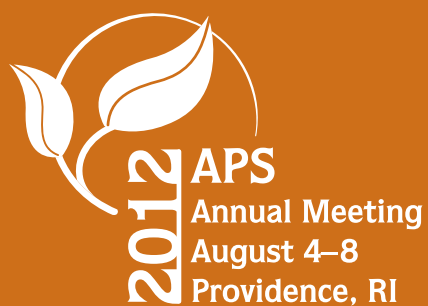


PROGRAM RESOURCE BOOK

The American Phytopathological Society



Communicating Science



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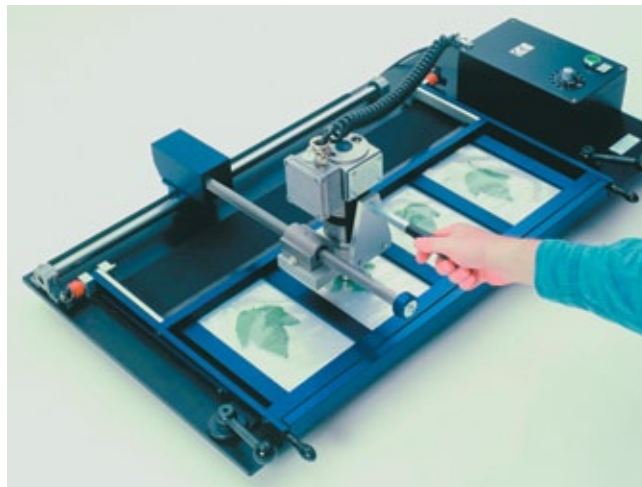
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Program Resource Book

Your resource for the meeting! Inside you will find—session and poster content, exhibitor information, recognition, and the author index. The smaller Program Guide is provided for your convenience and is your key to—the program schedule, general information, and the Exhibit Hall floor plan, with extra pages to take notes. We hope you continue to find these formats a convenient way to navigate the meeting.

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.



Speaker Ready Room – 550 A, Convention Center

APS will again be recording presentations with author approval. A Speaker Ready Room is available beginning Saturday, August 5 at 4:00 p.m. for presenters to do final loading of presentations and make any last minute changes to presentations. Hours will be posted outside the room.

Advertisers Index

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Welcome to the APS Annual Meeting



The American Phytopathological Society (APS) is pleased to welcome you to the 2012 Annual Meeting in Providence, Rhode Island. We have an excellent program this year and the central location has allowed for quite a turnout.

This year's meeting is packed with cutting-edge innovative science. More than 800 abstracts will be presented as posters and oral technical presentations. This year's scientific program also includes the plenary session, special sessions, workshops, and a new and expanded program of technical sessions. We've added eight technical sessions since last year and tightened up the focus on each one to make them as targeted toward your specific interests as possible.

If you didn't utilize the mobile app at last year's meeting, you will have another chance, it's back and better than ever. Take advantage of this new technology to help you plan your itinerary during the meeting and connect with familiar faces and new colleagues. Let it help you find meeting locations and program schedules. If you still manage to miss a session, you can take advantage of the conference recordings that we will be offering again this year.

This year's annual meeting boasts too many "must attend" events to count. APS President Carol Ishimaru is taking the Plenary Session in a new and innovative direction. Don't miss this interactive session on Communicating Science. The site of our Industry & Extension Social is listed on the National Register of Historic Places and, if that isn't enough, it provides breathtaking views of the coast and features world-famous New England cuisine. And this should go without saying, but the Final Night Celebration – The Big Band Theory, is sure to once again be a party that we will keep talking about all year long.

Whether you flew across the pond or from anywhere else, took the train, or loaded up your colleagues in a bus or van and drove here—Welcome to the 2012 APS Annual Meeting! We're glad you came!

Mike Boehm
APS President-Elect



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 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.

LEADERSHIP OPPORTUNITIES

Listed in chronological order.

Leadership Institute I— Finding Your Style

Friday, August 3

8:00 a.m. – 4:30 p.m.; Newport, Westin

Organizers: Richard Bostock, University of California, Davis, CA, U.S.A.; Christine Smart, Cornell University, Geneva, NY, U.S.A.

Section: Professionalism/Outreach

Sponsor: APS Leadership Institute Committee

Financial Sponsor: Supplementary support from APS Council

This first in a series of two highly engaging workshops, facilitated by Teri Balsler, dean of the College of Agricultural and Life Sciences at the University of Florida, will cover what and who are leaders, why leadership is critical to your career and profession, types of leaders, leadership and personalities, developing effective leaders, leaders and change, and leaders in professional organizations. The workshop is intended for a broad spectrum of participants, including early, mid-, and senior career professionals. The fee includes lunch, breaks, and workshop materials.

Leadership Institute II— Working With Others

Saturday, August 4

8:00 a.m. – 4:30 p.m.; Ballroom C, Convention Center

Organizers: Richard Bostock, University of California, Davis, CA, U.S.A.; Christine Smart, Cornell University, Geneva, NY, U.S.A.

Section: Professionalism/Outreach

Sponsor: APS Leadership Institute Committee

Financial Sponsor: Supplementary support from APS Council

Building on the knowledge gained in Leadership Institute I, this workshop is designed to help individuals go deeper in their understanding of the interpersonal aspects of leading and

managing and explore ways to apply their understanding to areas of conflict or change in their professional, personal, and societal lives. Facilitated by Teri Balsler, this workshop will focus on conflict and conflict management. Completion of Leadership Institute I is not a prerequisite of Leadership Institute II but is beneficial in gaining the best experience from the workshop. The fee includes lunch, breaks, and workshop materials.

Leadership Institute: Understanding Your Behavioral Style

(student and post-doc attendees only)

Saturday, August 4

10:00 a.m. – 1:00 p.m. (lunch provided for participants from 12:00 – 1:00 p.m.); South County, Westin

Organizer: Emilio Oyarzabal, Monsanto Company, St. Louis, MO, U.S.A.

Section: Professionalism/Outreach

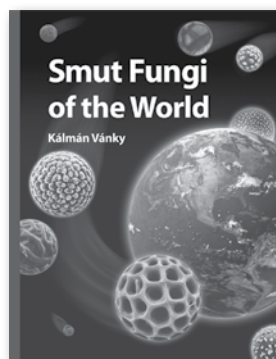
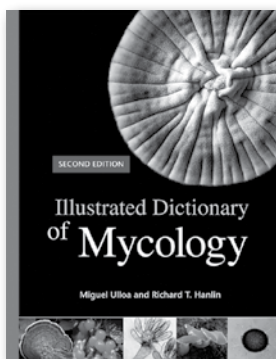
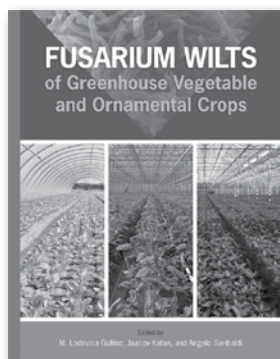
Sponsor: APS Leadership Institute Committee

Financial Sponsor: Monsanto Company

A successful professional career requires continuous learning and refining of personal and technical skills. To measure and understand your personality and behavioral style, talent management experts from Monsanto offer this interactive workshop to help graduate students and post-docs discuss and understand human behavior in various situations, for example, how you influence others or respond to rules and procedures. The workshop will utilize results from each participant's DiSC personal assessment. All participants are required to complete a DiSC questionnaire prior to the workshop. All personal information will be kept confidential and will not be retained by APS or Monsanto.



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Sunday, August 5 4:30 – 6:30 p.m.
Monday, August 6 10:00 a.m. – 6:00 p.m.
Tuesday, August 7..... 10:00 a.m. – 5:00 p.m.
Wednesday, August 8 8:00 – 11:00 a.m.

#2-program

FIELD TRIPS

Listed in chronological order.

Ornamental Field Trip

Saturday, August 4

7:45 a.m. – 5:30 p.m.; Offsite

Organizers: Heather Faubert, University of Rhode Island Cooperative Extension, Kingston, RI, U.S.A.; Cheryl Smith, University of New Hampshire Cooperative Extension, Durham, NH, U.S.A.

Section: Diseases of Plants

Sponsor: Diseases of Ornamental Plants

A tour of nurseries and farms on beautiful Aquidneck Island and in Bristol, RI. Sites scheduled include **RI Nurseries**, a 117-year-old wholesale nursery run by the fourth generation of Vaniceks. The fields are cultivated with teams of mules, and their specialty is *Taxus* production. They also produce vegetables for restaurants and farmers markets. www.rinurseries.com. **Plane View Nursery**, a plant nursery that offers home garden and lawn services to the communities of Portsmouth and Newport County. Some of the crops are produced through tissue culture. **Sweet Berry Farm**, a diversified, 100-acre, destination farm producing cut flowers, fruits, and vegetables. The farm uses IPM to keep insects and diseases to a minimum. www.sweetberryfarmri.com. **Blithewold Mansion Gardens & Arboretum**, one of the finest garden estates in New England. Your tour of Blithewold will include diverse gardens, the arboretum, and a 45-room English-style manor house all chronicling the rich social history of the lives of one family over a span of more than 80 years. www.blithewold.org

Turfgrass Field Trip

Saturday, August 4

8:00 a.m. – 4:30 p.m.; Offsite

Organizers: John Inguagiato, University of Connecticut, Storrs, CT, U.S.A.; Brandon Horvath, University of Tennessee, Knoxville, TN, U.S.A.

Section: Disease Control and Pest Management

Sponsor: Turfgrass Pathology

This trip will highlight the challenges of maintaining aesthetic and playable turfgrass areas in the northeastern United States. Possible sites include golf courses (The Country Club at Brookline, Shelter Harbor GC), athletic fields (Fenway Park, Longwood Cricket Club), and sod production fields. This trip will focus on the impact these facilities have on the economy, as well as the particular turfgrass management problems that are unique to this region.

Pests, Protection, and Politics of the North American Cranberry Field Trip

Saturday, August 4

8:00 a.m. – 5:00 p.m.; Offsite

Organizers: David Thompson, Rutgers University, Princeton, NJ, U.S.A.; Frank Caruso, University of Massachusetts, East Wareham, MA, U.S.A.; Charles T. Schiller, Grower's Secret, Inc., San Francisco, CA U.S.A.

Section: Diseases of Plants

Sponsor: Chemical Control

This field trip will focus on the locally important crop of cranberry, its production and diseases. Cranberry is a unique crop that most pathologists will not encounter in their career due to its limited geographic distribution. However, the unique production practices and final products for cranberry result in a unique set of diseases that provide a learning experience for all plant pathologists.

New England Fungal Foray

Saturday, August 4

9:30 a.m. – 5:30 p.m.; Offsite

Organizer: Barry Pryor, University of Arizona, School of Plant Sciences, Tucson, AZ, U.S.A.

Section: Ecology and Epidemiology

Sponsor: Mycology

APS fungal forays are an exciting and educational opportunity to see macro- and microfungi in natural settings. Following the foray excursion to beautiful Step Stone Falls and the Tippecanett Trail, the participants will return to the University of Rhode Island to more closely examine all collected specimens in a laboratory setting. While examining material, participants will enjoy light refreshments and the camaraderie of fellow mycologists and others interested in fungi. Box lunches are provided for the foray excursion.

Please note: There has been an increased incidence of tick/Lyme disease in the New England area, including Providence. Anyone attending this foray is doing so at their own risk. If attending this foray, APS highly recommends planning accordingly with appropriate clothing, any repellents, etc. that are applicable, and any other precautionary measures.

WORKSHOPS

Listed in chronological order.

Fungicide Resistance Development in North America for the 21st Century

Friday, August 3, and continued on Saturday, August 4

8:00 a.m. – 5:00 p.m. (each day); Narragansett A, Westin

Organizers: Andy Wyenandt, Rutgers University, Bridgeton, NJ, U.S.A.; Megan Dewdney, CREC, University of Florida, Lake Alfred, FL, U.S.A.; Gilberto Olaya, Syngenta, Vero Beach, FL, U.S.A.

Section: Disease Control and Pest Management

Sponsor: Pathogen Resistance

Financial Sponsor: FRAC (Fungicide Resistance Action Committee)

This two-day workshop will serve to provide an overview of fungicides at risk for resistance development and of crop systems where resistance has already developed or is currently a major concern; provide a forum for the exchange of scientific information on new and on-going research on fungicide resistance; and provide material and discussion to revise *Fungicide Resistance in North America*, which was published in 1987 to reflect changes that have occurred over the past 23 years.

Introduction to Phylogenetic Tree-Building

Saturday, August 4

1:00 – 4:00 p.m.; Providence BR II, Westin

Organizer: Erica Goss, University of Florida, Gainesville, FL, U.S.A.

Section: Biology of Pathogens

Sponsor: Genetics

Need to make a phylogenetic tree for your new species, strain, or isolate but don't know where to start? Confused about how to interpret phylogenetic trees? This workshop will introduce basic phylogenetic concepts and methods. By the end of the workshop, participants will know how to take raw sequence data and turn it into a near publication-ready tree. The program MEGA 5 will be used, but alternative programs will be discussed. Participants are encouraged to bring a laptop that runs Windows to the workshop.

Mixed Models for Analysis of Factorials in Plant Pathology

Saturday, August 4

1:00 – 6:00 p.m. Providence BR I, Westin

Organizer: Laurence Madden, The Ohio State University, Wooster, OH, U.S.A.

Section: Ecology and Epidemiology

Sponsors: Epidemiology; Crop Loss and Risk Evaluation

In a study with a factorial treatment structure, two or more factors (classification variables) are related to the response variable. Registrants will learn to use the MIXED and GLIMMIX procedures of SAS to analyze factorial data from different experimental layouts. Emphasis will be placed on the use of new graphical methods for assessing factor effects; incorporation of random effects in the statistical model; and utilization of modern methods for performing multiple comparisons of means. Registrants need to bring a laptop with SAS 9.2 or 9.3 installed.

Reaching Out: Sharing Innovative Approaches for Identification and Control of Turfgrass Diseases

Tuesday, August 7


8:00 a.m. – 6:00 p.m.; Narragansett A, Westin

Organizers: Brandon Horvath, University of Tennessee, Knoxville, TN, U.S.A.; John Inguagiato, University of Connecticut, Storrs, CT, U.S.A.; Damon Smith, Oklahoma State University, Stillwater, OK, U.S.A.; Lee Miller, University of Missouri, Columbia, MO, U.S.A.

Section: Disease Control and Pest Management

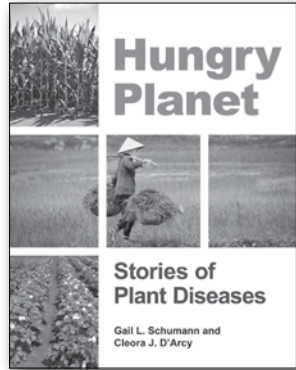
Sponsor: Turfgrass Pathology

Designed for regional turfgrass managers and meeting attendees, this workshop will focus on recent scientific advances in the identification and management of turfgrass diseases. The program will include an interactive session on tools and management of turfgrass diseases in the morning and research updates on new approaches for identifying and controlling turfgrass diseases in the afternoon, followed by a poster session. The workshop will conclude with a panel discussion featuring leading turfgrass pathologists.



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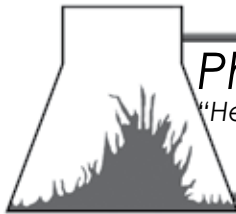
Sunday, August 5	4:30 – 6:30 p.m.
Monday, August 6	10:00 a.m. – 6:00 p.m.
Tuesday, August 7.....	10:00 a.m. – 5:00 p.m.
Wednesday, August 8	8:00 – 11:00 a.m.



#3-prog-ad

	Biology of Plant Pathogens	Disease Control and Pest Management	Diseases of Plants
SUNDAY			
1:00 – 2:15 p.m.	TECHNICAL: Oomycete Biology • 556, CC	TECHNICAL: Chemical Control 1 • 555,CC TECHNICAL: Virus Management • Ballroom C, CC	
1:00 – 4:00 p.m.		Emerging Tools and Regulations Impacting the Enhancement of Disease Resistance Using Biotechnology • Ballroom B, CC The National Clean Plant Network: Ensuring Disease-Free, Vegetatively Propagated Fruit Tree Planting Stock • 551, CC	
2:45 – 4:00 p.m.	TECHNICAL: Liberibacter Biology • 556, CC (2:45 – 3:30 p.m.)	TECHNICAL: Host Resistance • 555,CC TECHNICAL: IPM 1 • Ballroom C, CC (2:45 – 3:30 p.m.)	
MONDAY			
8:30 – 9:45 a.m.	TECHNICAL: Fungal Biology 1 • 556, CC (8:30 – 9:30 a.m.)		
8:30 – 11:30 a.m.	Unifying Concepts in Plant and Animal Vector Biology • 555, CC	12th I. E. Melhus Graduate Student Symposium: Host Plant Resistance and Disease Management: Current Status and Future Outlook • 551, CC New Products and Services • Ballroom C, CC (8:30 – 10:30 a.m.)	Advances in Detection Technologies: Application in Plant Pathogen and Disease Detection • Ballroom B, CC
10:15 – 11:30 a.m.	TECHNICAL: Fungal Biology 2 • 556, CC		
3:15 – 4:30 a.m.	TECHNICAL: Bacterial Biology • Ballroom C, CC	TECHNICAL: IPM 2 • 552, CC TECHNICAL: Fungicide Resistance 1 • Ballroom B, CC (3:15 – 4:45 p.m.)	TECHNICAL: Detection and Diagnosis • 551, CC (3:15 – 4:45 p.m.) TECHNICAL: New and Emerging Diseases 1 • Ballroom D, CC (3:15 – 4:45 p.m.)
TUESDAY			
8:30 – 9:45 a.m.	TECHNICAL: Bacterial Etiology and Ecology • 552, CC	TECHNICAL: Biological Control • Ballroom E, CC	TECHNICAL: New and Emerging Diseases 2 • 556, CC
8:30 – 11:30 a.m.	<i>Potato virus Y</i> —An Old Virus and a New Problem in Potato • Ballroom C, CC	Issues and Opportunities in Regulatory Sciences at EPA • 551, CC	Thousand Cankers Disease: A Threat to Eastern Black Walnut Throughout Its Native Range and Beyond • Ballroom D, CC
10:15 – 11:30 a.m.		TECHNICAL: Biological Control, IPM, and Sanitation • Ballroom E, CC TECHNICAL: Chemical Control 2 • 555, CC	TECHNICAL: Diseases of Ornamentals • 556, CC
WEDNESDAY			
8:30 – 9:45 a.m.	TECHNICAL: Viral Biology 1 • Ballroom E, CC	TECHNICAL: Fungicide Resistance 2 • Ballroom C, CC	
8:30 – 11:30 a.m.	International Perspective on Fusarium Head Blight • 552, CC New Insights into the Virulence Mechanism of Plant-Pathogenic Bacteria • 555, CC	Grafting as an Alternative to Soil Fumigation for Disease Management in Vegetable Production • Ballroom B, CC	Bioenergy Crops and Disease • 551, CC
10:15 – 11:30 a.m.	TECHNICAL: Viral Biology 2 • Ballroom E, CC		
Lunch Break	11:30 a.m.–1:00 p.m.		
1:00 – 2:15 p.m.		TECHNICAL: IPM 3 • 556, CC	TECHNICAL: Virus Diseases • Ballroom E, CC
1:00 – 4:00 p.m.		Fungicides to Promote Plant Physiological Benefits in Crops • 551, CC	Schroth Faces of the Future—New Frontiers in Plant Bacteriology • 555, CC
2:45 – 4:00 p.m.	TECHNICAL: Diseases of Biofuel Crops and Postharvest Pathology • 556, CC		

Ecology and Epidemiology	Molecular/Cellular/Plant-Microbe Interactions	Professionalism/Outreach
Resolving the Species-Population Interface in Asexual Fungi: New Tools to Address an Old Problem • 552, CC	Genetics, Genomics, and Proteomics Approaches to Elucidate Arthropod-Vector Specificity • Ballroom D, CC	
TECHNICAL: Epidemiology • Ballroom D, CC TECHNICAL: New Insights into the Disease Triangle • Ballroom E, CC		
Exploring the Micropolis: Sampling, Identifying, and Analyzing the Diversity of Microbial Communities • 552, CC		
TECHNICAL: Ecology and Epidemiology of Rhizosphere Pathogens • Ballroom D, CC TECHNICAL: Pathogen Diversity • Ballroom E, CC		
TECHNICAL: Vectors and Vectored Pathogens • Ballroom E, CC	TECHNICAL: Molecular Fungi and Bacteria • 555, CC TECHNICAL: Molecular Resistance • 556, CC	
TECHNICAL: Liberibacter and Psyllid Biology • 555, CC		
It's a Mixed Up World: Hybridization and Horizontal Gene Transfer in Plant Pathogens and Endophytes • Ballroom B, CC		
	TECHNICAL: Molecular Bacteria • 552, CC	
	TECHNICAL: Molecular Fungi & Oomycetes Gene Expression • 556, CC	
"Left of Boom!" Information: Form, Content, and Use in Epidemic Prediction • Ballroom D, CC		
	TECHNICAL: Molecular Fungi • 556, CC (10:15 – 11:15 a.m.) TECHNICAL: Plant Defense Response, Climate Change, and Abiotic Effects • Ballroom C, CC	
Right of the Boom: Deciding to Act, React, or Let Go in a Fluid Data Environment • Ballroom D, CC	Pathogen Effectors and Host Targets • 552, CC	Everything a Scientist Should Know About Politics, Funding, and Public Opinion • Ballroom B, CC Practice and Management of Microbial and Plant Germplasm Collections • Ballroom C, CC
	TECHNICAL: Molecular Virology • Ballroom E, CC	



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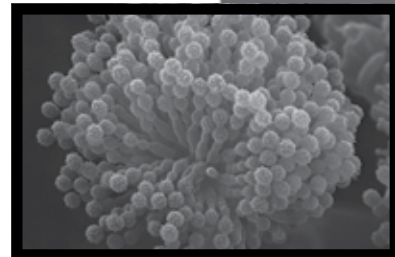
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- T773 - Tris Borate EDTA Buffer Solution (5x)



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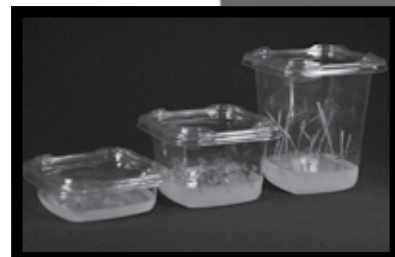
- Hygromycin B - H397/H370
- Carbenicillin - C346/C540
- Cefotaxime - C380/C537
- Kanamycin - K378/K586
- Timentin - T869/T767/T7869
- Bialaphos - B131/B1730
- Vancomycin - V870/V8370
- Ampicillin - A116/A1116



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PROGRAM SESSIONS

SUNDAY, AUGUST 5, 2012

Listed in alphabetical order by title. Special Sessions listed first, followed by Oral Technical Sessions. 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 Tools and Regulations Impacting the Enhancement of Disease Resistance Using Biotechnology

1:00 – 4:00 p.m.; Ballroom B, CC

Section: Disease Control and Pest Management

Organizers: Dennis Halterman, USDA-ARS, Madison, WI, U.S.A.; Scott Soby, Midwestern University, Glendale, AZ, U.S.A.

