics, polysaccharides, and other PCR-inhibiting substances.
- 410 Natural Industries Inc. *Sustaining Associate***
6223 Theall Road, Houston, TX 77066;
Phone: +1.281.580.1643; Fax: +1.281.580.4163;
Web: www.naturalindustries.com.
Natural Industries manufactures beneficial microorganisms for the agriculture, horticulture, and retail markets. The flagship product Actinovate was registered in 2004 with the EPA for control of root diseases such as *Pythium*, *Phytophthora*, and others. Actinovate is also labeled for foliar use against diseases such as powdery mildew, *Botrytis*, and aerial *Sclerotinia*.
- 207 Norgen Biotek Corporation**
3430 Schmon Parkway, Thorold, ON L2V 4Y6, Canada;
Phone: +1.905.227.8848 or 1.866.667.4362;
Fax: +1.905.227.1061; E-mail: info@norgenbiotek.com;
Web: www.norgenbiotek.com.
Norgen Biotek provides sample preparation kits (spin column and 96-well) featuring exceptional quality, ease of use, and sensitivity. We provide life scientists with innovative DNA, RNA, microRNA, and protein purification, isolation, and clean-up kits to address any sample prep challenge, including urine, stool, plasma/serum, saliva, tissue, FFPE, and more.
- 202 OptiGene Limited *Sustaining Associate***
Unit 5 Blatchford Road, Horsham, West Sussex RH13 5QR, United Kingdom; Phone: +44 1403 274980;
Fax: +44 1403 271017; E-mail: info@optigene.co.uk;
Web: www.optigene.co.uk.
OptiGene has developed innovative products that support sensitive and specific detection of bacteria and viruses for use in the field of plant health. The company has exploited its expertise in both instrument design and enzymology to develop a sophisticated open platform that will support all isothermal amplification methods. Ultra-sensitive molecular detection that has been constrained to laboratory use by highly qualified personnel and taking hours to complete can now be deployed to point of application and run with very little training, producing results in single minutes. A continuous program of development is maintained at OptiGene in order to satisfy the evolving demands of its customers and the wider market.
- 206 Percival Scientific Inc. *Sustaining Associate***
505 Research Drive, Perry, IA 50220;
Phone: +1.515.465.9363; Fax: +1.515.465.9364;
Web: www.percival-scientific.com.
Percival Scientific represents a rich tradition of product ingenuity and reliability throughout the world. We provide clients with reliable custom solutions designed to meet their specific research requirements. The ability to meet individual requirements to control extensive critical testing variables has allowed our company to become an industry leader. Every Percival chamber is designed and manufactured in America's heartland, in Perry, Iowa. We take American pride in engineering and manufacturing the best chambers used throughout the world.

110/211 *Phyto*Technology Laboratories

P.O. Box 12205, Shawnee Mission, KS 66282;
Phone: +1.913.341.5343; Fax: +913.341.5442;
Web: www.phytotechlab.com.

*Phyto*Technology Laboratories is a global supplier of microbiological media, biochemicals, plant tissue culture media, and laboratory supplies for the plant pathology, plant molecular biology, and plant science markets. Visit our booth for more details and information about our products and company. For unmatched quality and service, choose *Phyto*Technology Laboratories.

509 Pro-Lab Diagnostics

21 Cypress Blvd., Suite 1070, Round Rock, TX 78665;
Phone: +1.512.832.9145 or 1.800.522.7740; Fax:
+1.512.832.6424 or 1.800.332.0450; E-mail: ussupport@pro-lab.com; Web: www.pro-lab.com.

Originally established in 1974, the Pro-Lab Group of companies is dedicated to providing high-quality, cost-effective immunodiagnostic and molecular products to hospitals, medical laboratories, veterinary laboratories, universities, and other biological investigative laboratories, while maintaining the quality set by governmental, ISO 13485:2003 (CMDCAS), FDA, GMP, and other international standards of excellence. Meet the Pro-Lab team at our booth and learn more about our featured products, such as the Prolex microbiology latex kits, Microbank bacterial and fungal preservation system, Vision antisera, and *West Nile virus* assay.

205 Romer Labs

1301 Stylemaster Drive, Union, MO 63084;
Phone: +1.636.583.8600; Fax: +1.636.583.6553;
E-mail: office@romerlabs.com; Web: www.romerlabs.com.
Romer Labs is a leading provider of diagnostic solutions, including mycotoxins, allergens, and GMO tests for the agricultural, food, and feed industry. Our broad range of innovative tests and laboratory services plays a pivotal role in integrated food safety solutions to “Making the World’s Food Safer”.

511 Spectrum Technologies Inc. *Sustaining Associate*

12360 S. Industrial Drive E., Plainfield, IL 60585;
Phone: 1.800.248.8873 or +1.815.436.4440; Fax:
+1.815.436.4460; E-mail: info@specmeters.com;
Web: www.specmeters.com.

Spectrum offers affordable devices to measure nutrient levels, soil qualities, light, weather, and other factors affecting plant growth. Our WatchDog weather stations and data loggers make it easy to record weather events and conditions. More than 15,000 customers count on Spectrum’s easy-to-use, dependable technology for their growing needs.

406/408 Springer

233 Spring Street, New York, NY 10013;
Phone: +1.212.460.6000 or 1.800.777.4643;
Fax: +1.212.620.8442; E-mail: exhibits-ny@springer.com;
Web: www.springer.com.

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203 University of Florida Doctor of Plant Medicine (DPM) Program

Steinmetz Hall, Natural Area Drive, University of Florida/IFAS, Gainesville, FL 32611;
Phone: +1.352.273.3957 or +1.352.273.3903;
E-mail: achodges@ufl.edu or eanalaya@ufl.edu;
Web: <http://ufplantdoctors.org/>.