Moderator: Dennis Halterman, USDA-ARS, Madison, WI, U.S.A.

Sponsoring Committee/Sponsor: Biotechnology

Financial Sponsors: Monsanto; Pioneer Hi-Bred, A DuPont Business; J. R. Simplot Company

1:00 p.m. 1-S. Using TAL effector nucleases for targeted genetic modification. B. YANG (1). (1) Iowa State University, Ames, IA, U.S.A.

1:30 p.m. 2-S. Reintroduction of genetically engineered potatoes into the U.S. market. C. ROMMENS (1). (1) J. R. Simplot Company, Boise, ID, U.S.A.

2:00 p.m. 3-S. Virus-mediated protection of maize from *Ustilago maydis*. T. J. SMITH (1). (1) Donald Danforth Plant Science Center, Saint Louis, MO, U.S.A.

2:30 p.m. Break

2:45 p.m. 4-S. Historical perspective of regulation and deregulation of biotech crops. S. A. TOLIN (1). (1) Virginia Tech, Blacksburg, VA, U.S.A.

3:15 p.m. 5-S. Current processes involved in biotech crop deregulation. P. SPAIN (1), J. M. Cordts (1). (1) USDA/APHIS/Biotechnology Regulatory Services, Riverdale, MD, U.S.A.

3:45 p.m. Discussion

Genetics, Genomics, and Proteomics Approaches to Elucidate Arthropod-Vector Specificity

1:00 – 4:00 p.m.; Ballroom D, CC

Section: Molecular/Cellular/Plant-Microbe Interactions

Organizer/Moderator: Judith Brown, The University of Arizona, Tucson, AZ, U.S.A.

Sponsoring Committees/Sponsors: Virology; Vector-Pathogen Complexes; Bacteriology

Financial Sponsors: The Samuel Roberts Noble Foundation, Inc.; USDA; Monsanto

1:00 p.m. 6-S. The effect of temperature on 'Candidatus Liberibacter solanacearum' gene expression. T. W. FISHER (1), R. He (2), J. Munyaneza (3), J. Crosslin (4), J. K. Brown (1). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) Washington State University, Pullman, WA, U.S.A.; (3) USDA-ARS YARL, Wapato, WA, U.S.A.; (4) USDA-ARS YARL, Prosser, WA, U.S.A.

1:30 p.m. 7-S. Host switching in the vector-borne plant pathogen *Xylella fastidiosa*. R. ALMEIDA (1). (1) University of California-Berkeley, Berkeley, CA, U.S.A.

2:00 p.m. 8-S. Functional transcriptomics of *Begomovirus*-whitefly transmission. J. K. BROWN (1). (1) The University of Arizona, Tucson, AZ, U.S.A.

2:30 p.m. Break

2:45 p.m. 9-S. Using proteomics and mass spectrometry to explore the dynamic virus-vector interface. M. L. CILIA (1). (1) USDA-ARS, Ithaca, NY, U.S.A.

3:15 p.m. 10-S. Comparative functional genomics to elucidate psyllid-'*Ca. Liberibacter asiaticus*' and solanacearum interactions. M. VYAS (1), T. Fisher (1). (1) University of Arizona, Tucson, AZ, U.S.A.

3:45 p.m. Discussion

The National Clean Plant Network: Ensuring Disease-Free, Vegetatively Propagated Fruit Tree Planting Stock

1:00 – 4:00 p.m.; 551, CC

Section: Disease Control and Pest Management

Organizer/Moderator: Nancy Osterbauer, Oregon Department of Agriculture, Salem, OR, U.S.A.

Sponsoring Committees/Sponsors: Regulatory Plant Pathology; Public Policy Board

Financial Sponsor: USDA APHIS

1:00 p.m. 11-S. *Plum pox virus* case study: The eradication road is paved in gold. R. A. WELLIVER (1). (1) Pennsylvania Department of Agriculture, Harrisburg, PA, U.S.A.

1:30 p.m. 12-S. New threats on the horizon for the fruit tree industry. M. FUCHS (1). (1) Cornell University, Geneva, NY, U.S.A.

2:00 p.m. 13-S. Diagnosing and cleaning up viruses in imported fruit tree nursery stock. K. C. EASTWELL (1). (1) Washington State University, I.A.R.E.C., Prosser, WA, U.S.A.

2:30 p.m. Break

2:45 p.m. 14-S. Quantifying the economic benefits of the National Clean Plant Network for the tree fruit industry in the Pacific Northwest. C. F. SEAVERT (1), J. Julian (1). (1) Oregon State University, Corvallis, OR, U.S.A.

3:15 p.m. 15-S. The industry's perspective on the National Clean Plant Network. W. L. HEUSER GALE (1). (1) International Plant Management, Inc., Lawrence, MI, U.S.A.

3:45 p.m. 16-S. The National Clean Plant Network. E. S. RUDY (1). (1) USDA, Riverdale, MD, U.S.A.

Resolving the Species-Population Interface in Asexual Fungi: New Tools to Address an Old Problem

1:00 – 4:00 p.m.; 552, CC

Section: Ecology and Epidemiology

Organizers: Barry Pryor, University of Arizona, Plant Sciences, Tucson, AZ, U.S.A.; Kirk Broders, University of New Hampshire, Durham, NH, U.S.A.

Moderators: Kirk Broders, University of New Hampshire, Durham, NH, U.S.A.; Barry Pryor, University of Arizona, Plant Sciences, Tucson, AZ, U.S.A.

Sponsoring Committees/Sponsors: Mycology; Plant Pathogen and Disease Detection; Diagnostics; Seed Pathology; Soil Microbiology and Root Diseases

Financial Sponsor: Widely Prevalent Plant Pathogenic Fungi List Project

- 1:00 p.m. 17-S. Asexuality across the kingdom Fungi and the taxonomic challenges of species delineation. P. W. CROUS (1), J. Z. Groenewald (1). (1) CBS Fungal Biodiversity Centre, Utrecht, Netherlands
- 1:30 p.m. 18-S. Using comparative genomics for species resolution in *Alternaria*. B. M. PRYOR (1), B. Wang (1). (1) University of Arizona, Tucson, AZ, U.S.A.
- 2:00 p.m. 19-S. Challenges and opportunities for species recognition in *Fusarium* provided by genomics. D. M. GEISER (1), B. Park (1), S. Kang (1), K. O'Donnell (2). (1) Penn State University, University Park, PA, U.S.A.; (2) NCAUR USDA-ARS, Peoria, IL, U.S.A.
- 2:30 p.m. Break
- 2:45 p.m. 20-S. *Cladosporium*: Current concepts, diversity, and taxonomy. F. DUGAN (1). (1) USDA-ARS WRPIS, Pullman, WA, U.S.A.
- 3:15 p.m. 21-S. Comparative genomics and bioinformatic tools for studying evolution and speciation in fungi. J. E. STAJICH (1), T. J. Poorten (2), T. Y. James (3), D. Rodriguez (4), D. Ilut (4), K. Zamudio (4), E. B. Rosenblum (5). (1) University of California-Riverside, Riverside, CA, U.S.A.; (2) University of Idaho, Moscow, ID, U.S.A.; (3) University of Michigan, Ann Arbor, MI, U.S.A.; (4) Cornell University, Ithaca, NY, U.S.A.; (5) University of California-Berkeley, Berkeley, CA, U.S.A.
- 3:45 p.m. Discussion

ORAL TECHNICAL SESSIONS


Chemical Control 1

1:00 – 2:15 p.m.; 555, CC

Section: Disease Control and Pest Management

Moderators: Joseph W. Noling, University of Florida, Lake Alfred, FL, U.S.A.; George W. Sundin, Michigan State University, East Lansing, MI, U.S.A.

- 1:00 p.m. 1-O. Geographic and cultivar distribution of QoI-resistant *Alternaria alternata* isolates, causal agent of Alternaria brown spot on Florida tangerine hybrids. B. VEGA (1), M. M. Dewdney (2). (1) University of Florida, Gainesville, FL, U.S.A.; (2) University of Florida, CREC, Lake Alfred, FL, U.S.A.
- 1:15 p.m. 2-O. Integration of soil-applied neonicotinoid insecticides and acibenzolar-S-methyl for systemic acquired resistance (SAR) control of citrus canker on young citrus trees. J. H. GRAHAM (1), M. E. Myers (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

- 1:30 p.m. 3-O.  Baseline sensitivity of *Guignardia citricarpa*, the causal agent of citrus black spot, to strobilurin fungicides. M. HINCAPIE (1), N. Peres (1), M. Dewdney (2). (1) University of Florida, Wimauma, FL, U.S.A.; (2) University of Florida, Lake Alfred, FL, U.S.A.
- 1:45 p.m. 4-O. Simulated rainfall to evaluate removal of pyraclostrobin applied for control of postbloom fruit drop of citrus. F. P. GONCALVES (1), B. B. Forcelini (2), N. A. Peres (3), L. Amorim (1). (1) Escola Superior de Agricultura Luiz de Queiroz, Universidade Sao Paulo, Piracicaba, Brazil; (2) University of Florida, GREC, Wimauma, FL, U.S.A.; (3) University of Florida, Wimauma, FL, U.S.A.
- 2:00 p.m. 5-O. Sensitivity of *Monilinia fructicola* to sterol demethylation inhibitors and analysis of *CYP51* promoter insertions in Michigan populations. K. E. LESNIAK (1), N. L. Rothwell (1), G. W. Sundin (1). (1) Michigan State University, East Lansing, MI, U.S.A.

Oomycete Biology

1:00 – 2:15 p.m.; 556, CC

Section: Biology of Pathogens

Moderators: Frank N. Martin, USDA-ARS, Salinas, CA, U.S.A.; Leah Granke, Michigan State University, East Lansing, MI, U.S.A.

- 1:00 p.m. 6-O. Characterization of *Phoma* and *Phytophthora* isolates from chicory root. R. A. FRANCE (1), P. A. Millas (1). (1) Instituto de Investigaciones Agropecuarias, Chillán, Chile
- 1:15 p.m. 7-O. Morphological and physiological variation within *Phytophthora capsici* isolates from a worldwide collection. L. GRANKE (1), L. M. Quesada-Ocampo (1), A. Lebeis (1), L. Henderson (1), M. VanOverbeke (1), M. Hausbeck (1). (1) Michigan State University, East Lansing, MI, U.S.A.
- 1:30 p.m. 8-O. Multigene analysis of *Pythium* species causing carrot cavity spot in California and Michigan. N. ROSENZWEIG (1), X. H. Lu (1), H. Jiang (1), J. Hao (1). (1) Michigan State University, East Lansing, MI, U.S.A.
- 1:45 p.m. 9-O. Flagellar phylogenetics: A study of crown oomycete evolution. G. P. ROBIDEAU (1), T. L. Rintoul (2), C. Levesque (2). (1) Carleton University, Ottawa, ON, Canada; (2) Agriculture and Agri-Food Canada, Ottawa, ON, Canada
- 2:00 p.m. 10-O. *Phytophthora infestans* transmitted to seedlings growing from tomato fruit rotted by late blight but not their seed. M. T. MCGRATH (1). (1) Cornell University, Riverhead, NY, U.S.A.


Virus Management

1:00 – 2:15 p.m.; Ballroom C, CC

Section: Disease Control and Pest Management

Moderator: Monday Ahonsi, University of Illinois, Urbana, IL, U.S.A.

- 1:00 p.m. 11-O. Seasonal dynamics of *Iris yellow spot virus* transmitters among *Thrips tabaci* populations from onion fields. S. BAG (1), S. I. Rondon (2), H. R. Pappu (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) Oregon State University, Hermiston, OR, U.S.A.

- 1:15 p.m. 12-O. *Tomato spotted wilt virus* (TSWV)-resistant peanut genotypes and their interactions with thrips and TSWV. R. SRINIVASAN (1), A. Shrestha (1), S. Sundaraj (1), A. Culbreath (1), H. Pappu (2), D. Riley (1). (1) University of Georgia, Tifton, GA, U.S.A.; (2) Washington State University, Pullman, WA, U.S.A.
- 1:30 p.m. 13-O. Effects of temperature on virus titer development and population growth of the wheat curl mite in wheat streak-resistant wheat cultivars. J. A. PRICE (1), A. Simmons (1), E. Evans (1), C. M. Rush (2). (1) Texas AgriLife Research, Amarillo, TX, U.S.A.; (2) Texas AgriLife Research, Bushland, TX, U.S.A.
- 1:45 p.m. 14-O. Effect of SqVYV-resistant pollenizers on development and spread of watermelon vine decline in seedless watermelon. C. S. KOUSIK (1), S. Adkins (2), C. G. Webster (2), W. Turechek (2), P. D. Roberts (3). (1) USDA-ARS, Charleston, SC, U.S.A.; (2) U.S. Horticultural Research Laboratory, USDA-ARS, Fort Pierce, FL, U.S.A.; (3) University of Florida, Immokalee, FL, U.S.A.
- 2:00 p.m. 15-O.  Optimization and application of a chemiluminescent dot-blot immunoassay for detection of potato viruses. A. C. FULLADOLSA (1), R. Kota (1), A. O. Charkowski (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

Liberibacter Biology


2:45 – 3:30 p.m.; 556, CC

Section: Biology of Pathogens

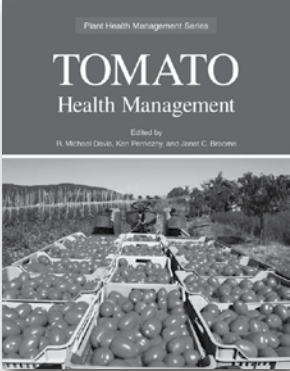
Moderators: Ariena H. van Bruggen, University of Florida, Gainesville, FL, U.S.A.; Hao Hu, University of Florida, Gainesville, FL, U.S.A.

- 2:45 p.m. 16-O. Survival of ‘*Candidatus Liberibacter asiaticus*’ in different media over time. J. K. PARKER (1), S. R. Wisotsky (1), K. R. Sims (2), M. E. Hilf (2), L. De La Fuente (1). (1) Auburn University, Auburn, AL, U.S.A.; (2) USDA-ARS, Fort Pierce, FL, U.S.A.
- 3:00 p.m. 17-O. Evolving diversity of ‘*Candidatus Liberibacter asiaticus*’ mediated by frequent recombination and reassortment of its prophages. L. ZHOU (1), C. A. Powell (2), W. Li (3), Y. Duan (4). (1) Indian River Research & Education Center, University of Florida/USDA-ARS, Fort Pierce, FL, U.S.A.; (2) Indian River Research & Education Center, University of Florida/IFAS, Fort Pierce, FL, U.S.A.; (3) National Plant Germplasm and Biotechnology Laboratory, USDA-APHIS-PPQ-CPHST, Beltsville, MD, U.S.A.; (4) USDA-ARS USHRL, Fort Pierce, FL, U.S.A.
- 3:15 p.m. 18-O. Early root infection and damage in citrus huanglongbing disease development. E. JOHNSON (1), D. B. Bright (1), J. H. Graham (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

Oral Technical Sessions continued


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Monday, August 6	10:00 a.m. – 6:00 p.m.
Tuesday, August 7	10:00 a.m. – 5:00 p.m.
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Host Resistance

2:45 – 4:00 p.m.; 555, CC

Section: Disease Control and Pest Management

Moderators: Marcial Pastor-Corrales, USDA-ARS, Beltsville, MD, U.S.A.; Christopher Ridout, John Innes Centre, Norwich, United Kingdom

- 2:45 p.m. 19-O. Wide hybridisations for blackleg (*Leptosphaeria maculans*) resistance transfer into oilseed rape (*Brassica napus*). H. WINTER (1), M. Mosch (1), F. Marthe (2), H. Peterka (2), O. Schrader (2), H. Budahn (2). (1) Technische Universitaet Dresden, Department of Biology – Molecular Biotechnology, Dresden, Germany; (2) Institute for Breeding Research on Horticultural and Fruit Crops of Julius Kuehn Institute, Federal Research Centre for Cultivated Plants, Quedlinburg, Germany
- 3:00 p.m. 20-O. Genetic analysis of broad-spectrum resistance in Mesoamerican common bean accession PI 310762 to the hypervariable bean rust pathogen. M. PASTOR-CORRALES (1), S. Shin (1). (1) USDA-ARS, Beltsville, MD, U.S.A.
- 3:15 p.m. 21-O. Agronomic evaluation of soybean (*Glycine max* (L.) Merr.) recombinant inbred lines segregating for resistance to southern root-knot nematode (*Meloidogyne incognita*). D. WRIGHT (1), J. Anderson (1), M. Reyes-Valdes (2), J. Bond (1), S. K. Kantartzi (1). (1) Southern Illinois University, Carbondale, IL, U.S.A.; (2) Universidad Autónoma Agraria Antonio Narro, Saltillo, Mexico
- 3:30 p.m. 22-O. Temperature shifts compromise resistance to yellow rust in wheat. R. Bryant (1), C. Uauy (1), S. Dorling (2), L. A. Boyd (1), C. J. RIDOUT (1). (1) John Innes Centre, Norwich, United Kingdom; (2) University of East Anglia, Norwich, United Kingdom

- 3:45 p.m. 23-O. Identification of tree-crop rootstocks with resistance to Armillaria root disease. K. BAUMGARTNER (1), P. Fujiyoshi (1), D. Kluepfel (1), G. Browne (1), C. Leslie (2). (1) USDA-ARS, Davis, CA, U.S.A.; (2) Department of Plant Sciences, University of California, Davis, CA, U.S.A.

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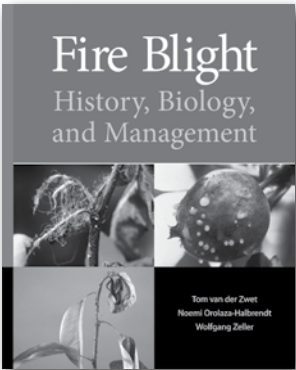
2:45 – 3:30 p.m.; Ballroom C, CC

Section: Disease Control and Pest Management

Moderator: Cassandra L. Swett, University of California-Davis, Davis, CA, U.S.A.

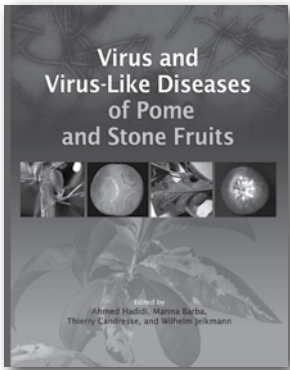
- 2:45 p.m. 24-O. Comparative evaluation of the effect of plant products on the rhizosphere population of *Fusarium oxysporum* f. sp. *lycopersici* and the growth of tomato plants. G. C. VAN DER PUIJE (1), S. R. Gowen (2), A. N. Jama (2). (1) University of Cape Coast, Cape Coast, Ghana; (2) Department of Agriculture, University of Reading, Reading, United Kingdom
- 3:00 p.m. 25-O. Integrating grain harvesting and preharvest management strategies to minimize losses due to Fusarium head blight and deoxynivalenol in wheat. J. D. SALGADO (1), P. A. Paul (1), K. T. Willyerd (1), L. V. Madden (1). (1) Ohio State University, Wooster, OH, U.S.A.
- 3:15 p.m. 26-O. Effect of inoculation method, inoculum concentration, and plant growth stage on development of wheat bacterial leaf streak. Y. R. KANDEL (1), K. D. Glover (1), L. E. Osborne (2). (1) South Dakota State University, Brookings, SD, U.S.A.; (2) Pioneer Hi-Bred International, Brookings, SD, U.S.A.
- 3:30 p.m. 27-O. WITHDRAWN
- 3:45 p.m. 28-O. WITHDRAWN

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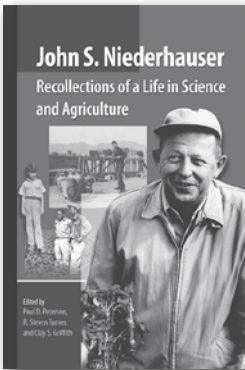
Fire Blight
History, Biology,
and Management

Tom van der Zmet
Noemi Gonzalez-Halderos
Wolfgang Zeller



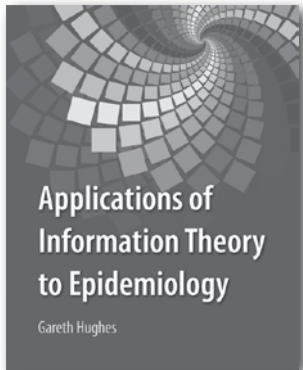
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Wednesday, August 8	8:00 – 11:00 a.m.

#10-1009-3d

MONDAY, AUGUST 6, 2012

Listed in alphabetical order by title. **Special Sessions listed first, followed by Oral Technical Sessions.** 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

12th I. E. Melhus Graduate Student Symposium: Host Plant Resistance and Disease Management: Current Status and Future Outlook

8:30 – 11:30 a.m.; 551, CC

Section: Disease Control and Pest Management

Organizers: Shaker Kousik, U.S. Vegetable Laboratory, USDA-ARS, Charleston, SC, U.S.A.; Pradeep Kachroo, University of Kentucky, Lexington, KY, U.S.A.; Patrick Wechter, U.S. Vegetable Laboratory, USDA-ARS, Charleston, SC, U.S.A.; Alemu Mengistu, USDA-ARS, Jackson, TN, U.S.A.

Moderator: Shaker Kousik, U.S. Vegetable Laboratory, USDA-ARS, Charleston, SC, U.S.A

Sponsoring Committee/Sponsor: Host Resistance

- 8:30 a.m. Opening remarks and introductions. C. S. KOUSIK (1). (1) U.S. Vegetable Laboratory, USDA-ARS, Charleston, SC, U.S.A.
- 8:45 a.m. The APS Foundation and I. E. Melhus Graduate Student Symposium; A successful and enduring partnership. R. D. MARTYN (1). (1) Purdue University, West Lafayette, IN, U.S.A.
- 9:00 a.m. 22-S. ★ APS Foundation Awardee Infection of blueberries by *Colletotrichum acutatum*: Host defenses, inheritance of resistance, and environmental effects. T. D. MILES (1), A. C. Schilder (1). (1) Michigan State University, East Lansing, MI, U.S.A.
- 9:30 a.m. 23-S. ★ APS Foundation Awardee Proteomics-based study of host-fungus interaction between soybean and *Phakopsora pachyrhizi* using recombinant inbred line (RIL)-derived sister lines. M. GANIGER (1), D. R. Walker (2), Z. Chen (1). (1) Louisiana State University, Baton Rouge, LA, U.S.A.; (2) USDA-ARS Soybean/Maize Germplasm, Pathology, and Genetics Research Unit, Urbana, IL, U.S.A.
- 10:00 a.m. Break
- 10:15 a.m. 24-S. ★ APS Foundation Awardee Characterization of resistance of *Arachis hypogaea* to *Puccinia arachidis*. I. L. POWER (1), A. K. Culbreath (1), B. L. Tillman (2). (1) University of Georgia, Department of Plant Pathology, Tifton, GA, U.S.A.; (2) University of Florida, Department of Agronomy, Marianna, FL, U.S.A.
- 10:45 a.m. 25-S. ★ APS Foundation Awardee Transcriptomic and genetic approaches to define tomato resistance to the bacterial pathogen *Ralstonia solanacearum*. J. M. JACOBS (1), R. M. Mitra (2), B. Remenant (1), A. Milling (1), C. Allen (1). (1) University of Wisconsin, Madison, WI, U.S.A.; (2) Carleton College, Northfield, MN, U.S.A.
- 11:15 a.m. Closing comments, awards certificates

Advances in Detection Technologies: Application in Plant Pathogen and Disease Detection

8:30 – 11:30 a.m.; Ballroom B, CC

Section: Diseases of Plants

Organizers: Mysore Sudarshana, USDA-ARS, Davis, CA, U.S.A.; Sead Sabanadzovic, Mississippi State University, Mississippi State, MS, U.S.A.

Moderators: Laurene Levy, USDA-APHIS-CPHST, Beltsville, MD, U.S.A.; Sead Sabanadzovic, Mississippi State University, Mississippi State, MS, U.S.A.

Sponsoring Committees/Sponsors: Plant Pathogen and Disease Detection; Diagnostics

- 8:30 a.m. 26-S. Next-generation diagnostics: Eliminating the excessive sequence processing associated with next-generation sequencing using EDNA. W. L. SCHNEIDER (1), A. H. Stobbe (2), J. Daniels (2), A. S. Espindola (2), R. Verma (2), T. Blagden (2), J. Fletcher (2), F. Ochoa-Corona (2), C. Garzon (2), P. R. Hoyt (2), U. Melcher (2). (1) USDA-ARS FD-WSRU, Fort Detrick, MD, U.S.A.; (2) Oklahoma State University, Stillwater, OK, U.S.A.
- 9:00 a.m. 27-S. All plant virus chip: Shifting from proof to use. B. BAGEWADI (1), D. C. Henderson (2), K. Fischer (3), R. L. Jordan (4), D. Wang (5), K. L. Perry (6), U. Melcher (7), J. Hammond (8), C. M. Fauquet (1). (1) Danforth Plant Science Center, Saint Louis, MO, U.S.A.; (2) USDA-ARS, Beltsville, MD, U.S.A.; (3) University of Utah, School of Medicine, Salt Lake City, UT, U.S.A.; (4) USDA-ARS-BA, Molecular Plant Pathology Lab, Beltsville, MD, U.S.A.; (5) Washington University, School of Medicine, Saint Louis, MO, U.S.A.; (6) Cornell University, Ithaca, NY, U.S.A.; (7) Oklahoma State University, Stillwater, OK, U.S.A.; (8) USDA-ARS Floral and Nursery Plants Research Unit, Beltsville, MD, U.S.A.
- 9:30 a.m. 28-S. The results of QBOL deposited in the Q-bank database to support plant health diagnostics. P. BONANTS (1), M. Edema (2). (1) Plant Research International, Wageningen, Netherlands; (2) NVWA, National Plant Protection Organization, Wageningen, Netherlands
- 10:00 a.m. Break
- 10:15 a.m. 29-S. CANARY: Serological detection sees a new dawn. Z. LIU (1), H. Bowman (1), K. Rappaport (1), L. Levy (2). (1) USDA APHIS PPQ CPHST, Beltsville, MD, U.S.A.; (2) USDA APHIS PPQ CPHST, Riverdale, MD, U.S.A.
- 10:45 a.m. 30-S. Pathogen signatures—Beyond nucleic acids & proteins. L. LEVY (1). (1) USDA APHIS PPQ CPHST, Riverdale, MD, U.S.A.
- 11:15 a.m. 31-S. Isothermal amplification: So many names, are there differences? M. R. SUDARSHANA (1). (1) USDA-ARS, Davis, CA, U.S.A.

APS-Public Policy Board Open Forum on Hot Topics

Monday, August 6

10:30 a.m. – 12:00 p.m., Providence I, W

Did you know that granting agencies and publishers are scanning your grants and publications looking for plagiarism, including self-plagiarism? Have you thought about how the regulation of dual use research might impact your research? Do you understand the Endangered Species Act, and how it will impact plant disease management? The APS-Public Policy Board is hosting a 1.5 hour Open Forum to provide information on these and other emerging hot topics of relevance to APS Members. Experts on each topic area will be present to provide a brief overview of the topic, answer questions, and engage in discussions.

Exploring the Micropolis: Sampling, Identifying, and Analyzing the Diversity of Microbial Communities

8:30 – 11:30 a.m.; 552, CC

Section: Ecology and Epidemiology

Organizers: Jerry Weiland, USDA-ARS, Corvallis, OR, U.S.A.;

Teresa Hughes, USDA-ARS, West Lafayette, IN, U.S.A.; Kirk

Broders, University of New Hampshire, Durham, NH, U.S.A.

Moderators: Jerry Weiland, USDA-ARS, Corvallis, OR, U.S.A.;

Kirk Broders, University of New Hampshire, Durham, NH, U.S.A.

Sponsoring Committees/Sponsors: Soil Microbiology and Root Diseases; Phyllosphere Microbiology

Financial Sponsors: Illumina Inc.; Roche; Applied Biosystems

8:30 a.m. 32-S. Metagenomics for complex microbial communities. S. TRINGE (1). (1) DOE Joint Genome Institute, Walnut Creek, CA, U.S.A.

9:00 a.m. 33-S. From metagenomics to metabolomics: Communication in the rhizosphere. J. HANDELSMAN (1). (1) Yale University, New Haven, CT, U.S.A.

9:30 a.m. 34-S. Metagenomics in fungal community ecology—Combining new and old technologies to maximize our understanding of complex fungal communities. M. E. SMITH (1). (1) University of Florida, Gainesville, FL, U.S.A.

10:00 a.m. Break

10:15 a.m. 35-S. New frameworks in disease ecology that address the micropolis. K. A. GARRETT (1). (1) Kansas State University, Manhattan, KS, U.S.A.

10:45 a.m. 36-S. Welcome to the micropolis: How metagenomics can enhance plant pathology research. K. D. BRODERS (1). (1) University of New Hampshire, Durham, NH, U.S.A.

11:15 a.m. Discussion

New Products and Services

8:30 – 10:30 a.m.; Ballroom C, CC

Section: Disease Control and Pest Management

Organizer/Moderator: Dair McDuffee, Valent USA Corporation, Indianapolis, IN, U.S.A.

Sponsoring Committee/Sponsor: Industry

8:30 a.m. 37-S. Chain of custody GPS-bar code app. R. C. BOHANNON (1). (1) Agdia, Inc., Elkhart, IN, U.S.A.

8:45 a.m. 38-S. Hyperspectral imaging for plant-phenomic research. J. VANDENHIRTZ (1). (1) Lemnatec GmbH, Wuerselen, Germany

9:00 a.m. 39-S. Ethaboxam Fungicide: A new-order seed protectant for broader spectrum control of the oomycete fungi. K. ARTHUR (1). (1) Valent USA, Plano, TX, U.S.A.

9:15 a.m. 40-S. New diagnostic products for sensitive and reliable detection of Asian soybean rust (ASR) fungus in presymptomatic host crops. J. XIA (1). (1) AC Diagnostics, Inc., Fayetteville, AR, U.S.A.

9:30 a.m. 41-S. WatchDog Cellular Alert. C. TURSKI (1). (1) Spectrum Technologies, Inc., Plainfield, IL, U.S.A.

9:45 a.m. 42-S. Priaxor and Merivan fungicides from BASF Corporation. S. WALKER (1). (1) BASF Corporation, Durham, NC, U.S.A.

10:00 a.m. Break

10:15 a.m. 43-S. General *Pospiviroid* group RT-PCR. D. GROTH-HELMS (1). (1) Agdia, Inc., Elkhart, IN, U.S.A.

Unifying Concepts in Plant and Animal Vector Biology

8:30 – 11:30 a.m.; 555, CC

Section: Biology of Pathogens

Organizers/Moderators: Diane Ullman, Department of Entomology, University of California, Davis, CA, U.S.A.; Thomas German, University of Wisconsin, Madison, WI, U.S.A.

Sponsoring Committees/Sponsors: Vector-Pathogen Complexes; Virology

Financial Sponsors: APS-APHIS Widely Prevalent Virus Committee, The Samuel Roberts Noble Foundation, Inc.

8:30 a.m. 44-S. *LaCrosse virus* modifies the behavior of its mosquito vector. B. J. BEATY (1). (1) Colorado State University, Fort Collins, CO, U.S.A.

9:00 a.m. 45-S. What makes a vector a vector: The ecological and molecular basis of vector competence in planthoppers and thrips. A. WHITFIELD (1), D. Rothenberg (1). (1) Kansas State University, Manhattan, KS, U.S.A.

9:30 a.m. 46-S. The molecular basis of vector competence in mosquito-arbovirus interactions. L. C. BARTHOLOMAY (1). (1) Iowa State University, Ames, IA, U.S.A.

10:00 a.m. Break

10:15 a.m. 47-S. A virus at the helm: Even plant-infecting viruses modify vector behavior! C. A. STAFFORD (1). (1) University of California-Davis, Davis, CA, U.S.A.

10:30 a.m. 48-S. Manipulation of host-derived olfactory cues by vector-borne pathogens of plants and insects. M. C. MESCHER (1). (1) Pennsylvania State University, University Park, PA, U.S.A.

11:00 a.m. 49-S. Strategies employed by animal parasites to enhance vector transmission. H. HURD (1). (1) Keele University, Keele, Staffordshire, United Kingdom

ORAL TECHNICAL SESSIONS

Epidemiology

8:30 – 9:45 a.m.; Ballroom D, CC

Section: Ecology and Epidemiology

Moderators: Adam Sparks, IRRI, Metro Manila, Philippines; Tim Gottwald, USDA-ARS, Fort Pierce, FL, U.S.A.

- 8:30 a.m. 29-O. Toward general methods to identify and quantify partial resistance interacting with other plant attributes: An illustration in the case of rice sheath blight. L. WILLOCQUET (1), S. Srinivasachary (2), S. Savary (1). (1) INRA, Castanet Tolosan, Cedex, France; (2) IRRI, Los Banos, Philippines
- 8:45 a.m. 30-O. Latent period and infectious period: Useful concepts or vague notions. F. J. FERRANDINO (1). (1) Connecticut Agricultural Experiment Station, New Haven, CT, U.S.A.
- 9:00 a.m. 31-O. Effect of temperature on latent period of wheat stem rust (*Puccinia graminis* subsp. *graminis* f. sp. *tritici*) isolates across different wheat cultivars. J. HERNANDEZ NOPSA (1), W. F. Pfender (1). (1) USDA-ARS, Corvallis, OR, U.S.A.
- 9:15 a.m. 32-O. Preventing what ails rice with a strategic, statistical, prescriptive model system. A. H. SPARKS (1), A. Nelson (2), S. Savary (3). (1) IRRI, Metro Manila, Philippines; (2) IRRI, Los Baños, Philippines; (3) INRA, Castanet Tolosan, France
- 9:30 a.m. 33-O. The epidemiology of *Bean golden mosaic virus* in transgenic bean lines. J. C. FARIA (1). (1) EMBRAPA-CNPAP, Santo Antonio De Goias, Brazil

Fungal Biology 1

8:30 – 9:30 a.m.; 556, CC

Section: Biology of Pathogens

Moderators: Francis Trail, Michigan State University, East Lansing, MI, U.S.A.; Cassandra L. Swett, University of California-Davis, Davis, CA, U.S.A.

- 8:30 a.m. 34-O. A role for mating type in *Aspergillus flavus* infection of corn and in biological control? K. E. DAMANN (1). (1) Louisiana State University, Baton Rouge, LA, U.S.A.
- 8:45 a.m. 35-O. Distribution and detection of *Botrytis* species of blackberry and strawberry in the Southeast United States. X. LI (1), D. Fernandez-Ortuno (1), A. Grabke (1), G. Schnabel (1). (1) Clemson University, Clemson, SC, U.S.A.
- 9:00 a.m. 36-O. Draft genome assembly of the ascomycete *Colletotrichum acutatum*. J. POLASHOCK (1), G. Cai (2), B. Hillman (2), P. V. Oudemans (3). (1) USDA-ARS, Chatsworth, NJ, U.S.A.; (2) Rutgers The State University of New Jersey, New Brunswick, NJ, U.S.A.; (3) Rutgers University, Chatsworth, NJ, U.S.A.
- 9:15 a.m. 37-O. Phylogenetic analysis of a group of species of the genus *Fusarium* using DNA microsequences. J. J. FILGUEIRA-DUARTE (1). (1) Universidad Militar Nueva Granada, Bogotá, Colombia
- 9:30 a.m. 38-O. WITHDRAWN

New Insights into the Disease Triangle

8:30 – 9:45 a.m.; Ballroom E, CC

Section: Ecology and Epidemiology

Moderator: Pravin Gautam, South Dakota State University, Brookings, SD, U.S.A.

- 8:30 a.m. 39-O. Water as a vehicle for transport of *Salmonella enterica* to tomato plants. A. H. VAN BRUGGEN (1), J. M. Cevallos-Cevallos (1), G. Gu (1), M. D. Danyluk (2), A. C. Wright (1). (1) University of Florida, Gainesville, FL, U.S.A.; (2) University of Florida, Lake Alfred, FL, U.S.A.
- 8:45 a.m. 40-O. Is the super-resistant fungus among us? Genesis and consequences of recent epidemic of *Botrytis cinerea* in strawberry fields in Florida. A. AMIRI (1), S. M. Heath (1), N. N. Peres (1). (1) University of Florida, Wimauma, FL, U.S.A.
- 9:00 a.m. 41-O. Evaluation of epidemiology and prediction tools of gray mold, anthracnose fruit rot, and powdery mildew in field and high-tunnel-grown day-neutral strawberries. R. R. BURLAKOTI (1), J. Zandstra (2), K. Jackson (1). (1) Weather INnovations Incorporated, Chatham, ON, Canada; (2) University of Guelph-Ridgetown Campus, Ridgetown, ON, Canada
- 9:15 a.m. 42-O. Relating aerial concentration and escape of *Pseudoperonospora cubensis* sporangia from a cucumber canopy to disease severity during cucurbit downy mildew epidemics. K. Neufeld (1), S. Isard (2), P. OJIAMBO (1). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) Pennsylvania State University, University Park, PA, U.S.A.
- 9:30 a.m. 43-O. Effects of dew-period temperature changes on initiation of infection in soybean by *Phakopsora pachyrhizi*. M. R. BONDE (1), S. E. Nester (1), D. K. Berner (1). (1) USDA-ARS, Frederick, MD, U.S.A.

Ecology and Epidemiology of Rhizosphere Pathogens

10:15 – 11:30 a.m.; Ballroom D, CC

Section: Ecology and Epidemiology

Moderator(s): Anna C. Seidl, University of Wisconsin, Madison, WI, U.S.A.

- 10:15 a.m. 44-O. Fungal and bacterial community responses to fallow period in the Bolivian highlands. L. GOMEZ-MONTANO (1), A. Jumpponen (1), M. A. Gonzales (2), J. Cusicanqui (3), C. Valdivia (4), P. Motavalli (4), M. Herman (1), K. A. Garrett (1). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) Fundacion PROINPA, La Paz, Bolivia; (3) Universidad Mayor de San Andres, La Paz, Bolivia; (4) University of Missouri, Columbia, MO, U.S.A.
- 10:30 a.m. 45-O. Plant host effects on rhizosphere bacterial communities and pathogen suppression. B. E. ARENZ (1), J. M. Bradeen (1), L. K. Otto-Hansen (1), J. C. Anderson (1), L. L. Kinkel (1). (1) University of Minnesota, St. Paul, MN, U.S.A.
- 10:45 a.m. 46-O. The risk associated with irrigating ornamental nursery plants with water containing *Phytophthora*. A. LOYD (1), M. Benson (2), K. Ivors (3). (1) Department of Plant Pathology, North Carolina State University, Raleigh, NC, U.S.A.; (2) North Carolina State University, Raleigh, NC, U.S.A.; (3) North Carolina State University, Mills River, NC, U.S.A.

- 11:00 a.m. 47-O. ★**APS Foundation Awardee** Temperature adaptation of *Ralstonia solanacearum* strains correlates with disease incidence. A. I. HUERTA (1), A. Milling (1), C. Allen (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 11:15 a.m. 48-O. ★**APS Foundation Awardee** Induced resistance to pitch canker, caused by asymptomatic *Fusarium circinatum* infection, in seedlings of *Pinus radiata*. C. L. SWETT (1), T. R. Gordon (1). (1) University of California-Davis, Davis, CA, U.S.A.

Fungal Biology 2

10:15 – 11:30 a.m.; 556, CC

Section: Biology of Pathogens

Moderator: H. Corby Kistler, University of Minnesota, St. Paul, MN, U.S.A.

- 10:15 a.m. 49-O. Race diversity of *Puccinia helianthi* (sunflower rust) in the Northern Great Plains in 2011. A. FRISKOP (1), T. Gulya (2), M. Acevedo (1), R. Harveson (3), R. Humann (1), S. Markell (1). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) USDA-ARS, Sunflower Research Unit, Fargo, ND, U.S.A.; (3) University of Nebraska, Scottsbluff, NE, U.S.A.
- 10:30 a.m. 50-O. Incidence and impact of *Verticillium dahliae* in dirt associated with certified potato seed lots. J. K. DUNG (1), P. B. Hamm (2), J. E. Eggers (2), D. A. Johnson (1). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) Department of Botany and Plant Pathology, Hermiston Agricultural Research & Extension Center, Oregon State University, Hermiston, OR, U.S.A.
- 10:45 a.m. 51-O. Morphological characterization of *Colletotrichum* species isolated from mango and tree tomato in Cundinamarca and Tolima, Colombia. C. CALDERÓN (1), M. Cárdenas (1), S. Restrepo (1), P. Jiménez (2). (1) Universidad de Los Andes, Bogotá, Colombia; (2) Universidad Militar Nueva Granada, Bogotá, Colombia
- 11:00 a.m. 52-O. Evaluation of model plants for use in elucidation of *Sclerotinia homoeocarpa* pathogenesis. R. RIOUX (1), J. Kerns (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 11:15 a.m. 53-O. Genetic diversity of *Cercospora seminalis* causing false smut disease of buffalograss. B. S. AMARADASA (1), K. Amundsen (1). (1) University of Nebraska-Lincoln, Lincoln, NE, U.S.A.

Pathogen Diversity

10:15 – 11:30 a.m.; Ballroom E, CC

Section: Ecology and Epidemiology

Moderators: Boris Vinatzer, Virginia Tech, Blacksburg, VA, U.S.A.; Venkatesan Parkunan, University of Georgia, Coastal Plain Experiment Station, Tifton, GA, U.S.A.

- 10:15 a.m. 54-O. ★**APS Foundation Awardee** Monitoring changes in population structure of an isolated research population of *Phytophthora capsici*. A. R. DUNN (1), C. D. Smart (1). (1) Cornell University, Geneva, NY, U.S.A.
- 10:30 a.m. 55-O. Expanded analysis of *P. infestans* mitochondrial haplotypes and correlation with nuclear genotype. F. N. MARTIN (1), Y. Zhang (2), N. Grunwald (3), D. E. Cooke (4), M. D. Coffey (2). (1) USDA-ARS, Salinas, CA, U.S.A.; (2) University of California, Riverside, CA, U.S.A.; (3) USDA-ARS, Corvallis,

OR, U.S.A.; (4) The James Hutton Institute, Invergowrie, Dundee, Scotland

- 10:45 a.m. 56-O. Characterizing oomycetes in irrigation ponds associated with vegetable production in southern Georgia. V. PARKUNAN (1), M. Purvis (1), P. Ji (1). (1) University of Georgia, Coastal Plain Experiment Station, Tifton, GA, U.S.A.
- 11:00 a.m. 57-O. Population genetics of the fungal pathogen *Monilinia vaccinii-corymbosi* in blueberry fields throughout the United States. K. M. BURCHHARDT (1), M. A. Cubeta (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 11:15 a.m. 58-O. Influence of *Fusarium palustre*, drought, and DMSO on herbivory of *Spartina alterniflora* by marsh crabs. W. H. ELMER (1). (1) The Connecticut Agricultural Experiment Station, New Haven, CT, U.S.A.

Bacterial Biology

3:15 – 4:30 p.m.; Ballroom C, CC

Section: Biology of Pathogens

Moderator: George W. Sundin, Michigan State University, East Lansing, MI, U.S.A.

- 3:15 p.m. 59-O. Regulation of the oxidative stress response in *Pantoea stewartii* subsp. *stewartii*, an important aspect of Stewart's wilt development in sweet corn. L. BURBANK (1), M. Roper (1). (1) University of California-Riverside, Riverside, CA, U.S.A.
- 3:30 p.m. 60-O. Genomic island-based plasticity among the genomes of rice-pathogenic *Burkholderia glumae* and *B. gladioli* strains. F. FRANCIS (1), J. Kim (2), J. Ham (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (2) Louisiana State University, Center for Computation & Technology, Baton Rouge, LA, U.S.A.
- 3:45 p.m. 61-O. Naturally occurring avirulent strains of *Burkholderia glumae* isolated from rice fields fail to express multiple virulence genes. H. S. KARKI (1), J. Ham (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.
- 4:00 p.m. 62-O. Dynamics and environmental regulation of virulence gene expression in *Erwinia amylovora*. V. ANCONA (1), D. Wang (1), Y. Zhao (1). (1) University of Illinois, Urbana, IL, U.S.A.
- 4:15 p.m. 63-O. Differential regulation of phenazine biosynthesis by RpeA and RpeB in *Pseudomonas chlororaphis* strain 30-84. D. WANG (1), J. Yu (1), L. S. Pierson III (1), E. A. Pierson (1). (1) Texas A&M University, College Station, TX, U.S.A.