The multidisciplinary University of Florida, Doctor of Plant Medicine (DPM) Program provides rigorous and practical doctoral education for future plant doctors. Program graduates continue to successfully fill positions in industry, government, academia, and the private sector.

306/407 USDA APHIS PPQ

4700 River Road, Unit 133, Riverdale, MD 20737;
Phone: +1.301.851.2046; Fax: +1.301.734.5786;
Web: www.aphis.usda.gov.

Plant Protection & Quarantine (PPQ) is a program within the Animal & Plant Health Inspection Service. PPQ safeguards agriculture and natural resources from the entry, establishment, and spread of animal and plant pests and noxious weeds into the United States and supports trade and exports of U.S. agricultural products.



Meeting Program Planning Committee

APS Annual Meeting Program Chair	George S. Abawi, <i>Cornell University, U.S.A.</i>
APS Annual Meeting Program Vice Chair	Rick Bennett, <i>University of Arkansas, U.S.A.</i>
MSA Annual Meeting Program Chair	Kerry O'Donnell, <i>NCAUR ARS USDA, U.S.A.</i>
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Director	Scott T. Adkins, <i>USDA ARS USHRL, U.S.A.</i>
Field Trip/Workshop Chair	James W. Buck, <i>University of Georgia, U.S.A.</i>
APS Section Chairs	Janna Beckerman, <i>Purdue University, U.S.A.</i> Amy Charkowski, <i>University of Wisconsin, U.S.A.</i> Paul Esker, <i>Universidad de Costa Rica, Costa Rica</i> Aaron Hert, <i>Helena Research, U.S.A.</i> Peter Ojiambo, <i>North Carolina State University, U.S.A.</i> Jeffrey A. Rollins, <i>University of Florida, U.S.A.</i>

APS Elected and Appointed Officers, Representatives, and Committees for 2013

These listings reflect current appointments as of May 1, 2013. For up-to-date listings following the joint meeting, please refer to APSnet.

APS Council

President: M. J. Boehm
President-Elect: G. S. Abawi
Vice President: A. R. Bennett
Immediate Past President: C. A. Ishimaru
Acting IPP: J. L. Sherwood
Internal Communications Officer (ICO): D. M. Gadoury
Treasurer: S. A. Slack
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Intermediate Councilor-at-Large: J. B. Jones
Junior Councilor-at-Large: M. E. Palm
Divisional Councilor: D. G. Schmale
Publications Councilor: T. P. Keinath
Executive Vice President: A. L. Hope

Annual Meetings Board (AMB): *Director:* S. T. Adkins. *Program Chair:* G. S. Abawi. *Vice Chair:* A. R. Bennett. *Section Chairs:* J. L. Beckerman, A. O. Charkowski, P. Esker, A. P. Hert, P. S. Ojiambo, J. A. Rollins. *Workshops Chair:* J. W. Buck

Awards and Honors: *Chair:* S. B. Goodwin. *Immediate Past Chair:* S. A. Lommel. *Members:* R. L. Gilbertson, M. K. Hausbeck, S. A. Tolin, B. S. Valent, P. Vincelli

Divisional Forum: *Divisional Forum Chair:* L. E. Datnoff. *Divisional Councilor:* D. G. Schmale. *Immediate Past Chair:* J. E. Adaskaveg. *Members:* T. B. Brenneman, T. A. Jackson, J. W. Pscheidt, D. P. Roberts, D. A. Rosenberger. *Ex Officio (nonvoting):* J. C. Rupe

Executive Committee: *Chair:* M. J. Boehm. *Members:* G. S. Abawi, A. R. Bennett, D. M. Gadoury, A. L. Hope, R. C. A. Ishimaru, W. F. Mahaffee, S. A. Slack

Financial Advisory: *Chair:* S. A. Slack. *Members:* G. S. Abawi, J. E. Adaskaveg, A. R. Bennett, T. C. Paulitz, D. G. Schmale, S. A. Slack

Foundation Board of Directors: *Chair:* R. D. Martyn. *Treasurer (ex officio nonvoting):* S. A. Slack. *Members:* M. N. Cline, R. J. Cook, L. E. Datnoff, W. E. Dolezal, B. J. Jacobsen, T. D. Murray, A. H. Tally. *Ex Officio (nonvoting):* A. L. Vu

International Society Relationships: *Chair:* B. J. Christ. *Vice Chair:* J. K. Brown. *Members:* L. E. Datnoff, Y. Jia. *Ex Officio (nonvoting):* A. R. Bennett

Leadership Institute: *Cochairs:* L. Beckerman, W. Schneider. *Members:* M. A. Draper, E. S. Oyarzabal

Nominations: *Chair:* B. J. Christ. *Vice Chair:* L. V. Madden. *Members:* C. Cowger, R. S. Goswami, T. K. Mitchell, G. P. Munkvold, J. C. Rupe, A. H. Tally

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Office of Public Relations and Outreach (OPRO): *Director:* M. L. Elliott. *Members:* D. J. Collins, T. Durham, M. A. Grabowski, E. W. Honeycutt, A. B. Kriss, J. Q. Liu, K. Ong, K. A. Peter, L. Santamaria. *Ex Officio, APSnet Feature Editor:* L. E. Hanson. *Ex Officios (voting):* J. E. Leach, J. L. Sherwood

APS Publications Board: *Chair:* A. P. Keinath. *Members:* J. Glazebrook, M. L. Gleason, D. J. Jardine, S. Kang, T. C. Paulitz, K. W. Seebock, K. L. Stevenson, G. W. Sundin, N. A. Tisserat

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