IPM 2

3:15 – 4:30 p.m.; 552, CC

Section: Disease Control and Pest Management

Moderators: Mathews L. Paret, University of Florida, Quincy, FL, U.S.A.; Zelalem Mersha, University of Florida, Homestead, FL, U.S.A.

- 3:15 p.m. 64-O. Summary of methyl bromide alternatives research in Florida strawberries. J. W. NOLING (1). (1) University of Florida, Lake Alfred, FL, U.S.A.
- 3:30 p.m. 65-O. Efficacy of trenching, rootstock, and compost to manage peach replant disease. R. POKHAREL (1). (1) Colorado State University, Grand Junction, CO, U.S.A.

Oral Technical Sessions continued

- 3:45 p.m. 66-O. Reproducing bacterial blast of sweet cherry in the field and identifying new treatments for managing the disease. J. Adaskaveg (1), H. FORSTER (1), L. Wade (2). (1) University of California, Riverside, CA, U.S.A.; (2) Arysta LifeScience, Roseville, CA, U.S.A.
- 4:00 p.m. 67-O. Fungicides do not reduce fruit rot following a simulated hail event. L. WELLS (1), P. McManus (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 4:15 p.m. 68-O. Rust and brown eye spot on center pivot irrigated coffee. A. P. Custódio (1), E. A. POZZA (2), L. S. Santos (2), C. N. Uchoa (3), P. E. Souza (2), A. A. Pozza (4). (1) Engineering Department, Federal University of Lavras, Lavras, MG, Brazil; (2) Department of Plant Pathology, Federal University of Lavras, Lavras, MG, Brazil; (3) Instituto Federal de Ciência, Tecnologia e Educação do Ceará., Fortaleza, Brazil; (4) Federal University of Viçosa, Florestal, Brazil

Molecular Fungi and Bacteria

3:15 – 4:30 p.m.; 555, CC

Section: Molecular/Cellular/Plant-Microbe Interactions

Moderators: James Polashock, USDA-ARS, GIFVL, Chatsworth, NJ, U.S.A.; Mari Anne Newman, Frederiksberg, Denmark

- 3:15 p.m. 69-O. Functional characterization of four transcription factors regulating pathogenesis in the plant-pathogenic fungus *Alternaria brassicicola*. Y. CHO (1). (1) University of Hawaii at Manoa, Honolulu, HI, U.S.A.
- 3:30 p.m. 70-O. Transcript profiling of CYP83B1 at different level of infection by *Alternaria brassicae* and *Alternaria brassicicola* in cauliflower. P. SHARMA (1), M. Sharma (1), S. Deep (1), D. Singh (1), D. Singh (1). (1) Indian Agricultural Research Institute, New Delhi, India
- 3:45 p.m. 71-O. The type IV pilus plays a major role during interactions between the bacterial biological control agent *Lysobacter enzymogenes* and the fungal host *Cryphonectria parasitica*. N. PATEL (1), D. Lambert (1), N. Donofrio (2), B. Hillman (1), D. Kobayashi (1). (1) Rutgers The State University of New Jersey, New Brunswick, NJ, U.S.A.; (2) University of Delaware, Newark, DE, U.S.A.
- 4:00 p.m. 72-O. *tofM* Encoding a *rsaM* homolog is required for the quorum sensing-independent biosynthesis of toxoflavin in *Burkholderia glumae*. R. CHEN (1), I. K. Barphagha (1), J. Ham (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.
- 4:15 p.m. 73-O. Effect of temperature on resistance to bacterial wilt, caused by *Ralstonia solanacearum*, in tobacco cultivars. R. BITTNER (1), A. Mila (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

Molecular Resistance

3:15 – 4:30 p.m.; 556, CC

Section: Molecular/Cellular/Plant-Microbe Interactions

Moderators: James Bradeen, University of Minnesota, St. Paul, MN, U.S.A.; Mala Ganiger, Louisiana State University, Baton Rouge, LA, U.S.A.

- 3:15 p.m. 74-O. Our expanding SolaR80 system: Toward comprehensive survey of the solanaceae R-gene space. J. BRADEEN (1), E. Quirin (1), H. Mann (1), A. Traini (2), M. L. Chiusano (2), D. Carputo (2). (1)

- University of Minnesota, St. Paul, MN, U.S.A.; (2) University of Naples Federico II, Portici, Italy
- 3:30 p.m. 75-O. Function, evolution, and interaction of the coupled genes responsible for the *Pik-b* encoded blast resistance of rice. C. Zhai (1), L. Hua (1), N. Yao (2), F. Lin (1), Y. Zhang (1), Z. Liu (2), Z. Dong (1), L. Wang (1), L. Wang (1), Q. PAN (1). (1) South China Agricultural University, Guangzhou, Guangdong, Peoples Republic of China; (2) Sun Yat-sen University, Guangzhou, Guangdong, Peoples Republic of China
- 3:45 p.m. 76-O. Natural variation and evolution of the avirulence genes in *Magnaporthe oryzae*. Y. JIA (1), Z. Zhang (2), J. Xing (3), Y. Wang (2), J. Correll (4), R. Cartwright (4). (1) USDA-ARS DBNRRRC, Stuttgart, AR, U.S.A.; (2) Zhejiang Academy of Agricultural Sciences, Hang Zhou, Peoples Republic of China; (3) National Hybrid Rice Research and Development Center, Changsha, Peoples Republic of China; (4) University of Arkansas, Fayetteville, AR, U.S.A.
- 4:00 p.m. 77-O. Molecular determinants of resistance activation and suppression by *Phytophthora infestans* effector IPI-O. Y. Chen (1), Z. Liu (1), D. HALTERMAN (2). (1) University of Wisconsin-Madison, Plant Pathology, Madison, WI, U.S.A.; (2) USDA-ARS, Madison, WI, U.S.A.
- 4:15 p.m. 78-O. The CRT1 family is required for plant immunity against *Phytophthora infestans*. P. M. MANOSALVA (1), H. Kang (1), D. F. Klessig (1). (1) Boyce Thompson Institute for Plant Research, Ithaca, NY, U.S.A.

Vectors and Vectored Pathogens

3:15 – 4:30 p.m.; Ballroom E, CC

Section: Ecology and Epidemiology

Moderator: Richard S. Nelson, The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

- 3:15 p.m. 79-O. Vector-borne cotton boll disease transmitted by *Nezara viridula* nymphs. E. G. MEDRANO (1), J. F. Esquivel (2). (1) USDA-ARS CPRU, College Station, TX, U.S.A.; (2) USDA-ARS, College Station, TX, U.S.A.
- 3:30 p.m. 80-O. Novel broad-spectrum resistance to potato potyviruses. L. TORRANCE (1), G. Cowan (1), K. Mclean (1), A. Al-Abedy (1), S. MacFarlane (1), G. Bryan (1). (1) The James Hutton Institute, Dundee, United Kingdom
- 3:45 p.m. 81-O. Survey of viruses present in wine grapes in Idaho. E. KANUYA (1), L. A. Clayton (2), R. A. Naidu (3), A. V. Karasev (1). (1) University of Idaho, Moscow, ID, U.S.A.; (2) University of Idaho, Lewiston, ID, U.S.A.; (3) Washington State University, Prosser, WA, U.S.A.
- 4:00 p.m. 82-O. Virus diversity in Washington State Concord vineyards. B. W. BAHDER (1), N. A. Rayapati (1), D. B. Walsh (1). (1) Washington State University, Prosser, WA, U.S.A.
- 4:15 p.m. 83-O. Statewide survey of grapevine leafroll-associated viruses and management of its vector, grape mealybug, in Virginia. T. J. JONES (1), N. A. Rayapati (2), M. Nita (1). (1) Virginia Tech, AHS AREC, Winchester, VA, U.S.A.; (2) Washington State University, IAREC, Prosser, WA, U.S.A.

Detection and Diagnosis

3:15 – 4:45 p.m.; 551, CC

Section: Diseases of Plants**Moderator:** William Turechek, USDA-ARS USHRL, Fort Pierce, FL, U.S.A.

- 3:15 p.m. 84-O. Development of a rapid molecular assay for the Ug99 race group of *Puccinia graminis*. L. J. SZABO (1). (1) USDA-ARS, St. Paul, MN, U.S.A.
- 3:30 p.m. 85-O. Use of latent class analysis to estimate the sensitivities and specificities of diagnostic tests for *Squash vein yellowing virus* in cucurbits. W. TURECHEK (1), C. Webster (1), S. Kousik (2), S. Adkins (1). (1) USDA-ARS USHRL, Fort Pierce, FL, U.S.A.; (2) USDA-ARS USVL, Charleston, SC, U.S.A.
- 3:45 p.m. 86-O. Comparative analysis of techniques for detection of quiescent *Botrytis cinerea* in grapes by quantitative PCR. S. SAITO (1), L. Cadle-Davidson (2), W. F. Wilcox (1). (1) Cornell University NYSAES, Geneva, NY, U.S.A.; (2) USDA-ARS, Grape Genetics Research Unit, Geneva, NY, U.S.A.
- 4:00 p.m. 87-O. Development of a real-time polymerase chain reaction assay to detect and quantify *Fusarium oxysporum* f. sp. *lycopersici* in soil. C. HUANG (1). (1) University of Florida, Wimauma, FL, U.S.A.
- 4:15 p.m. 88-O. Development of a DNA microarray for detection of fungal pathogens involved in the decline of young grapevines. J. R. URBEZ TORRES (1), P. Haag (2), D. T. O’Gorman (2). (1) Pacific Agri-Food Research Centre, Summerland, BC, Canada; (2) Agriculture & Agri-Food Canada, Summerland, BC, Canada
- 4:30 p.m. 89-O. ★**APS Foundation Awardee** Detection of *Helminthosporium solani* and *Colletotrichum coccodes* in organically grown asymptomatic and symptomatic potatoes. C. MATTUPALLI (1), R. K. Genger (1), A. O. Charkowski (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

Fungicide Resistance 1

3:15 – 4:45 p.m.; Ballroom B, CC

Section: Disease Control and Pest Management**Moderator:** Janna Beckerman, Purdue University, West Lafayette, IN, U.S.A.

- 3:15 p.m. 90-O. Characterization and management of *Botrytis cinerea* resistant to multiple fungicides. D. FERNANDEZ-ORTUNO (1), A. Grabke (1), X. Li (1), P. Bryson (1), G. Schnabel (1). (1) Clemson University, Clemson, SC, U.S.A.
- 3:30 p.m. 91-O. A potential multidrug ABC transporter gene from field isolates of *Sclerotinia homoeocarpa* involved in propiconazole resistance. H. SANG (1), J. Hulvey (1), J. T. Popko (1), G. Jung (1). (1) University of Massachusetts, Amherst, MA, U.S.A.
- 3:45 p.m. 92-O. Investigations into the molecular mechanisms responsible for the decline in sensitivity to DMI fungicides in *Mycosphaerella graminicola* populations. B. A. FRAAIJE (1), H. J. Cools (1). (1) Rothamsted Research, Harpenden, United Kingdom
- 4:00 p.m. 93-O. The effect of the dose rate of a fungicide on the emergence of resistance. P. HOBBELEN (1), N. D. Paveley (2), F. van den Bosch (1). (1) Rothamsted Research, Harpenden, United Kingdom; (2) ADAS

UK Ltd., High Mowthorpe, Duggleby, Malton, United Kingdom

- 4:15 p.m. 94-O. Reduced azole sensitivity in the oilseed rape pathogen *Pyrenopeziza brassicae*. H. CARTER (1), H. Cools (1), J. West (1), M. Shaw (2), A. Mehl (3), B. Fraaije (1). (1) Rothamsted Research, Harpenden, United Kingdom; (2) University of Reading, Reading, United Kingdom; (3) Bayer CropScience, Monheim, Germany
- 4:30 p.m. 95-O. Distribution and management of fungicide-resistant *Fusarium* spp. infecting potato seed tubers in Canada. R. D. PETERS (1), B. W. Beaton (2), T. Barasubiyie (3), K. A. Drake (1), C. J. Banks (2), M. M. Clark (4). (1) Agriculture & Agri-Food Canada, Charlottetown, PE, Canada; (2) Prince Edward Island Department of Agriculture, Charlottetown, PE, Canada; (3) Agriculture and Agri-Food Canada, Ottawa, ON, Canada; (4) Prince Edward Island Department of Agriculture, Kensington, PE, Canada

New and Emerging Diseases 1

3:15 – 4:45 p.m.; Ballroom D, CC

Section: Diseases of Plants**Moderator:** Mohammad Babadoost, University of Illinois, Urbana, IL, U.S.A.

- 3:15 p.m. 96-O. Etiology and epidemiology of Alternaria leaf blotch and fruit spot of apple in Australia. D. O. HARTEVELD (1), O. A. Akinsanmi (1), A. Drenth (1). (1) The University of Queensland, Brisbane, QLD, Australia
- 3:30 p.m. 97-O. Occurrence of bacterial spot (*Xanthomonas cucurbitae*) in pumpkin fields in the Midwest. M. BABADOOST (1), A. Ravanlou (1), D. S. Egel (2), D. O’Brien (3). (1) University of Illinois, Urbana, IL, U.S.A.; (2) Purdue University, Vincennes, IN, U.S.A.; (3) Crop Production Services, Hudson, OH, U.S.A.
- 3:45 p.m. 98-O. ★**APS Foundation Awardee** *Acidovorax avenae* subsp. *avenae*: An emerging bacterial pathogen on creeping bentgrass. P. R. GIORDANO (1), G. Sundin (1), M. Chilvers (1), B. Day (1), K. Frank (1), N. Mitkowski (2), A. Chaves (2), J. M. Vargas (1). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) University of Rhode Island, Kingston, RI, U.S.A.
- 4:00 p.m. 99-O. Factors involved in Indiana bitter rot outbreaks. S. KOENIG (1), G. W. Sundin (2), J. Beckerman (1). (1) Purdue University, West Lafayette, IN, U.S.A.; (2) Michigan State University, East Lansing, MI, U.S.A.
- 4:15 p.m. 100-O. A new pest: *Fusarium* sp. and its vector tea shot-hole borer (*Euwallacea fornicatus*) causing Fusarium dieback on avocado in California. A. ESKALEN (1), D. H. Wang (1), M. Twizeyimana (1). (1) Department of Plant Pathology and Microbiology, University of California-Riverside, Riverside, CA, U.S.A.
- 4:30 p.m. 101-O. First report of *Meloidogyne enterolobii* on Noni, Chinese Eaglewood, and Clove in China. W. H. Fang (1), F. M. Ying (2), C. M. CAI (2). (1) Institute of Environment and Plant Protection, Haikou, Peoples Republic of China; (2) Hainan Academy of Agricultural Sciences, Haikou, Peoples Republic of China

Oral Technical Sessions continued

TUESDAY, AUGUST 7, 2012

Listed in alphabetical order by title. **Special Sessions listed first, followed by Oral Technical Sessions.** 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

Issues and Opportunities in Regulatory Sciences at EPA

8:30 – 11:30 a.m.; 551, CC

Section: Disease Control and Pest Management

Organizers/Moderators: Jim Mueller, Dow AgroSciences, Brentwood, CA, U.S.A.; Brian D. Olson, Dow AgroSciences, Geneva, NY, U.S.A.

Sponsoring Committees/Sponsors: Office of Industry Relations; Public Policy Board; Industry; Pathogen Resistance; Chemical Control

- 8:30 a.m. 50-S. Science-based risk and benefit assessment. A. JONES (1). (1) U.S. Environmental Protection Agency OPP BEAD, Washington, DC, U.S.A.
- 9:00 a.m. 51-S. Reviewing biopesticides in the United States. G. S. TOMIMATSU (1). (1) U.S. Environmental Protection Agency OPP BPPD, Washington, DC, U.S.A.
- 9:30 a.m. 52-S. Biotechnology for disease management: Regulatory considerations. C. A. WOZNIAK (1). (1) U.S. Environmental Protection Agency OPP BPPD, Washington, DC, U.S.A.
- 10:00 a.m. Break
- 10:15 a.m. 53-S. EPA and resistance management. A. JONES, EPA OPP BEAD, Washington, DC, U.S.A.
- 10:45 a.m. 54-S. Endocrine disruptor testing: Implications for plant disease. P. LEWIS (1). (1) U.S. Environmental Protection Agency OCSP OPPT, Washington, DC, U.S.A.
- 11:15 a.m. Discussion

It's a Mixed Up World: Hybridization and Horizontal Gene Transfer in Plant Pathogens and Endophytes

8:30 – 11:30 a.m.; Ballroom B, CC

Section: Ecology and Epidemiology

Organizers: Erica Goss, University of Florida, Gainesville, FL, U.S.A.; Steve Klosterman, USDA-ARS, Salinas, CA, U.S.A.; Maria Jimenez-Gasco, Penn State University, University Park, PA, U.S.A.

Moderators: Erica Goss, University of Florida, Gainesville, FL, U.S.A.; Maria Jimenez-Gasco, Penn State University, University Park, PA, U.S.A.

Sponsoring Committees/Sponsors: Genetics; Mycology; Bacteriology

- 8:30 a.m. 55-S. *Verticillium longisporum*—A hybrid pathogen with an expanded host range. P. INDERBITZIN (1), R. M. Davis (1), R. M. Bostock (1), K. V. Subbarao (1). (1) University of California-Davis, Department of Plant Pathology, Davis, CA, U.S.A.
- 9:00 a.m. 56-S. Emergence of *Phytophthora* pathogens by hybridization. E. GOSS (1). (1) University of Florida, Gainesville, FL, U.S.A.
- 9:30 a.m. 57-S. The role of horizontal gene transfer in bacterial crop pathogen emergence. B. A. VINATZER (1), R. Cai (1), C. L. Monteil (2), C. E. Morris (2). (1) Virginia Tech, Blacksburg, VA, U.S.A.; (2) INRA PACA, Avignon, France
- 10:00 a.m. Break
- 10:15 a.m. 58-S. Hybrids hybrids everywhere: The role of hybridization in the evolution of *Neotyphodium* grass endophytes. K. D. CRAVEN (1), S. R. Ghimire (2), C. Young (1), N. D. Charlton (1), G. Swoboda (1), B. Hall (1), M. Afkhami (3). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; (2) RTI International, Research Triangle Park, NC, U.S.A.; (3) University of California-Davis, Davis, CA, U.S.A.
- 10:45 a.m. 59-S. Genomic characterization of the conditionally dispensable chromosome in *Alternaria arborescens* provides evidence for horizontal gene transfer. T. MITCHELL (1). (1) The Ohio State University, Department of Plant Pathology, Columbus, OH, U.S.A.
- 11:15 a.m. Discussion

Potato virus Y—An Old Virus and a New Problem in Potato

8:30 – 11:30 a.m.; Ballroom C, CC

Section: Biology of Pathogens

Organizers/Moderators: Alexander Karasev, University of Idaho, Moscow, ID, U.S.A.; Stewart Gray, USDA-ARS, Cornell University, Ithaca, NY, U.S.A.

Sponsoring Committee/Sponsor: Virology

Financial Sponsors: APS-APHIS Widely Prevalent Virus Committee, The Samuel Roberts Noble Foundation, Inc.

- 8:30 a.m. 60-S. PVY as an emerging potato problem in North America. S. M. GRAY (1). (1) Cornell University, Ithaca, NY, U.S.A.
- 8:45 a.m. 61-S. Breeding potato for PVY resistance. S. H. JANSKY (1), X. Cai (2). (1) USDA-ARS and University of Wisconsin-Madison, Madison, WI, U.S.A.; (2) Huazhong Agricultural University, College of Horticulture and Forestry, Wuhan, Peoples Republic of China
- 9:15 a.m. 62-S. Modeling aphid vector flights and improved control of *Potato virus Y*. R. GROVES (1), K. Frost (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 9:45 a.m. 63-S. PVY and Canadian experience. M. SINGH (1), X. Nie (2), Y. Pelletier (2), M. Fageria (3). (1) Agricultural Certification Services/Potatoes NB, Fredericton, NB, Canada; (2) Agriculture and Agri-Food, Potato Research Centre, Fredericton, NB, Canada; (3) Agricultural Certification Services, Fredericton, NB, Canada
- 10:00 a.m. Break
- 10:15 a.m. 63-S continued. PVY and Canadian experience. M. SINGH (1), X. Nie (2), Y. Pelletier (2), M. Fageria (3). (1) Agricultural Certification Services/Potatoes NB, Fredericton, NB, Canada; (2) Agriculture and Agri-Food, Potato Research Centre, Fredericton, NB, Canada; (3) Agricultural Certification Services, Fredericton, NB, Canada

- 10:30 a.m. 64-S. Classification of PVY strains and new recombinants. A. V. KARASEV (1), S. M. Gray (2). (1) University of Idaho, Moscow, ID, U.S.A.; (2) Cornell University, Ithaca, NY, U.S.A.
- 11:00 a.m. 65-S. Potato seed certification and PVY. P. NOLTE (1). (1) University of Idaho, Moscow, ID, U.S.A.

Thousand Cankers Disease: A Threat to Eastern Black Walnut Throughout Its Native Range and Beyond

8:30 – 11:30 a.m.; Ballroom D, CC

Section: Diseases of Plants

Organizers: Inga Meadows, Ministry of Primary Industries, Auckland, New Zealand; Matt Kasson, Pennsylvania State University, University Park, PA, U.S.A.

Moderators: Matt Kasson, Pennsylvania State University, University Park, PA, U.S.A.; Inga Meadows, Ministry of Primary Industries, Auckland, New Zealand

Sponsoring Committees/Sponsors: Forest Pathology; Emerging Diseases and Pathogens; Vector-Pathogen Complexes; Epidemiology

Financial Sponsors: Walnut Council; Walnut Council Foundation

- 8:30 a.m. 66-S. The distribution and impact of thousand cankers disease in walnut species in the western United States. N. TISSERAT (1). (1) Colorado State University, Fort Collins, CO, U.S.A.
- 9:00 a.m. 67-S. From discovery to regulation: A pathologist's perspective of thousand cankers disease in eastern United States. M. WINDHAM (1). (1) Department of Entomology and Plant Pathology, University of Tennessee, Knoxville, TN, U.S.A.
- 9:30 a.m. 68-S. Evolution, diversity, and ecology of the genus *Geosmithia* with emphasis on *G. morbida*. M. KOLARIK (1). (1) Institute of Microbiology of the Academy of Sciences of the Czech Republic, Prague, Czech Republic
- 10:00 a.m. Break
- 10:15 a.m. 69-S. Life history of the walnut twig beetle, *Pityophthorus juglandis*, and its association with *Geosmithia morbida*, causal agent of thousand cankers disease in the United States. S. J. SEYBOLD (1). (1) USDA Forest Service, Pacific Southwest Research Station, Davis, CA, U.S.A.
- 10:45 a.m. 70-S. Thousand cankers disease: A recently emerging disease of eastern black walnut in the eastern United States. G. J. GRIFFIN (1). (1) Virginia Tech, Blacksburg, VA, U.S.A.
- 11:15 a.m. Discussion

ORAL TECHNICAL SESSIONS

Bacterial Etiology and Ecology


8:30 – 9:45 a.m.; 552, CC

Section: Biology of Pathogens

Moderator: Melanie Lewis Ivey, Ohio State University-OARDC, Wooster, OH, U.S.A.

- 8:30 a.m. 102-O. Novel *Pseudomonas syringae* strains associated with leaf spot diseases on watermelon (*Citrullus lanatus*) and squash (*Cucurbita pepo*) in California. I. RUBIO (1), H. Bouzar (2), T. M. Jardini (3), S. T. Koike (4), C. T. Bull (3). (1) California State University-Monterey Bay, Salinas, CA, U.S.A.; (2) Sakata Seed America, Inc., Salinas, CA, U.S.A.; (3)

USDA-ARS, Salinas, CA, U.S.A.; (4) University of California Cooperative Extension, Salinas, CA, U.S.A.

- 8:45 a.m. 103-O. Ingress of *Salmonella enterica* Typhimurium into tomato leaves and soil management effect on its internal persistence. G. GU (1), J. M. Cevallose-Cevallos (1), A. H. van Bruggen (1). (1) Emerging Pathogens Institute and Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.
- 9:00 a.m. 104-O. Virulence traits in *Xylella fastidiosa* strains are modulated by calcium. M. R. EVANS (1), L. Cruz (1), L. De La Fuente (1). (1) Auburn University, Auburn, AL, U.S.A.
- 9:15 a.m. 105-O. The effects of diverse *Xylella fastidiosa* isolates on the model host *Nicotiana tabacum*. J. E. OLIVER (1), T. T. Arnold (1), P. A. Cobine (1), L. De La Fuente (1). (1) Auburn University, Auburn, AL, U.S.A.
- 9:30 a.m. 106-O.  Flooding-associated soft rot of sweet potato storage roots caused by *Clostridium*. W. L. DA SILVA (1), C. Clark (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.

Biological Control

8:30 – 9:45 a.m.; Ballroom E, CC

Section: Disease Control and Pest Management

Moderators: Yun Chen, Nanjing Agricultural University, Nanjing, Peoples Republic of China; Ramon Jaime, University of Arizona, Tucson, AZ, U.S.A.

- 8:30 a.m. 107-O. A holistic approach to efficient biological control of Canada thistle by the rust fungus *Puccinia punctiformis*. S. A. CONAWAY (1), P. A. Backman (1). (1) Penn State University, University Park, PA, U.S.A.
- 8:45 a.m. 108-O. *Aspergillus flavus* AF36 in Mexico: Distribution of an endemic biocontrol agent for mitigation of aflatoxin contamination of maize. A. ORTEGA-BELTRAN (1), K. A. Callicott (2), 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.
- 9:00 a.m. 109-O. Long-term and area-wide influences of atoxigenic strain biocontrol technology for aflatoxin contamination. R. JAIME (1), M. Foley (2), L. Antilla (2), P. J. Cotty (3). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) Arizona Cotton Research and Protection Council, Phoenix, AZ, U.S.A.; (3) USDA-ARS, University of Arizona, Tucson, AZ, U.S.A.
- 9:15 a.m. 110-O. The effect of volatile organic compounds produced by *Ceratocystis fimbriata* on the growth of soilborne *Rhizoctonia solani* and rice seed germination. Q. LI (1), Q. J. Li (1). (1) China Agricultural University, Beijing, Peoples Republic of China
- 9:30 a.m. 111-O. Transmission and population frequency of viruses in the soybean cyst nematode. S. BEKAL (1), J. P. Bond (1), K. N. Lambert (2), A. M. Fakhoury (1). (1) Southern Illinois University, Carbondale, IL, U.S.A.; (2) University of Illinois at Urbana-Champaign, Urbana, IL, U.S.A.

Liberibacter and Psyllid Biology

8:30 – 9:45 a.m.; 555, CC

Section: Ecology and Epidemiology

Moderators: Judith K. Brown, University of Arizona, Tucson, AZ, U.S.A.; Angela Records, Eversole Associates, Bethesda, MD, U.S.A.

- 8:30 a.m. 112-O. Stylet morphometrics and ultrastructure in relation to feeding behavior of nymphs and adults of the Asian citrus psyllid *Diaphorina citri*, vector of citrus huanglongbing bacterium. E. AMMAR (1), D. G. Hall (1). (1) USDA-ARS, Fort Pierce, FL, U.S.A.
- 8:45 a.m. 113-O. Potato zebra chip in the Pacific Northwest: Impact and probable psyllid source assessments. F. WORKNEH (1), M. Mirik (2), A. Rashed (1), P. B. Hamm (3), J. Ansley (2), C. M. Rush (1). (1) Texas AgriLife Research, Bushland, TX, U.S.A.; (2) Texas AgriLife Research, Vernon, TX, U.S.A.; (3) Oregon State University, Hermiston, OR, U.S.A.
- 9:00 a.m. 114-O. Genetic characterization of 'Candidatus Liberibacter solanacearum' associated with zebra chip disease of potato in Washington and Idaho. A. WEN (1), C. Johnson (1), N. C. Gudmestad (1). (1) North Dakota State University, Fargo, ND, U.S.A.
- 9:15 a.m. 115-O. Cellular interactions and transcript profiling of 'Candidatus Liberibacter asiaticus and solanacearum' during psyllid infection and vector-mediated transmission. T. W. FISHER (1), J. M. Cicero (1), J. K. Brown (1). (1) University of Arizona, Tucson, AZ, U.S.A.
- 9:30 a.m. 116-O. Real-time PCR quantification of live bacteria in citrus and noncitrus hosts of citrus huanglongbing. H. HU (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

New and Emerging Diseases 2

8:30 – 9:45 a.m.; 556, CC

Section: Diseases of Plants

Moderator: Moytri RoyChowdhury, Texas A&M Citrus Center, Weslaco TX, U.S.A.

- 8:30 a.m. 117-O. Blackleg in canola seed and dockage: Can it cause plant infections? D. FERNANDO (1), B. Demoz (1). (1) University of Manitoba, Winnipeg, MB, Canada
- 8:45 a.m. 118-O. Risk analysis for *Verticillium nonalfalfae* isolate VnAa40, causal agent of Verticillium wilt of *Ailanthus altissima*. M. T. KASSON (1), D. D. Davis (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.
- 9:00 a.m. 119-O. Taxonomic reassessment of the ray blight pathogen of pyrethrum in Australia. N. VAGHEFI (1), S. J. Pethybridge (2), R. Ford (1), M. E. Nicolas (1), P. W. Crous (3), P. W. Taylor (1). (1) Melbourne School of Land and Environment, the University of Melbourne, Melbourne, VIC, Australia; (2) Botanical Resources Australia - Agricultural Services Pty. Ltd., Ulverstone, Tasmania, Australia; (3) CBS Fungal Biodiversity Centre, Utrecht, Netherlands
- 9:15 a.m. 120-O. Emerging plant pathogens in Russia. A. IGNATOV (1), V. Dubovoy (1), N. Zhemchuzhina (1), S. Abramova (1), A. Makarov (1). (1) Russian Research Institute of Phytopathology, Moscow, Russia
- 9:30 a.m. 121-O. Bermudagrass putting greens: A closer look at the root of the problem. P. L. VINES (1). (1) Mississippi State University, Mississippi State, MS, U.S.A.

Biological Control, IPM, and Sanitation

10:15 – 11:30 a.m.; Ballroom E, CC

Section: Disease Control and Pest Management

Moderators: Ramesh Pokharel, Colorado State University, Grand Junction, CO, U.S.A.; José Ramón Úrbez Torres, Agriculture and Agri-Food Canada, Summerland, BC, Canada

- 10:15 a.m. 122-O. ★**APS Foundation Awardee** Biofilm formation of *Bacillus subtilis* on tomato roots enhances biocontrol efficacy against tomato bacterial wilt disease caused by *Ralstonia solanacearum*. Y. CHEN (1), F. Yan (1), H. Liu (1), Y. Chai (2), J. Guo (1). (1) Department of Plant Pathology, College of Plant Protection, Nanjing Agricultural University, Nanjing, Peoples Republic of China; (2) Department of Molecular and Cellular Biology, Harvard University, Cambridge, MA, U.S.A.
- 10:30 a.m. 123-O. WITHDRAWN
- 10:45 a.m. 124-O. Evaluation, validation, and economic analysis of IPM technology in tomato through farmer participatory approach. N. KAUSHIK (1). (1) TERI, New Delhi, India
- 11:00 a.m. 125-O. Increasing the efficacy and effectiveness of application of disinfectants against persistent viruses of greenhouse vegetables. A. POLEATEWICH (1), G. Ferguson (2), M. Brownbridge (1). (1) Vineland Research & Innovation Centre, Vineland Station, ON, Canada; (2) Ontario Ministry of Agriculture, Food & Rural Affairs Greenhouse & Processing Crops Research Centre, Harrow, ON, Canada
- 11:15 a.m. 126-O. Sanitation and disease modeling can help powdery mildew control in organic viticulture. S. LEGLER (1), T. Caffi (1), V. Rossi (1). (1) Università Cattolica del Sacro Cuore, Piacenza, Italy

Chemical Control 2

10:15 – 11:30 a.m.; 555, CC

Section: Disease Control and Pest Management

Moderator(s): TBD

- 10:15 a.m. 127-O. Salicylic acid suppression of clubroot (*Plasmodiophora brassicae*) in *Arabidopsis thaliana* and *Brassica oleracea*. D. LOVELOCK (1), C. Donald (2), X. Conlan (1), D. Cahill (1). (1) Deakin University, Geelong, Australia; (2) Department of Primary Industries, Ferntree Gully, Australia
- 10:30 a.m. 128-O. Efficacy of ethaboxam toward species of *Phytophthora* and *Pythium*. A. E. DORRANCE (1), M. L. Ellis (2), D. McDuffee (3), K. Arthur (4). (1) The Ohio State University, Wooster, OH, U.S.A.; (2) The Ohio State University, OARDC, Wooster, OH, U.S.A.; (3) Valent U.S.A. Corporation, Indianapolis, IN, U.S.A.; (4) Valent U.S.A. Corporation, Plano, TX, U.S.A.
- 10:45 a.m. 129-O. Effect of phenolic compounds on reduction of growth and laccase *Botryosphaeria* spp. P. SRIVASTAVA (1), P. C. Andersen (1), J. J. Marois (1), D. L. Wright (1), M. Srivastava (1). (1) University of Florida, Quincy, FL, U.S.A.
- 11:00 a.m. 130-O. Peroxidase activity and total phenolics in basil (*Ocimum* spp.) in relation to resistance to *Peronospora belbahrii*, the causal agent of downy mildew of basil. Z. MERSHA (1), S. Zhang (2). (1) University of Florida, Tropical Research and Education Center, Homestead, FL, U.S.A.; (2)

- University of Florida, Homestead, FL, U.S.A.
11:15 a.m. 131-O. Kasugamycin and kasugamycin-fungicide mixtures for managing bacterial spot of tomato. L. WADE (1), H. Forster (2), J. E. Adaskaveg (2). (1) Arysta LifeScience, Roseville, CA, U.S.A.; (2) University of California, Riverside, CA, U.S.A.

Diseases of Ornamentals

10:15 – 11:30 a.m.; 556, CC

Section: Diseases of Plants

Moderator: Christie V. Almeyda, Washington State University, Pullman, WA, U.S.A.

- 10:15 a.m. 132-O. *Rose yellow mottle virus*, a novel virus that affects *Rosa* sp. D. MOLLOV (1), B. Lockhart (1), D. Zlesak (2). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) University of Wisconsin-River Falls, River Falls, WI, U.S.A.
- 10:30 a.m. 133-O. ★ *APs Foundation Awardee* Genetic diversity among endogenous plant pararetroviral sequences from geographically diverse sources of dahlia (*Dahlia* spp.). C. V. ALMEYDA (1), K. L. Druffel (1), S. G. Eid (2), H. R. Pappu (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) University of Idaho, Moscow, ID, U.S.A.
- 10:45 a.m. 134-O. Real-time PCR detection of the boxwood blight pathogen *Calonectria pseudonaviculata*. J. CROUCH (1), R. E. Marra (2), A. Y. Rossman (1). (1) USDA-ARS, Beltsville, MD, U.S.A.; (2) Connecticut Agricultural Experiment Station, New Haven, CT, U.S.A.
- 11:00 a.m. 135-O. ★ *APs Foundation Awardee* Understanding the impact of *Pythium* species on floricultural crops in North Carolina. E. LOOKABAUGH (1), K. Ivors (1), M. Benson (1), B. Shew (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

- 11:15 a.m. 136-O. The development of a mobile app for the diagnosis and management of ornamental plant health problems. J. BECKERMAN (1), C. Sadof (1), S. Koenig (1), A. Witte (1). (1) Purdue University, West Lafayette, IN, U.S.A.

Molecular Bacteria

10:15 – 11:30 a.m.; 552, CC

Section: Molecular/Cellular/Plant-Microbe Interactions

Moderator: Nian Wang, University of Florida, Lake Alfred, FL, U.S.A.

- 10:15 a.m. 137-O. A haloacid dehalogenase family phosphatase is required for extracellular polysaccharide production and virulence in *Xanthomonas citri* subsp. *citri*. J. LI (1). (1) University of Florida, Lake Alfred, FL, U.S.A.
- 10:30 a.m. 138-O. WITHDRAWN
- 10:45 a.m. 139-O. Innate immunity: Perception and signalling induced by a bacterial microbe-associated molecular pattern (MAMP) in plants. T. Sundelin (1), G. Erbs (1), M. NEWMAN (1). (1) University of Copenhagen, Frederiksberg, Denmark
- 11:00 a.m. 140-O. From peptidoglycan (PGN) perception to activation of innate immune responses in plants. G. ERBS (1), T. Sundelin (1), M. Newman (1). (1) University of Copenhagen, Frederiksberg, Denmark
- 11:15 a.m. 141-O. TAL effector PthA4-mediated virulence and host gene induction in citrus canker. Y. HU (1), J. Zhang (2), F. F. White (2), N. Wang (3), J. B. Jones (1). (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.

WEDNESDAY, AUGUST 8, 2012 (morning)

Listed in alphabetical order by title. Special Sessions listed first, followed by Oral Technical Sessions. 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

Bioenergy Crops and Disease

8:30 – 11:30 a.m.; 551, CC

Section: Diseases of Plants

Organizers: Richard Nelson, Samuel Roberts Noble Foundation, Inc., Ardmore, OK, U.S.A.; Bright Agindotan, Energy Biosciences Institute/University of Illinois, Urbana, IL, U.S.A.; Steve Marek, Oklahoma State University, Stillwater, OK, U.S.A.

Moderators: Richard Nelson, Samuel Roberts Noble Foundation, Inc., Ardmore, OK, U.S.A.; Steve Marek, Oklahoma State University, Stillwater, OK, U.S.A.

Sponsoring Committees/Sponsors: Virology; Mycology; Bacteriology; Molecular and Cellular Phytopathology; Emerging Diseases and Pathogens

Financial Sponsors: USDA; The Samuel Roberts Noble Foundation, Inc.; APS-APHIS Widely Prevalent Virus Committee

- 8:30 a.m. 71-S. Bioenergy crops and disease agents: Research and industry status. R. S. NELSON (1). (1) Samuel Roberts Noble Foundation, Inc., Ardmore, OK, U.S.A.

- 8:45 a.m. 72-S. The impact of disease on biofuel production. D. HAEFELE (1), S. Barr (2). (1) Pioneer Hi-Bred, A DuPont Business, Johnston, IA, U.S.A.; (2) DuPont, Wilmington, DE, U.S.A.
- 9:00 a.m. 73-S. Viruses of bioenergy crops. B. O. AGINDOTAN (1), M. E. Gray (2), C. A. Bradley (2). (1) Energy Biosciences Institute, University of Illinois, Urbana, IL, U.S.A.; (2) Energy Biosciences Institute & Department of Crop Sciences, University of Illinois, Urbana, IL, U.S.A.
- 9:30 a.m. 74-S. The potential of increased virus susceptibility in grasses modified for biofuel production. C. M. MALMSTROM (1), A. C. Schrottenboer (2), P. Trebicki (1). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) Trinity Christian College, Palos Heights, IL, U.S.A.
- 10:00 a.m. Break
- 10:15 a.m. 75-S. Hunt for sources of rust resistance in the bioenergy crop, switchgrass (*Panicum virgatum* L.). S. R. Uppalapati (1), Y. Ishiga (1), D. Serba (1), L. J. Szabo (2), M. C. Saha (1), K. S. MYSORE (1). (1)

Special Sessions continued

The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; (2) Cereal Disease Laboratory, USDA-ARS, St. Paul, MN, U.S.A.

- 10:45 a.m. 76-S. Response of sorghum modified for bioenergy to grain and stalk fungal pathogens. D. L. FUNNELL-HARRIS (1), S. E. Sattler (1), L. K. Prom (2), P. F. Dowd (3), J. F. Pedersen (1). (1) USDA-ARS, Grain, Forage and Bioenergy Research, Lincoln, NE, U.S.A.; (2) USDA-ARS, Crop Germplasm Research, College Station, TX, U.S.A.; (3) USDA-ARS, Crop Bioprotection Research, Peoria, IL, U.S.A.
- 11:15 a.m. Discussion

Grafting as an Alternative to Soil Fumigation for Disease Management in Vegetable Production

8:30 – 11:30 a.m.; Ballroom B, CC

Section: Disease Control and Pest Management

Organizers: Shaker Kousik, U.S. Vegetable Laboratory, USDA-ARS, Charleston, SC, U.S.A.; Mathews Paret, University of Florida, Quincy, FL, U.S.A.; Pingsheng Ji, University of Georgia, Tifton, GA, U.S.A.

Moderators: Mathews Paret, University of Florida, Quincy, FL, U.S.A.; Pingsheng Ji, University of Georgia, Tifton, GA, U.S.A.

Sponsoring Committee/Sponsor: Integrated Plant Disease Management

Financial Sponsors: Syngenta Seeds, Inc.; HeinzSeed

- 8:30 a.m. 77-S. The pros and cons of cucurbit grafting in the United States. R. L. HASSELL (1). (1) Clemson University CREC, Charleston, SC, U.S.A.
- 9:00 a.m. 78-S. IPM diversification: Advancing the science and practice of grafting tomatoes to manage soilborne pathogens. F. J. LOUWS (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 9:30 a.m. 79-S. Grafting on hybrid squash and bottle gourd rootstocks to manage *Fusarium* wilt of watermelon. A. P. KEINATH (1), R. L. Hassell (1). (1) Clemson University, Charleston, SC, U.S.A.
- 10:00 a.m. Break
- 10:15 a.m. 80-S. Grafting as a production system component for nematode management in Florida vegetables. N. K. BURELLE (1), E. N. Rosskopf (1), M. G. Bausher (1), G. G. McCollum (1). (1) USDA-ARS, Fort Pierce, FL, U.S.A.
- 10:45 a.m. 81-S. Grafting eggplant to manage soilborne diseases: An international perspective. S. A. MILLER (1), M. A. Rahman (2), M. S. Nahar (2), G. Norton (3), E. Rajotte (4). (1) The Ohio State University, Wooster, OH, U.S.A.; (2) Bangladesh Agricultural Research Institute, Joydebpur, Gazipur, Bangladesh; (3) Virginia Tech, Blacksburg, VA, U.S.A.; (4) Penn State University, University Park, PA, U.S.A.
- 11:15 a.m. Discussion

International Perspective on *Fusarium* Head Blight

8:30 – 11:30 a.m.; 552, CC

Section: Biology of Pathogens

Organizer: Paul Nicholson, John Innes Centre, Norwich, United Kingdom

Moderator: Christopher Ridout, John Innes Centre, Norwich, United Kingdom

Sponsoring Committee/Sponsor: British Society of Plant Pathology

Financial Sponsor: British Society of Plant Pathology

- 8:30 a.m. 82-S. A toxic character: *Fusarium graminearum* and mycotoxin biosynthesis. H. C. KISTLER (1). (1) USDA-ARS, Cereal Disease Laboratory, St. Paul, MN, U.S.A.
- 9:00 a.m. 83-S. Mycotoxin production during infection of cereals. W. SCHÄFER (1), J. Boennighausen (1), J. Bormann (1). (1) University of Hamburg, Hamburg, Germany
- 9:30 a.m. 84-S. Identification of candidate genes for head blight and deoxynivalenol resistance. F. M. DOOHAN (1). (1) University College-Dublin, Dublin, Ireland
- 10:00 a.m. Break
- 10:15 a.m. 85-S. The role of trichothecenes in the *Triticeae-Fusarium graminearum* interactions. G. J. MUEHLBAUER (1), S. Shin (1), J. Boddu (1), S. Gardiner (1), H. Jia (1), S. Cho (1), S. McCormick (2), W. Schweiger (3), M. Lemmens (3), F. Berthiller (3), C. Hametner (4), P. Kovalsky Paris (3), J. Torres-Acosta (3), G. Adam (3). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) USDA-ARS, Peoria, IL, U.S.A.; (3) University of Natural Resources and Applied Life Sciences, Tulln, Austria; (4) Vienna University of Technology, Vienna, Austria
- 10:45 a.m. 86-S. Toward genomics-based improvement of FHB resistance in China. Z. MA (1). (1) Nanjing Agricultural University, Nanjing, Peoples Republic of China
- 11:15 a.m. 87-S. Host colonization leading to sporulation in *Fusarium graminearum*. F. TRAIL (1), D. Afton (1). (1) Michigan State University, East Lansing, MI, U.S.A.

“Left of Boom!” Information: Form, Content, and Use in Epidemic Prediction

8:30 – 11:30 a.m.; Ballroom D, CC

Section: Ecology and Epidemiology

Organizers: Neil McRoberts and Carla Thomas, University of California, Davis, CA, U.S.A.

Moderator: Neil McRoberts, University of California, Davis, CA, U.S.A.

Sponsoring Committees/Sponsors: Epidemiology; Regulatory Plant Pathology; Diagnostics; Emerging Diseases and Pathogens; Forest Pathology; Crop Loss Assessment and Evaluation

- 8:30 a.m. 88-S. Information in multiscale epidemiological models. C. C. MUNDT (1), P. Skelsey (2), P. S. Ojiambo (3), K. A. Garrett (2). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) Kansas State University, Manhattan, KS, U.S.A.; (3) North Carolina State University, Raleigh, NC, U.S.A.

- 9:00 a.m. 89-S. Transportation grids as early indicators and warning—The use of census and travel data for prediction of disease incursions. T. R. GOTTWALD (1), T. D. Riley (2), M. S. Irely (3), S. R. Parnell (4). (1) USDA-ARS, Fort Pierce, FL, U.S.A.; (2) USDA APHIS PPQ, Orlando, FL, U.S.A.; (3) United States Sugar Corp., Clewiston, FL, U.S.A.; (4) Rothamsted Research, Harpenden, United Kingdom
- 9:30 a.m. 90-S. Emergence of unified concepts of disease in textual surveillance data. C. S. THOMAS (1), N. P. Nelson (2). (1) University of California-Davis, Department of Plant Pathology, Davis, CA, U.S.A.; (2) Georgetown University Medical Center, Washington, DC, U.S.A.
- 10:00 a.m. Break
- 10:15 a.m. 91-S. Advantages and challenges of using Internet media for disease detection and tracking. N. P. NELSON (1). (1) Georgetown University Medical Center, Washington, DC, U.S.A.
- 10:45 a.m. 92-S. Putting information to use: Decisions at different scales. S. SAVARY (1), A. H. Sparks (2), A. Nelson (2), N. McRoberts (3), P. D. Esker (4). (1) INRA, Castanet-Tolosan, France; (2) IRRI, Manila, Philippines; (3) University of California-Davis, Davis, CA, U.S.A.; (4) Universidad de Costa Rica, San Jose, Costa Rica
- 11:15 a.m. Discussion

New Insights into the Virulence Mechanism of Plant-Pathogenic Bacteria

8:30 – 11:30 a.m.; 555, CC

Section: Biology of Pathogens

Organizers/Moderators: Nian Wang, Citrus Research and Education Center, University of Florida, Lake Alfred, FL, U.S.A.; Jong Hyun Ham, Louisiana State University AgCenter, Baton Rouge, LA, U.S.A.

Sponsoring Committee/Sponsor: Bacteriology

- 8:30 a.m. 93-S. The role of the type III secretion system in necrotic pathogens. A. O. CHARKOWSKI (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.
- 9:00 a.m. 94-S. Insights into the virulence mechanism of *Xanthomonas citri* subsp. *citri*. N. WANG (1). (1) Citrus Research and Education Center, University of Florida, Lake Alfred, FL, U.S.A.
- 9:30 a.m. 95-S. Ooze and rots: How enteric plant pathogens utilize cyclic di-GMP, small RNAs, and quorum sensing to regulate major virulence genes. G. W. SUNDIN (1), Q. Zeng (1), C. Yang (2). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) Department of Biological Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI, U.S.A.
- 10:00 a.m. Break
- 10:15 a.m. 96-S. The role of the cell surface lipopolysaccharide molecule in *Xylella fastidiosa* biofilm formation and virulence in the grapevine host. M. ROPER (1), J. Ropicavoli (1), J. Clifford (2). (1) University of California-Riverside, Riverside, CA, U.S.A.; (2) USDA-ARS, Corvallis, OR, U.S.A.
- 10:45 a.m. 97-S. The global regulatory network for the virulence of *Burkholderia glumae*, the major causal agent of bacterial panicle blight of rice. J. HAM (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.

- 11:15 a.m. 98-S. How high-throughput sequencing technology helps our understanding of plant-pathogenic bacteria (overview). R. Bart (1), M. Sharlach (1), A. Kassen (1), N. Potnis (2), G. V. Minsavage (2), B. J. Staskawicz (1), J. B. JONES (2). (1) Department of Plant and Microbial Biology, University of California-Berkeley, Berkeley, CA, U.S.A.; (2) Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.

ORAL TECHNICAL SESSIONS

Fungicide Resistance 2

8:30 – 9:45 a.m.; Ballroom C, CC

Section: Disease Control and Pest Management

Moderator(s): TBD

- 8:30 a.m. 142-O. Practical and qualitative resistance to trifloxystrobin in populations of *Venturia inaequalis* in the northeastern United States. Z. FREDERICK (1), K. D. Cox (2). (1) Cornell University, Trumansburg, NY, U.S.A.; (2) Cornell University, Geneva, NY, U.S.A.
- 8:45 a.m. 143-O. Occurrence and phenotypes of pyrimethanil resistance in *Penicillium expansum* from apple. R. CAIAZZO (1), Y. K. Kim (1), C. Xiao (2). (1) Washington State University, TFREC, Wenatchee, WA, U.S.A.; (2) USDA-ARS, San Joaquin Valley Agricultural Sciences Center, Parlier, CA, U.S.A.
- 9:00 a.m. 144-O. Detection and quantification of trifloxystrobin-resistant *Venturia inaequalis* using allele-specific real-time PCR. S. M. VILLANI (1), K. D. Cox (1). (1) Cornell University, Geneva, NY, U.S.A.
- 9:15 a.m. 145-O. Inhibitory effects of 2-aminoimidazole compounds on *Monilinia fructicola*. K. L. LIBERATOR (1), R. J. Worthington (1), C. Melander (1), D. F. Ritchie (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 9:30 a.m. 146-O. Dual fungicide resistance in *Monilinia fructicola* and fungicide-mediated transposition of genetic elements. F. CHEN (1), X. Liu (2), G. Schnabel (1). (1) Clemson University, Clemson, SC, U.S.A.; (2) China Agricultural University, Beijing, Peoples Republic of China

Molecular Fungi and Oomycetes Gene Expression

8:30 – 9:45 a.m.; 556, CC

Section: Molecular/Cellular/Plant-Microbe Interactions

Moderators: Les Szabo, USDA-ARS, Cereal Disease Laboratory, St. Paul, MN, U.S.A.; Moytri RoyChowdhury, Texas A&M Citrus Center, Weslaco TX, U.S.A.

- 8:30 a.m. 147-O. RNA-seq comparison of tuber and foliage transcriptome dynamics in response to late blight pathogen attack. L. GAO (1), Z. Tu (2), F. Katagiri (3), J. M. Bradeen (1). (1) Department of Plant Pathology, University of Minnesota, St. Paul, MN, U.S.A.; (2) Minnesota Supercomputing Institute, University of Minnesota, St. Paul, MN, U.S.A.; (3) Department of Plant Biology & Microbial and Plant Genomics Institute, University of Minnesota, St. Paul, MN, U.S.A.

- 8:45 a.m. 148-O. Transcriptome analysis reveal differences in induced systemic defence responses to biotrophic and necrotrophic pathogens and to wounding in two aspen clones. C. FOSSDAL (1), N. Yaqoob (1), B. Albrechtsen (2), H. Solheim (1). (1) Norwegian Forest and Landscape Institute, Aas, Norway; (2) UPSC, Umea, Sweden
- 9:00 a.m. 149-O. Identification of maize WRKY transcription factors responding to *Aspergillus flavus* infection and their roles in resistance to aflatoxin contamination. J. FOUNTAIN (1), Y. Raruang (1), M. Luo (1), R. L. Brown (2), Z. Chen (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (2) USDA-ARS, Southern Regional Research Center, New Orleans, LA, U.S.A.
- 9:15 a.m. 150-O. Fungal gene expression patterns during infection of canola by *S. sclerotiorum*. K. CHITTEM (1), W. Yajima (1), L. E. del Rio-Mendoza (1), R. S. Goswami (2). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) DuPont Crop Protection, Newark, DE, U.S.A.
- 9:30 a.m. 151-O. Molecular and genetic characterization of resistance to *Botrytis cinerea* and *Alternaria solani* in *Solanum* species. B. G. MENGESHA (1), T. D. Mengiste (1). (1) Purdue University, West Lafayette, IN, U.S.A.

Viral Biology 1

8:30 – 9:45 a.m.; Ballroom E, CC

Section: Biology of Pathogens

Moderator: Alexander Karasev, University of Idaho, Moscow, ID, U.S.A.

- 8:30 a.m. 152-O. *Triticum mosaic virus*: Genetic evidence for recent population expansion and balancing selection. R. FRENCH (1), D. Seifers (2), S. N. Wegulo (3), S. Tatineni (1). (1) USDA-ARS, Lincoln, NE, U.S.A.; (2) Kansas State University, Hays, KS, U.S.A.; (3) University of Nebraska-Lincoln, Lincoln, NE, U.S.A.
- 8:45 a.m. 153-O. Characterization of two field isolates of *Bean common mosaic virus*. A. POPLAWSKY (1), O. V. Nikolaeva (1), X. Feng (1), J. R. Myers (2), A. V. Karasev (1). (1) University of Idaho, Moscow, ID, U.S.A.; (2) Oregon State University, Corvallis, OR, U.S.A.
- 9:00 a.m. 154-O. Identification of a new citrus cytoplasmic virus associated with citrus leprosis disease in Colombia using deep sequencing. A. ROY (1), N. Choudhary (1), G. A. Leon (2), D. Achor (1), J. Shao (3), G. Wei (4), D. D. Picton (4), L. Levy (4), M. K. Nakhla (4), J. S. Hartung (3), R. H. Brlansky (1). (1) University of Florida, CREC, Lake Alfred, FL, U.S.A.; (2) Centro de Investigación La Libertad, Corpoica, Villavicencio, Colombia; (3) USDA-ARS, MPPL, Beltsville, MD, U.S.A.; (4) USDA-APHIS-PPQ-CPHST, Beltsville, MD, U.S.A.
- 9:15 a.m. 155-O. Identification, phylogenetic relationships, and biological properties of large satellite RNAs associated with *Grapevine fanleaf virus*. J. GOT-TULA (1), D. Lapato (2), M. Fuchs (1). (1) Cornell University, Geneva, NY, U.S.A.; (2) University of Virginia, Charlottesville, VA, U.S.A.
- 9:30 a.m. 156-O. *Blueberry necrotic ring blotch virus* repre-

sents a unique genus of plant RNA viruses. D. F. QUITO-AVILA (1), R. R. Martin (2). (1) Centro de Investigaciones Biotecnológicas del Ecuador (CIBE)-ESPOL, Guayaquil, Ecuador; (2) USDA-ARS, Corvallis, OR, U.S.A.

Molecular Fungi

10:15 – 11:15 a.m.; 556, CC

Section: Molecular/Cellular/Plant-Microbe Interactions

Moderator: Les Szabo, USDA-ARS, Cereal Disease Laboratory, St. Paul, MN, U.S.A.

- 10:15 a.m. 157-O. The role of MoHyr1 and MoyAP1 in tolerating reactive oxygen species generated during the *Magnaporthe*-barley interaction. K. HUANG (1), K. J. Czymbek (2), J. L. Caplan (3), J. A. Sweigard (4), N. M. Donofrio (1). (1) University of Delaware, Newark, DE, U.S.A.; (2) Delaware Biotechnology Institute/University of Delaware, Newark, DE, U.S.A.; (3) Delaware Biotechnology Institute, Newark, DE, U.S.A.; (4) DuPont, Newark, DE, U.S.A.
- 10:30 a.m. 158-O. Polyubiquitin is required for growth, development, and pathogenicity in the rice blast fungus *Magnaporthe oryzae*. Y. OH (1), W. Franck (1), E. Gokce (1), D. C. Muddiman (1), R. A. Dean (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 10:45 a.m. 159-O. A unique genomic region of the *Cochliobolus sativus* pathotype 2 isolates carries genes for high virulence on barley cv. Bowman. Y. LENG (1), S. Zhong (1). (1) North Dakota State University, Fargo, ND, U.S.A.
- 11:00 a.m. 160-O. Genome sequencing of *Fusarium oxysporum* f. sp. *ubense* tropical race 4 strain II5. A. S. BERG (1), M. Dita (2), T. Nan (1), T. Shea (3), S. Zhou (4), W. Jonkers (5), Q. Zeng (3), S. Young (3), M. E. Belez Yamagishi (6), P. Giachetto (6), R. Herai (7), M. Souza (8), C. Waalwijk (8), G. Haatje Jan Kema (8), H. Kistler (5), L. Ma (1). (1) University of Massachusetts at Amherst, Amherst, MA, U.S.A.; (2) Bioversity International, Turrialba, Costa Rica; (3) Broad Institute, Cambridge, MA, U.S.A.; (4) University of Wisconsin-Madison, Madison, WI, U.S.A.; (5) University of Minnesota, St. Paul, MN, U.S.A.; (6) Embrapa Bioinformatics, Campinas, Brazil; (7) University of Campinas, Campinas, Brazil; (8) Plant Research International, Wageningen, Netherlands

Plant Defense Response, Climate Change, and Abiotic Effects

10:15 – 11:30 a.m.; Ballroom C, CC

Section: Molecular/Cellular/Plant-Microbe Interactions

Moderator: Srinivasa Rao Uppalapati, The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

- 10:15 a.m. 161-O. RNA interference-induced *Heterodera glycines* resistance in soybean. J. LI (1), T. C. Todd (1), T. R. Oakley (1), H. N. Trick (1). (1) Kansas State University, Manhattan, KS, U.S.A.
- 10:30 a.m. 162-O. Targeted lignin modification induces tolerance to soilborne fungal pathogens in alfalfa. S. UPPALAPATI (1), L. Gallego-Giraldo (1), Y. Ishiga (1), W. Li (1), L. W. Sumner (1), R. A. Dixon (1), K. S. Mysore (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

- 10:45 a.m. 163-O. Leaf gas exchange and oxidative stress in sorghum plants supplied with silicon and infected with *Colletotrichum sublineolum*. R. S. RESENDE (1), F. Rodrigues (1), W. Moreira (1), F. M. DaMatta (1). (1) Universidade Federal de Viçosa, Viçosa, Brazil
- 11:00 a.m. 164-O. Thermal adaptation in the fungal pathogen *Rhynchosporium commune*. T. STEFANSSON (1), Y. Willi (2), B. McDonald (1). (1) ETH Zurich, IBZ, Plant Pathology, Zurich, Switzerland; (2) University of Neuchatel, Institute of Biology, Evolutionary Botany, Neuchatel, Switzerland
- 11:15 a.m. 165-O. Modulation of plant resistance to viral pathogen by abiotic stress factor. N. A. Moldakimova (1), G. S. Mukiyanova (1), D. G. Yarmolinsky (2), G. G. Brychkova (2), H. B. Scholthof (3), M. Sagi (2), R. T. OMAROV (1). (1) Department of Biotechnology and Microbiology, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan; (2) Plant Stress Laboratory, The Albert Katz Department of Dryland Biotechnologies, French Associates Institute for Agriculture and Biotechnology of Drylands, Blaustein Institutes for Desert Research, Ben-Gurion University of Negev, Sede Boqer Campus, Israel; (3) Department of Plant Pathology and Microbiology, Texas A&M University, Houston, TX, U.S.A.

Viral Biology 2

10:15 – 11:30 a.m.; Ballroom E, CC

Section: Biology of Pathogens

Moderator(s): Candice Stafford, University of California, Davis, CA, U.S.A.

- 10:15 a.m. 166-O. Molecular, serological, and biological characterization of a novel carlavirus infecting potatoes in China. Y. LI (1), R. Zhang (1), H. Xiang (1), H. Abouelnasr (1), D. Li (1), J. Yu (1), J. H. McBeath (2), C. Han (1). (1) China Agricultural University, Beijing, Peoples Republic of China; (2) University of Alaska-Fairbanks, Fairbanks, AK, U.S.A.
- 10:30 a.m. 167-O. Interaction of *Buchnera* GroEL from *Pentalonia nigronervosa* with *Banana bunchy top virus* (*Nanoviridae*). S. WATANABE (1), A. Bressan (1). (1) University of Hawaii, Honolulu, HI, U.S.A.
- 10:45 a.m. 168-O. Translocation path of *Banana bunchy top virus* (*Nanoviridae*) in the aphid vector *Pentalonia nigronervosa* as revealed by real-time PCR and immunofluorescence assays. A. BRESSAN (1), S. Watanabe (1). (1) University of Hawaii, Honolulu, HI, U.S.A.
- 11:00 a.m. 169-O. Environmental factors contributing to development of lettuce dieback disease and genomic characterization of *Lettuce necrotic stunt virus*. W. M. WINTERMANTEL (1), I. Simko (1). (1) USDA-ARS, Salinas, CA, U.S.A.
- 11:15 a.m. 170-O. Genetic diversity and phylogenetic analysis revealed *Pepino mosaic virus* in North America has shifted to Chilean genotypes. K. LING (1), R. Li (1). (1) USDA-ARS, U.S. Vegetable Laboratory, Charleston, SC, U.S.A.

WEDNESDAY, AUGUST 8, 2011 (afternoon)

■ SPECIAL SESSIONS

Everything a Scientist Should Know About Politics, Funding, and Public Opinion

1:00 – 4:00 p.m.; Ballroom B, CC

Section: Professionalism/Outreach

Organizers/Moderators: Jan Leach, Colorado State University, Fort Collins, CO, U.S.A.; Angela Records, Eversole Associates, Bethesda, MD, U.S.A.

Sponsoring Committees/Sponsors: Public Policy Board; Office of International Programs

- 1:00 p.m. 99-S. Policy 101: A not-so-boring look at how government works. K. EVERSOLE (1). (1) Eversole Associates, Bethesda, MD, U.S.A.
- 1:30 p.m. 100-S. USAID's new strategic research focus toward feeding the future. R. BERTRAM (1). (1) Office of Agricultural Research and Policy, U.S. Agency for International Development, Washington, DC, U.S.A.
- 2:00 p.m. 101-S. International funding cooperation. D. BECK (1). (1) National Science Foundation, Arlington, VA, U.S.A.
- 2:30 p.m. Break
- 2:45 p.m. 102-S. Getting engaged in public policy work is easy. M. L. LEWIS IVEY (1). (1) The Ohio State University, Medina, OH, U.S.A.

- 3:15 p.m. 103-S. Scientists: Almost as prestigious as firefighters. A. RECORDS (1). (1) APS Policy Fellow, Silver Spring, MD, U.S.A.

- 3:45 p.m. Discussion

Fungicides to Promote Plant Physiological Benefits in Crops

1:00 – 4:00 p.m.; 551, CC

Section: Disease Control and Pest Management

Organizers/Moderators: Jim Mueller, Dow AgroSciences, Brentwood, CA, U.S.A.; Brian D. Olson, Dow AgroSciences, Geneva, NY, U.S.A.

Sponsoring Committees/Sponsors: Industry; Public Policy Board; Office of Industry Relations; Pathogen Resistance; Chemical Control

Financial Sponsors: Syngenta; BASF Corporation; Bayer CropScience

Introduction to the forum. J. MUELLER (1). (1) Dow AgroSciences, Brentwood, CA, U.S.A.

- 1:00 p.m. 104-S. Influence of ethylene inhibitors on plant physiology, biomass, and yield. F. E. BELOW (1), J. W. Haegele (1), A. S. Henninger (1), F. Cantao (1). (1) University of Illinois, Urbana, IL, U.S.A.
- 1:30 p.m. 105-S. Limitations of small plots for crop enhancement effects in corn. E. C. TEDFORD (1). (1) Syngenta, Greensboro, NC, U.S.A.

Special Sessions continued

- 2:00 p.m. 106-S. Disease management vs. insurance applications: What have we learned about fungicide use in corn? K. WISE (1). (1) Purdue University, Lafayette, IN, U.S.A.
- 2:30 p.m. Break
- 2:45 p.m. 107-S. Review of large-scale field trials in potatoes. T. A. ZITTER (1). (1) Cornell University, Ithaca, NY, U.S.A.
- 3:15 p.m. 108-S. A grower's perspective. K. DAHLENBERG (1). (1) Grower, Mansfield, IL, U.S.A.
- 3:45 p.m. Discussion

Pathogen Effectors and Host Targets

1:00 – 4:00 p.m.; 552, CC

Section: Molecular/Cellular/Plant-Microbe Interactions

Organizers/Moderators: Nicole Donofrio, University of Delaware, Newark, DE, U.S.A.; Srinivasa Rao Uppalapati, The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

Sponsoring Committee/Sponsor: Molecular and Cellular Phytopathology

Financial Sponsor: DuPont

- 1:00 p.m. 109-S. Hotspots in viral siRNA accumulation in maize. V. VANCE (1), S. Mlotshwa (1), C. Johnson (2), A. Wahba Foreman (1), G. Pruss (1), V. Sundaresan (2), K. Scheets (3), L. Bowman (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.
- 1:30 p.m. 110-S. The fungal effector AvrPiz-t suppresses host innate immunity by targeting the RING finger E3 ligases APIP6 and APIP10 in rice. C. PARK (1), S. Chen (1), G. Shirsekar (1), B. Zhou (2), C. Khang (3), P. Songkumarn (1), M. Bellizzi (1), Y. Ning (4), B. Valent (3), G. Wang (1). (1) The Ohio State University, Columbus, OH, U.S.A.; (2) Zhejiang Academy of Agricultural Sciences, Hangzhou, Peoples Republic of China; (3) The Kansas State University, Manhattan, KS, U.S.A.; (4) Chinese Academy of Agricultural Sciences, Beijing, Peoples Republic of China
- 1:45 p.m. 111-S. Effector promoters play a major role in delivery of *Magnaporthe oryzae* effectors into living rice cells. C. KHANG (1), B. Valent (2). (1) University of Georgia, Athens, GA, U.S.A.; (2) The Kansas State University, Manhattan, KS, U.S.A.
- 2:15 p.m. 112-S. *Pseudomonas syringae* type III effectors: Evolution, distribution, and host targets of a bacterial Monkey Wrench Gang. M. LINDEBERG (1). (1) Cornell University, Ithaca, NY, U.S.A.
- 2:30 p.m. Break
- 2:45 p.m. 113-S. Functional characterization of the conserved modular domains found in the oomycete RXLR effector superfamily. S. D. KALE (1). (1) Virginia Bioinformatics Institute, Virginia Tech, Blacksburg, VA, U.S.A.
- 3:00 p.m. 114-S. Cyst nematode effectors and their targets. T. J. BAUM (1). (1) Iowa State University, Ames, IA, U.S.A.
- 3:30 p.m. Discussion

Practice and Management of Microbial and Plant Germplasm Collections

1:00 – 4:00 p.m.; Ballroom C, CC

Section: Professionalism/Outreach

Organizers: Shuxian Li, USDA-ARS, Crop Genetics Research Unit, Stoneville, MS, U.S.A.; Rick Bennett, University of Arkansas, Fayetteville, AR, U.S.A.; Kimberly Webb, USDA-ARS, Fort Collins, CO, U.S.A.; Kevin McCluskey, University of Missouri, Kansas City, MO, U.S.A.

Moderator: Rick Bennett, University of Arkansas, Fayetteville, AR, U.S.A.

Sponsoring Committees/Sponsors: Collections and Germplasm; Public Policy Board

- 1:00 p.m. 115-S. The National Plant Germplasm System (NPGS) and GRIN-Global. C. A. GARDNER (1). (1) USDA-ARS, Ames, IA, U.S.A.
- 1:30 p.m. 116-S. Management of germplasm collections and associated data via informatics tools: Opportunities and challenges. S. KANG (1). (1) Department of Plant Pathology, Penn State University, University Park, PA, U.S.A.
- 2:00 p.m. 117-S. Plant germplasm curation—Best practices. D. ELLIS (1). (1) USDA-ARS, National Center for Genetic Resources Preservation, Fort Collins, CO, U.S.A.
- 2:30 p.m. Break
- 2:45 p.m. 118-S. Experience with best practice guidelines for microbial germplasm repositories at the Fungal Genetics Stock Center. K. MCCLUSKEY (1), A. Wiest (1), R. Schnittker (1). (1) University of Missouri-Kansas City, School of Biological Sciences, Kansas City, MO, U.S.A.
- 3:00 p.m. 119-S. From culture collection to genetic resource centre: The Dutch approach. P. W. CROUS (1), G. J. Verkleij (1). (1) CBS Fungal Biodiversity Institute, Utrecht, Netherlands
- 3:30 p.m. 120-S. DNA barcoding and next-generation sequencing—Opportunities and challenges for reference biological collections. C. A. LEVESQUE (1). (1) Agriculture & Agri-Food Canada, Ottawa, ON, Canada

Right of the Boom: Deciding to Act, React, or Let Go in a Fluid Data Environment

1:00 – 4:00 p.m.; Ballroom D, CC

Section: Ecology and Epidemiology

Organizers: Lawrence Brown, USDA\APHIS\PPQ, Raleigh, NC, U.S.A.; Neil McRoberts, University of California, Davis, CA, U.S.A.

Moderator: Lawrence Brown, USDA\APHIS\PPQ, Raleigh, NC, U.S.A.

Sponsoring Committees/Sponsors: Crop Loss Assessment and Risk Evaluation; Epidemiology; Regulatory Plant Pathology; Diagnostics; Emerging Diseases and Pathogens; Forest Pathology

- 1:00 p.m. 121-S. Use of law enforcement indicators and warning to prevent and respond to a crime. L. LEE (1). (1) FBI, Washington, DC, U.S.A.
- 1:30 p.m. 122-S. Even when data are fluid a decision must be made. P. H. BERGER (1), L. G. Brown (1). (1) USDA-APHIS-PPQ-CPHST, Raleigh, NC, U.S.A.
- 2:00 p.m. 123-S. The role of epidemiology research in shaping regulatory plant pathology. J. J. MAROIS (1). (1) University of Florida, Quincy, FL, U.S.A.

- 2:30 p.m. Break
- 2:45 p.m. 124-S. Making and implementing program decisions in regulatory plant pathology. T. S. SCHUBERT (1). (1) Florida Department of Agriculture & Consumer Services, Gainesville, FL, U.S.A.
- 3:15 p.m. 125-S. From boom to busted: Trade concerns and disputes under the WTO's SPS Agreement. L. M. PEARSON (1). (1) Imperial College-London, London, United Kingdom
- 3:45 p.m. 126-S. A case-based analysis of information sources, sinks, and loops in regulatory plant pathology programs. N. MCROBERTS (1), P. S. Ojiambo (2), G. Hughes (3). (1) University of California-Davis, Davis, CA, U.S.A.; (2) North Carolina State University, Raleigh, NC, U.S.A.; (3) Scottish Agricultural College, Edinburgh, United Kingdom

Schroth Faces of the Future—New Frontiers in Plant Bacteriology

1:00 – 4:00 p.m.; 555, CC

Section: Diseases of Plants

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

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

Sponsoring Committees/Sponsors: Early Career Professionals; Bacteriology

- 1:00 p.m. Introduction and Foundation
- 1:15 p.m. Introduction of the 2012 Recipients for Bacteriology
- 1:30 p.m. 127-S. ★ **APS Foundation Awardee** Minerals influence interactions between the bacterium *Xylella fastidiosa* and its host plants. L. DE LA FUENTE (1). (1) Auburn University, Auburn, AL, U.S.A.
- 2:00 p.m. 128-S. ★ **APS Foundation Awardee** *Streptomyces* secondary metabolism and scab disease development: To what extent are these two processes linked? D. R. BIGNELL (1). (1) Memorial University, St. John's, NF, Canada
- 2:30 p.m. Break
- 2:45 p.m. 129-S. ★ **APS Foundation Awardee** Effector proteins as probes to understand molecular mechanisms underlying plant-bacterial interactions and as markers for detecting bacterial diseases. W. MA (1). (1) University of California-Riverside, Riverside, CA, U.S.A.
- 3:15 p.m. 130-S. ★ **APS Foundation Awardee** (Presenter unable to attend however content will be discussed.) Draft genomic sequence of rice pathogens and nonpathogens: Insights in biology, diversity, and diagnosis. L. R. TRIPLETT (1). (1) Colorado State University, Fort Collins, CO, U.S.A.
- 3:45 p.m. Discussion

ORAL TECHNICAL SESSIONS

IPM 3

1:00 – 2:15 p.m.; 556, CC

Section: Disease Control and Pest Management

Moderator: Renee Rioux, University of Wisconsin, Madison, WI, U.S.A.

- 1:00 p.m. 171-O. Performance of prebloom leaf removal for the control of Botrytis bunch rot of grapes in Pennsylvania. B. HED (1), H. Ngugi (2). (1) Lake Erie Regional Grape Research & Extension Center,

North East, PA, U.S.A.; (2) Pennsylvania State University, Biglerville, PA, U.S.A.

- 1:15 p.m. 172-O. ★ **APS Foundation Awardee** Solanaceous weeds as potential hosts for new clonal lineages of *Phytophthora infestans*. A. C. SEIDL (1), A. J. Gevens (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 1:30 p.m. 173-O. Suppression of cucumber powdery mildew by UV-B is affected by background light quality. A. SUTHAPARAN (1), A. Stensvand (2), K. A. Solhaug (2), S. Torre (1), K. Telfer (1), A. Ruud (1), L. Cadle-Davidson (3), L. Mortensen (1), D. M. Gadoury (4), R. C. Seem (4), H. R. Gislærod (1). (1) Norwegian University of Life Sciences, Aas, Norway; (2) Bioforsk, Aas, Norway; (3) USDA-ARS, Grape Genetics Research Unit, Geneva, NY, U.S.A.; (4) New York State Agricultural Experiment Station, Geneva, NY, U.S.A.
- 1:45 p.m. 174-O. Photocatalysis: Effect of light-activated, antibacterial nanoscale formulations on *Xanthomonas perforans*, the causal agent of bacterial spot on tomato. M. PARET (1), G. Vallad (2), J. Jones (3), D. Averett (4), S. Olson (1). (1) NFREC, University of Florida, Quincy, FL, U.S.A.; (2) GCREC, University of Florida, Wimauma, FL, U.S.A.; (3) Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.; (4) EcoActive Surfaces Inc., Pompano Beach, FL, U.S.A.
- 2:00 p.m. 175-O. Managing root-knot nematode in tomato using resistant rootstocks. T. McAvoy (1), M. Paret (2), J. FREEMAN (1). (1) Virginia Tech, Painter, VA, U.S.A.; (2) University of Florida, Quincy, FL, U.S.A.

Virus Diseases

1:00 – 2:15 p.m.; Ballroom E, CC

Section: Diseases of Plants

Moderator: Bright Agindotan, University of Illinois, Urbana, IL, U.S.A.

- 1:00 p.m. 176-O. Molecular characterization of a natural intramolecular recombinant begomovirus with close relatives in southwestern Arabia. A. M. IDRIS (1), M. Al-Saleh (2), I. Al-Shahwan (2), J. K. Brown (3). (1) KAUST, Thuwal, Saudi Arabia; (2) King Saud University, Riyadh, Saudi Arabia; (3) The University of Arizona, Tucson, AZ, U.S.A.
- 1:15 p.m. 177-O. Characterization and detection of *Tomato necrotic stunt virus*, a novel potyvirus infecting greenhouse tomatoes in Mexico. R. LI (1), Z. Fei (2), K. Ling (1). (1) USDA-ARS, U.S. Vegetable Laboratory, Charleston, SC, U.S.A.; (2) Boyce Thompson Institute for Plant Research, USDA-ARS, Robert W. Holley Center for Agriculture and Health, Cornell University, Ithaca, NY, U.S.A.
- 1:30 p.m. 178-O. Infectivity and synergism for two monopartite begomoviruses and a bipartite begomovirus isolated from endemic *Merremia* species in Puerto Rico. Z. He (1), A. M. Idris (2), Y. Tang (1), J. K. BROWN (3). (1) Plant Protection Research Institute, Guangzhou, Peoples Republic of China; (2) Plant Stress Genomic Research Center, Thuwal, Saudi Arabia; (3) University of Arizona, Tucson, AZ, U.S.A.

- 1:45 p.m. 179-O. Production of monoclonal antibodies to the expressed coat protein of cytoplasmic *Citrus leprosis virus* and its application in immunodiagnosis. N. CHOUDHARY (1), A. Roy (1), G. A. Leon (2), D. D. Picton (3), G. Wei (3), M. K. Nakhla (3), L. Levy (4), R. H. Brlansky (1). (1) CREC, University of Florida, Lake Alfred, FL, U.S.A.; (2) Corpoica, Villavicencio, Colombia; (3) USDA-APHIS-PPQ-CPHST, Beltsville, MD, U.S.A.; (4) USDA-APHIS-PPQ-CPHST, Riverdale, MD, U.S.A.
- 2:00 p.m. 180-O. Application of primer and probe modifications in detection, biosecurity, and microbial forensics. M. ARIF (1), J. Fletcher (1), F. M. Ochoa Corona (1). (1) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.

Diseases of Biofuel Crops and Postharvest Pathology

2:45 – 4:00 p.m.; 556, CC

Section: Biology of Pathogens

Moderator: Imana Power, University of Georgia, Tifton, GA, U.S.A.

- 2:45 p.m. 181-O. Biomass reduction potentials of a new leaf blight of *Miscanthus x giganteus* caused by *Pithomyces chartarum* and screening for effective fungicide control. M. O. AHONSI (1), K. A. Ames (1), M. E. Gray (1), C. A. Bradley (1). (1) University of Illinois, Urbana, IL, U.S.A.
- 3:00 p.m. 182-O. Frequency of fungi associated with giant miscanthus in 2011. 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.
- 3:15 p.m. 183-O. The prevalence and impact of *Fusarium* and *Microdochium* species in U.K. malting barley. R. V. RAY (1), L. Nielsen (1), S. G. Edwards (2), D. J. Cook (1). (1) University of Nottingham, Loughborough, United Kingdom; (2) Harper Adams University College, Newport, United Kingdom
- 3:30 p.m. 184-O. Phylogenetic analysis, fumonisin production, and genetic variability of *Fusarium fujikuroi* strains isolated from rice in the Philippines. C. R. CUMAGUN (1), M. Gonzalez-Jaen (2), K. I. Aguilar (1), A. Cruz Varona (2), P. Marin (2). (1) University of Philippines-Los Banos, Los Banos, Laguna, Philippines; (2) Universidad Complutense de Madrid, Madrid, Spain
- 3:45 p.m. 185-O. PCR assays for diagnosis of postharvest fruit rots and early detection of *Phacidiopycnis washingtonensis* and *Sphaeropsis pyriputrescens* in apple fruit. P. SIKDAR (1), P. Okubara (2), M. Mazzola (3), C. Xiao (4). (1) Washington State University, Wenatchee, WA, U.S.A.; (2) USDA-ARS, Root Disease and Biological Control Research Unit, Pullman, WA, U.S.A.; (3) USDA-ARS, Wenatchee, WA, U.S.A.; (4) USDA-ARS, San Joaquin Valley Agricultural Sciences Center, Parlier, CA, U.S.A.

Molecular Virology

2:45 – 4:00 p.m.; Ballroom E, CC

Section: Molecular/Cellular/Plant-Microbe Interactions

Moderators: Anna Whitfield, Kansas State University, Manhattan, KS, U.S.A.; Mysore Sudarshana, USDA-ARS, Davis, CA, U.S.A

- 2:45 p.m. 186-O. Antigenic structure of *Potato virus Y*. A. KARASEV (1), O. V. Nikolaeva (1), D. J. Roop (1), S. Galvino-Costa (2), A. Figueira (2), S. M. Gray (3). (1) University of Idaho, Moscow, ID, U.S.A.; (2) Federal University of Lavras, Lavras, Brazil; (3) Cornell University, Ithaca, NY, U.S.A.
- 3:00 p.m. 187-O. Partial characterization of a new *Potyvirus* species infecting soybean plants in Brazil. P. d. Geraldino Duarte (1), S. B. Galvino Costa (1), A. R. FIGUEIRA (1). (1) Universidade Federal de Lavras, Lavras, MG, Brazil
- 3:15 p.m. 188-O. Identification of distinct functions of *Wheat streak mosaic virus* coat protein in virion assembly and virus movement. S. TATINENI (1), R. French (2). (1) USDA-ARS, University of Nebraska, Lincoln, NE, U.S.A.; (2) USDA-ARS, Lincoln, NE, U.S.A.
- 3:30 p.m. 189-O. Examination of early plant gene expression changes in response to *Red clover necrotic mosaic virus* infection using a *Nicotiana benthamiana* microarray. P. THAMMARAT (1), T. L. Sit (1), S. A. Lommel (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 3:45 p.m. 190-O. TaqMan qPCR detection of three berry fruit ilarviruses. T. HO (1), I. E. Tzanetakis (1). (1) Department of Plant Pathology, Division of Agriculture, University of Arkansas, Fayetteville, AR, U.S.A.

POSTERS

POSTER SCHEDULE AND POSTER TITLES BY CATEGORY

Poster Viewing Hours

Sunday, August 5

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

Monday, August 6

7:30 a.m. – 8:00 p.m. Poster Viewing

Tuesday, August 7

7:30 a.m. – 8:00 p.m. Poster Viewing
 1:00 – 5:00 p.m. Poster Viewing with Authors Present

***NEW in 2012!** All poster authors time will take place from 1:00 to 5:00 p.m. If you are presenting more than one poster during the same time period, please leave a note to indicate the other poster board(s) where you can be found.*

1:00 – 2:00 p.m.	Posters 1 – 319	Even-numbered poster authors present
2:00 – 3:00 p.m.	Posters 1 – 319	Odd-numbered poster authors present
3:00 – 4:00 p.m.	Posters 320 – 633	Even-numbered poster authors present
4:00 – 5:00 p.m.	Posters 320 – 633	Odd-numbered poster authors present

Wednesday, August 8

8:00 – 10:00 a.m. Poster Take-down




2012 APS Annual Meeting Poster Categories

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<i>Poster Categories</i>	<i>Poster numbers</i>	<i>Poster Categories</i>	<i>Poster numbers</i>
Biology of Plant Pathogens		Ecology and Epidemiology	
Systematics/Evolution/Ecology –		Analytical and Theoretical Plant Pathology	454 – 462
Bacteria-Phytoplasma-Spiroplasma-Fastidious		Climate Change and Risk Assessment	463 – 469
Prokaryote	1 – 27	Cropping Systems – Sustainability	470 – 483
Systematics/Evolution/Ecology – Fungi	28 – 87	Pathogen-Vector Interactions	484 – 491
Systematics/Evolution/Ecology – Nematodes	88	Population Genetics – Bacteria	492 – 495
Systematics/Evolution/Ecology – Oomycetes	89 – 98	Population Genetics – Fungi	496 – 509
Systematics/Evolution/Ecology – Viruses	99 – 122	Population Genetics – Oomycetes	510 – 517
Disease Control and Pest Management		Rhizosphere and Phyllosphere Ecology	518 – 525
Biological Control-IPM-Sanitation	123 – 164	Risk Assessment	526 – 539
Chemical Control	165 – 204	Molecular/Cellular/Plant-Microbe Interactions	
Cultural Control	205 – 219	Genetics, Biochemistry, and Cell Biology	
Fungicide Resistance	220 – 242	of Pathogenesis – Bacteria	540 – 549
Host Resistance	243 – 282	Genetics, Biochemistry, and Cell Biology	
IPM	283 – 313	of Pathogenesis – Fungi	550 – 560
Regulatory Plant Pathology	314 – 319	Genetics, Biochemistry, and Cell Biology	
Diseases of Plants		of Pathogenesis – Viruses	561 – 567
Crop Loss Assessment	320 – 326	MPMI – Bacteria	568 – 575
Detection and Diagnosis – Bacteria	327 – 333	MPMI – Fungi	576 – 589
Detection and Diagnosis – Fungi	334 – 350	MPMI – Nematodes and Abiotic Stress	590 – 596
Detection and Diagnosis – Nematodes	351 – 353	MPMI – Oomycetes	597 – 599
Detection and Diagnosis – Oomycetes	354 – 361	MPMI – Viruses	600 – 609
Detection and Diagnosis – Viruses	362 – 378	Plant Defense Responses – Bacteria	610 – 614
New and Emerging Diseases – Bacteria	379 – 395	Plant Defense Responses – Fungi	615 – 620
New and Emerging Diseases – Fungi and Oomycetes	396 – 429	Plant Defense Responses – Oomycetes	621 – 626
New and Emerging Diseases – Viruses	430 – 445	Plant Defense Responses – Viruses	627
Plant Stress and Abiotic Disorders	446 – 453	Professionalism/Outreach	
		Outreach and Engagement	628 – 630
		Teaching and Learning	631 – 633

■ BIOLOGY OF PLANT PATHOGENS

Systematics/Evolution/Ecology – Bacteria-Phytoplasma-Spiroplasma-Fastidious Prokaryote

- 1-P Host range of *Xylella fastidiosa* strains that cause blueberry leaf scorch. D. HOPKINS (1), P. Harmon (2), P. Brannen (3). (1) University of Florida, Apopka, FL, U.S.A.; (2) University of Florida, Gainesville, FL, U.S.A.; (3) University of Georgia, Athens, GA, U.S.A.
- 2-P  The role of calcium in the regulation of *Xylella fastidiosa* twitching motility. L. F. CRUZ (1), L. De La Fuente (1). (1) Auburn University, Auburn, AL, U.S.A.
- 3-P Influence of zinc on growth and biofilm production of *Xylella fastidiosa*. F. NAVARRETE (1), L. De La Fuente (1). (1) Auburn University, Auburn, AL, U.S.A.
- 4-P A toxin-antitoxin system encoded by the *Xylella fastidiosa* chromosome regulates growth. M. LEE (1), E. E. Rogers (1), D. C. Stenger (1). (1) USDA-ARS, Parlier, CA, U.S.A.
- 5-P Detection of small RNAs in *Xylella fastidiosa*. J. CHEN (1), H. Huang (2). (1) USDA-ARS PWA, Parlier, CA, U.S.A.; (2) University of South Florida, Tampa, FL, U.S.A.
- 6-P Characterization of novel secreted proteins from *Xylella fastidiosa*. E. ROGERS (1). (1) USDA-ARS SJVASC, Parlier, CA, U.S.A.
- 7-P Comparative genomic and biochemical analyses of the large pPANA1 plasmid of *Pantoea ananatis*. P. de Maayer (1), S. N. Venter (1), T. COUTINHO (1). (1) University of Pretoria, Pretoria, Republic of South Africa
- 8-P Genotyping and population genetic analysis of ‘*Candidatus* Liberibacter solanacearum’, bacterium associated with potato zebra chip disease. H. LIN (1), M. S. Islam (2), A. Wen (3), N. Gudmestad (3). (1) USDA-ARS PWA, Parlier, CA, U.S.A.; (2) USDA-ARS, Parlier, CA, U.S.A.; (3) North Dakota State University, Fargo, ND, U.S.A.
- 9-P Stress-induced response of prophage FP1 and FP2 in ‘*Candidatus* Liberibacter asiaticus’. F. DING (1), Y. Duan (2), S. Zhang (3). (1) USDA-ARS-USHRL, IFAS-TREC, University of Florida, Fort Pierce, FL, U.S.A.; (2) USDA-ARS-USHRL, Fort Pierce, FL, U.S.A.; (3) IFAS-TREC, University of Florida, Homestead, FL, U.S.A.
- 10-P Genomic analysis of ‘*Candidatus* Liberibacter americanus’ strain São Paulo. N. A. Wulff (1), S. ZHANG (2), E. C. Martins (1), D. Kumar (3), P. K. Chakrabarty (2), L. A. Fleites (2), J. M. Bové (4), D. W. Gabriel (2). (1) Departamento Científico, Fundecitrus, Araraquara, SP, Brazil; (2) Plant Pathology Department, University of Florida, Gainesville, FL, U.S.A.; (3) Interdisciplinary Center for Biotechnology Research, University of Florida, Gainesville, FL, U.S.A.; (4) Université Victor Ségalen Bordeaux and INRA, Bordeaux, France
- 11-P WITHDRAWN
- 12-P Evaluating the degree and rates of evolutionary change in *Pseudomonas syringae* pv. *tomato*, and their impacts on forensic investigations. M. M. JAMES (1), U. Melcher (1), J. Fletcher (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
- 13-P The novel virulence-related gene *nlxA* in the lipopolysaccharide cluster of *Xanthomonas citri* subsp. *citri* is involved in the production of lipopolysaccharide and extracellular polysaccharide, motility, biofilm formation, and stress resistance. Q. YAN (1), X. Hu (2), N. Wang (1). (1) University of Florida, Lake Alfred, FL, U.S.A.; (2) Zhejiang Sci-Tech University, Hangzhou, Peoples Republic of China
- 14-P Multilocus sequence analysis of xanthomonads associated with poinsettia production reveals pathogen variability. W. D. ROCKEY (1), D. J. Norman (2), J. B. Jones (1). (1) Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.; (2) Department of Plant Pathology, University of Florida, Apopka, FL, U.S.A.
- 15-P Expression of the cloned *IS53* transposase promoter from *Pseudomonas savastanoi* under heat-shock. T. R. CERVONE (1), S. D. Soby (1). (1) Midwestern University, Biomedical Sciences, Glendale, AZ, U.S.A.
- 16-P Loop-mediated amplification (LAMP) for specific detection of the tomato pathogen, *Clavibacter michiganensis* subsp. *michiganensis*. J. H. Yasuhara-Bell (1), A. M. ALVAREZ (2). (1) University of Hawaii, Department of Plant and Environmental Protection Sciences (PEPS), Honolulu, HI, U.S.A.; (2) University of Hawaii, Honolulu, HI, U.S.A.
- 17-P Proteomic analysis of *Salmonella enterica* plant colonization: Insights into the metabolic requirements of human pathogens on plants. G. KWAN (1), J. D. Barak (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 18-P Inhibitors and inducers of the type III secretion system of *Erwinia amylovora*. D. KHOKHANI (1), Q. Zeng (2), X. Chen (3), C. Yang (1). (1) Department of Biological Sciences, University of Wisconsin-Milwaukee, Milwaukee, WI, U.S.A.; (2) Department of Plant Pathology, Michigan State University, East Lansing, MI, U.S.A.; (3) School of Pharmaceutical & Life Sciences, Changzhou University, Jiangsu, Peoples Republic of China
- 19-P The type VI secretion system in *Pantoea ananatis* plays a role in bacterial competition. D. Shyntum (1), S. N. Venter (1), L. Moleleki (1), T. COUTINHO (1). (1) University of Pretoria, Pretoria, Republic of South Africa
- 20-P Small RNA chaperone Hfq and Hfq-regulated small RNAs RyhA and RprA are important virulence regulators in *Erwinia amylovora*. Q. ZENG (1), R. R. McNally (1), G. W. Sundin (1). (1) Michigan State University, East Lansing, MI, U.S.A.
- 21-P TAL effectors enhance virulence on diverse rice varieties when introduced individually into a TAL effector-deficient strain of *Xanthomonas oryzae*. V. VERDIER (1), L. Triplett (1), A. Hummel (2), R. Corral (1), A. Cernadas (2), A. Bogdanove (2), J. Leach (1). (1) Colorado State University, Fort Collins, CO, U.S.A.; (2) Iowa State University, Ames, IA, U.S.A.
- 22-P Pho P/Q-regulated genes are involved in *Salmonella enterica* root colonization. L. HAO (1), K. Cowles (1), J. Barak (1). (1) University of Wisconsin, Madison, WI, U.S.A.

- 23-P Functional characterization of quorum sensing systems in *Pantoea ananatis*. P. Sibanda (1), J. Theron (1), T. A. COUTINHO (1). (1) University of Pretoria, Pretoria, Republic of South Africa
- 24-P Regulation of expression of CorA, a virulence factor and magnesium, nickel, and cobalt transporter in the soft rot pathogen, *Pectobacterium carotovorum*. K. DUMENYO (1). (1) Tennessee State University, Nashville, TN, U.S.A.
- 25-P  Western flower thrips (*Frankliniella occidentalis*) transmission of *Salmonella enterica* to crop plants. J. SOTO-ARIAS (1), R. Groves (2), J. Barak (1). (1) Department of Plant Pathology, University of Wisconsin-Madison, Madison, WI, U.S.A.; (2) Department of Entomology, University of Wisconsin-Madison, Madison, WI, U.S.A.
- 26-P *Salmonella* colonization of cantaloupe fruits, alone or together with *Erwinia tracheiphila*, following flower inoculation. D. Gautam (1), M. Payton (1), J. Fletcher (1), L. M. MA (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
- 27-P Detached leaf assay adapted to tomato pericarp sections for modeling contamination of tomato fruit by *Salmonella* Typhimurium. J. BARTZ (1), M. Mahovic (2), D. Spiceland (3), M. Teplitski (4). (1) Plant Pathology Department, University of Florida, Gainesville, FL, U.S.A.; (2) FDA, CFSAN, Office of Food Safety, College Park, MD, U.S.A.; (3) University of Florida, Gainesville, FL, U.S.A.; (4) Soil and Water Science Department, University of Florida, Gainesville, FL, U.S.A.
- Systematics/Evolution/Ecology – Fungi**
- 28-P Infection and colonization of bermudagrass by *Ophiophaerella korrae*, a causal fungus of spring dead spot of bermudagrass. F. FLORES (1), N. Walker (1), T. Mitchell (2), S. Marek (1), J. Anderson (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) The Ohio State University, Department of Plant Pathology, Columbus, OH, U.S.A.
- 29-P Temperature effect on appressorial formation of *Colletotrichum cereale* on detached and intact plant. Y. WANG (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 30-P **NED** Thatch collapse: A new disease of golf course turfgrasses. A. M. BAETSEN (1), G. L. Miller (2), M. T. Kasson (1), D. D. Davis (1), J. E. Kaminski (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.; (2) University of Missouri, Columbia, MO, U.S.A.
- 31-P Overexpression of *ShCYP51B* and *ShatrD* in *Sclerotinia homoeocarpa* field isolates exhibiting practical field resistance to propiconazole. J. HULVEY (1), J. T. Popko (1), H. Sang (1), G. Jung (1). (1) University of Massachusetts, Amherst, MA, U.S.A.
- 32-P Genetic analysis of worldwide *Sclerotinia homoeocarpa* populations with mating type and microsatellite markers. A. PUTMAN (1), I. Carbone (1), L. Tredway (2). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) Syngenta Crop Protection, Raleigh, NC, U.S.A.
- 33-P Phenotypic and genotypic characterization of *Rhizoctonia solani* isolates from zoysiagrass in Kansas. K. OBASA (1), P. St. Amand (2), G. Bai (2), M. Kennelly (1). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) USDA-ARS, Manhattan, KS, U.S.A.
- 34-P Investigation of the etiology of black choke and tangle top disease on perennial ornamental grasses. L. BOSTIC (1), L. Lacey (2), M. Benson (1), K. Ivors (2). (1) Department of Plant Pathology, North Carolina State University, Raleigh, NC, U.S.A.; (2) Department of Plant Pathology, North Carolina State University, Mills River, NC, U.S.A.
- 35-P Effects of preconditioning cold treatments and incubation temperature on germination of ergot bodies of *Claviceps purpurea* from Kentucky bluegrass. S. UPPALA (1), B. Wu (1), S. C. Alderman (2). (1) Oregon State University, Madras, OR, U.S.A.; (2) USDA-ARS NFPSPRC, Corvallis, OR, U.S.A.
- 36-P Characterization of the *Magnaporthe oryzae* proteome during appressorium formation. W. FRANCK (1), E. Gokce (1), Y. Oh (1), D. C. Muddiman (1), R. A. Dean (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 37-P Characterization of four transcription factor-coding genes regulating pathogenesis in the plant-pathogenic fungus *Alternaria brassicicola*. Y. Cho (1), A. SRIVASTAVA (1). (1) University of Hawaii at Manoa, Honolulu, HI, U.S.A.
- 38-P Molecular characterization of *Colletotrichum* species isolated from mango and tree tomato in Cundinamarca and Tolima, Colombia. C. CALDERÓN (1), J. Tabima (1), S. Restrepo (1), P. Jiménez (2). (1) Universidad de Los Andes, Bogotá, Colombia; (2) Universidad Militar Nueva Granada, Bogotá, Colombia
- 39-P  Functional characterization of the gene *GzOch1* for mannosyltransferase in *Fusarium graminearum*. K. D. PURI (1), S. Zhong (1). (1) North Dakota State University, Fargo, ND, U.S.A.
- 40-P Transcriptome analysis reveals new insights into the *Colletotrichum graminicola*-maize anthracnose disease interaction. M. F. TORRES QUINTERO (1), E. A. Buiate (1), S. Amyotte (2), M. R. Thon (3), R. J. O'Connell (4), L. J. Vaillancourt (1). (1) University of Kentucky, Lexington, KY, U.S.A.; (2) University of Ottawa, Ottawa, ON, Canada; (3) University of Salamanca, Salamanca, Spain; (4) Max Planck Institute, Cologne, Germany
- 41-P Substrate-specific expression of the enigmatic GH61 family of a pathogenic white-rot fungus during growth on wood. C. FOSSDAL (1), A. Hietala (1), I. Yakovlev (1), G. Vaaje-Kolstad (2), E. Stefańczyk (1), H. Solheim (1). (1) Norwegian Forest and Landscape Institute, Aas, Norway; (2) UMB, Aas, Norway
- 42-P Characterization of *CbCyp51* from field isolates of *Cercospora beticola*. K. BIRLA (1), M. Bolton (2), V. Rivera (1), K. Rudolph (1), G. Secor (1). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) USDA-ARS, Fargo, ND, U.S.A.
- 43-P Distribution of mating type of *Podosphaera macularis* in the Pacific Northwest. S. N. WOLFENBARGER (1), M. C. Twomey (1), D. H. Gent (2). (1) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.; (2) USDA-ARS, Forage Seed and Cereal Research Unit, and Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.

- 44-P Are endophytic *Fusarium oxysporum* host adapted? J. DEMERS (1), M. Jimenez-Gasco (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.
- 45-P The role of fungal stress response in *Colletotrichum graminicola* pathogenicity. E. A. BUIATE (1), M. F. Torres (1), S. Amyotte (2), R. O'Connell (3), L. Vail-lancourt (1). (1) University of Kentucky, Lexington, KY, U.S.A.; (2) University of Ottawa, Ottawa, ON, Canada; (3) Max Planck Institute, Cologne, Germany
- 46-P Effect of temperature on natural colonization of *Guignardia psidii* on 'Kumagai' guava. A. R. COLLETTI (1), I. H. Fischer (2), S. d. Lourenço (1), L. Amorim (1). (1) ESALQ/USP, Piracicaba, Brazil; (2) APTA Centro Oeste, Piracicaba, Brazil
- 47-P  Factors affecting mycelium pigmentation and pathogenicity of *Sclerotinia sclerotiorum* on Valencia peanut. P. A. LUJAN (1), S. Sanogo (1), N. Puppala (2), J. Randall (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.; (2) New Mexico State University, Clovis, NM, U.S.A.
- 48-P A secreted methanol oxidase is related to pectin metabolism in *Moniliophthora perniciosa*, the causal agent of witches'-broom disease of cacao. B. V. OLIVEIRA (1), G. S. Teixeira (1), O. R. Junior (1), P. P. Teixeira (1), O. G. Cabrera (1), J. R. Perez (1), A. F. Paes Leme (2), G. A. Pereira (1). (1) Institute of Biology, UNICAMP, Campinas, Brazil; (2) National Bioscience Laboratory, ABTLuS, Campinas, Brazil
- 49-P Characterization of *Phoma medicaginis* mutant forming hyaline pycnidia. K. CHOI (1), C. A. Smith (1), M. R. Dhulipala (1), J. N. Enis (1), J. M. Stacey (1), S. M. Marek (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
- 50-P Disruption of poly(A) RNA polymerase gene alters morphology of *Phoma medicaginis*. K. CHOI (1), C. A. Smith (1), M. R. Dhulipala (1), J. N. Enis (1), S. M. Marek (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
- 51-P Adaptation to heat stress in grapevine powdery mildew. R. A. CHOUDHURY (1), N. McRoberts (1), W. D. Gubler (1). (1) University of California-Davis, Davis, CA, U.S.A.
- 52-P Nutritional and environmental effects on germination and appressorium formation of *Guignardia citricarpa* conidia. N. WANG (1), M. M. Dewdney (2). (1) CREC, University of Florida, Lake Alfred, FL, U.S.A.; (2) University of Florida, Lake Alfred, FL, U.S.A.
- 53-P Evaluation on perithecial development by *Fusarium graminearum* on the straws decomposed in different soils with different levels of temperature and moisture conditions. A. SUBEDI (1), K. L. Bowen (1), A. Hagan (1). (1) Auburn University, Auburn, AL, U.S.A.
- 54-P  Temperature functions as a repressor of ascocarp formation in strawberry powdery mildew *Podosphaera aphanis*. B. ASALF (1), A. Stensvand (2), D. M. Gadoury (3), L. Cadle-Davidson (4), R. C. Seem (3), N. A. Peres (5), A. Tronsmo (1). (1) Norwegian University of Life Sciences, Aas, Norway; (2) Bioforsk, Aas, Norway; (3) Cornell University, Geneva, NY, U.S.A.; (4) USDA-ARS, Grape Genetics Research Unit, Geneva, NY, U.S.A.; (5) University of Florida, Wimauma, FL, U.S.A.
- 55-P Effect of drying methods on incidence of mycotoxins and mycotoxigenic strains of *Aspergillus* section *Nigri* in California raisins. J. D. PALUMBO (1), T. L. O'Keefe (1), S. J. Vasquez (2). (1) USDA-ARS WRRRC, Albany, CA, U.S.A.; (2) University of California Cooperative Extension, Fresno, CA, U.S.A.
- 56-P Optimization of growing conditions to enhance phytoxin production in cultural filtrates of *Fusarium virguliforme*, the cause of soybean sudden death syndrome. Y. XIANG (1), G. L. Hartman (2). (1) University of Illinois, Urbana, IL, U.S.A.; (2) USDA-ARS, Urbana, IL, U.S.A.
- 57-P Transcriptome analyses of *Sclerotinia sclerotiorum* infecting chickpea and lentil using RNA sequencing. D. Qiu (1), G. Vandemark (2), W. CHEN (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.
- 58-P Pathogenicity of *Diaporthe* species associated with stem canker of blueberry in Chile. K. EL FAR AEDO (1), B. A. Latorre (1), R. Torres (1). (1) Pontificia Universidad Católica de Chile, Santiago, Chile
- 59-P Highbush blueberry blight caused by a member of the *Fusarium incarnatum-F. equiseti* species complex in Buenos Aires province, Argentina. B. A. PEREZ (1), E. R. Wright (2), M. F. Berretta (1). (1) INTA, Hurlingham, Buenos Aires, Argentina; (2) University of Buenos Aires, Buenos Aires, Argentina
- 60-P Reevaluation of *Alternaria panax* associated with leaf spot and blight of araliaceous plants. S. YU (1), J. Deng (1), N. C. Paul (1). (1) Chungnam National University, Daejeon, South Korea
- 61-P Role of coinfection by *Pectobacterium* spp. and *Verticillium dahliae* in the development of early dying and aerial stem rot of potato. J. K. DUNG (1), D. A. Johnson (1), B. K. Schroeder (1). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.
- 62-P Shoot blight of ceibo (*Erythrina crista-galli*) caused by *Colletotrichum gloeosporioides* in Buenos Aires city, Argentina. B. A. PEREZ (1). (1) INTA, Hurlingham, Buenos Aires, Argentina
- 63-P Recent studies on sweet orange scab (SOS) in Texas. M. SKARIA (1), A. Satpute (1), M. Kunta (1), J. daGraca (1), J. Perez (2), N. Malik (2). (1) Texas A&M University-Kingsville, Weslaco, TX, U.S.A.; (2) USDA-ARS, Weslaco, TX, U.S.A.
- 64-P  Investigating the effects of irrigation regimes on the susceptibility of tomato fruit to sour rot. K. FIEDLER (1), S. Rideout (1). (1) Virginia Tech, ES AREC, Painter, VA, U.S.A.
- 65-P Botryosphaeria stem blight of southern blueberries: Effect of temperature on infection and lesion development. B. J. SMITH (1), M. A. Miller-Butler (1). (1) USDA-ARS, Thad Cochran Southern Horticultural Laboratory, Poplarville, MS, U.S.A.
- 66-P Production of phytotoxin solanapyrones and generation of solanapyrone-deficient mutants in *Ascochyta rabiei*. W. KIM (1), W. Chen (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.
- 67-P Comparison of quinone outside inhibitor fungicide-resistant and -sensitive isolates of *Cercospora sojina*. G. R. ZHANG (1), C. A. Bradley (1). (1) University of Illinois, Urbana, IL, U.S.A.

- 68-P Comparison of putative secondary metabolite genes and gene clusters of *Colletotrichum graminicola* and *C. sublineolum*. K. V. XAVIER (1), M. F. Torres (1), E. A. Buiate (1), I. Gaffoor (2), S. Chopra (2), L. J. Vaillancourt (1). (1) University of Kentucky, Lexington, KY, U.S.A.; (2) The Pennsylvania State University, University Park, PA, U.S.A.
- 69-P Variability in *Phoma* species affecting sugar beet. L. E. HANSON (1), T. Mo (2), T. R. Goodwill (1). (1) USDA-ARS, East Lansing, MI, U.S.A.; (2) Michigan State University, East Lansing, MI, U.S.A.
- 70-P Pathogenic, mating type, and population structure of the blast pathogen from triticale. A. Urashima (1), N. TELLES (1). (1) Universidade Federal de Sao Carlos, Araras, Brazil
- 71-P Phylogenetic relationships among northern hemisphere *Armillaria* species based on the *tef-1 α* locus. M. KIM (1), J. E. Stewart (2), Y. Ota (3), J. W. Hanna (4), A. L. Ross-Davis (4), N. B. Klopfenstein (4). (1) Kookmin University, Seoul, South Korea; (2) USDA-ARS, Horticultural Crops Research Laboratory, Corvallis, OR, U.S.A.; (3) Forestry and Forest Products Research Institute, Tsukuba, Japan; (4) USDA-FS, Rocky Mountain Research Station, Moscow, ID, U.S.A.
- 72-P Detection of intrachromosomal recombination in *Sclerotinia sclerotiorum* populations. R. N. ATTANAYAKE (1), W. Chen (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.
- 73-P Pathogenic and genetic diversity among *Sclerotium rolfsii* isolates in the southern United States. C. XIE (1), C. Huang (1), G. E. Vallad (1). (1) University of Florida, Gulf Coast Research and Education Center, IFAS, Wimauma, FL, U.S.A.
- 74-P Characterization of *Botryosphaeria dothidea* isolates causing postharvest decay on apple fruit. I. Vico (1), K. A. Peter (1), V. L. Gaskins (1), W. J. Janisiewicz (2), W. M. JURICK (3). (1) USDA-ARS, Beltsville, MD, U.S.A.; (2) USDA-ARS, AFRS, Kearneysville, WV, U.S.A.; (3) USDA-ARS, Food Quality Laboratory, Beltsville, MD, U.S.A.
- 75-P Characterization of virulence and genotypic diversity of *Colletotrichum acutatum* isolates recovered from apple in New Hampshire. C. Peralta (1), K. BRODERS (1). (1) University of New Hampshire, Durham, NH, U.S.A.
- 76-P Development of microsatellite markers for assessing diversity of *Didymella bryoniae* in the southeastern United States. M. T. BREWER (1), M. Rath (1), A. N. Turner (1). (1) University of Georgia, Athens, GA, U.S.A.
- 77-P First approach to molecular phylogeny within the genus *Phyllachora*. M. D. Santos (1), M. E. Fonseca (2), L. S. Boiteux (3), J. C. DIANESE (1). (1) Universidade de Brasília, Brasília, DF, Brazil; (2) Embrapa Hortaliças, Brasília, DF, Brazil; (3) Embrapa Hortaliças/Universidade de Brasília, Brasília, DF, Brazil
- 78-P Multigene phylogeny reveals two new species-groups within *Alternaria*. J. WOUDEMBERG (1), P. W. Crous (2), J. Z. Groenewald (2). (1) CBS-KNAW Fungal Biodiversity Centre, Utrecht, Netherlands; (2) CBS Fungal Biodiversity Institute, Utrecht, Netherlands
- 79-P Genetic diversity and population biology of a global collection of phytopathogenic *Verticillium dahliae*. D. P. SHORT (1), S. Gurung (1), K. Maruthachalam (1), P. Inderbitzin (2), Z. Atallah (3), F. Nigro (4), S. Benlioglu (5), K. V. Subbarao (6). (1) University of California-Davis, Salinas, CA, U.S.A.; (2) University of California-Davis, Davis, CA, U.S.A.; (3) Hartnell College, Salinas, CA, U.S.A.; (4) University of Bari, Bari, Italy; (5) Adnan Menderes University, Aydin, Turkey; (6) University of California-Davis, Plant Pathology, Davis, CA, U.S.A.
- 80-P Transcriptome analyses of the interaction between *Sclerotinia trifoliorum* and chickpea using RNA sequencing. D. Qiu (1), G. Vandemark (2), W. CHEN (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.
- 81-P Genetic characterization of virulence/avirulence genes of *Puccinia striiformis* f. sp. *tritici*. M. Wang (1), A. Wan (1), X. CHEN (2). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.
- 82-P Stripe rust epidemics of wheat and barley and races of *Puccinia striiformis* identified in the United States in 2011. A. Wan (1), X. CHEN (2). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.
- 83-P Genetic diversity of international collections of *Puccinia striiformis* f. sp. *tritici*. D. Dipak (1), X. CHEN (2), D. R. See (2). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.
- 84-P Virulence and SSR markers revealed only asexual reproduction in the *Puccinia striiformis* f. sp. *tritici* population of the U.S. Pacific Northwest. P. Cheng (1), X. CHEN (2), D. R. See (2). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.
- 85-P Utility of multilocus “DNA barcodes” for identification of switchgrass rust populations. G. ORQUERA (1), K. Choi (1), C. D. Garzon (1), S. M. Marek (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
- 86-P Extent of variability of the internal transcribed spacer region within *Phakopsora pachyrhizi*. T. A. RUSH (1), B. Kennedy (1), A. McTaggart (1), G. Heller (1), M. Toome (1), G. L. Hartman (2), R. W. Schneider (1), M. C. Aime (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (2) USDA-ARS, University of Illinois, Urbana, IL, U.S.A.
- 87-P Barberry does not play a role for stripe rust in the U.S. Pacific Northwest. M. Wang (1), A. Wan (1), X. CHEN (2). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.
- Systematics/Evolution/Ecology – Nematodes**
- 88-P Morphology and molecular biology of a putative primitive species of root-knot nematode *Meloidogyne kikuyensis*. J. D. EISENBACK (1). (1) Virginia Tech, Blacksburg, VA, U.S.A.
- Systematics/Evolution/Ecology – Oomycetes**
- 89-P Population change of *Phytophthora* spp. in two streams over a one-year period. Y. BALCI (1), N. Hoang (1), N. Mirjafary (1). (1) University of Maryland, College Park, MD, U.S.A.

- 90-P **NED** Phenotypic and genotypic characterization of recent clonal lineages of *Phytophthora infestans* in the United States and Canada. G. DANIES (1), I. M. Small (1), K. L. Myers (1), P. A. Zuluaga (1), R. A. Childers (1), K. A. Bekoscke (1), S. E. Stead (1), A. Teeratananon (1), D. D'Attilio (1), W. E. Fry (1). (1) Cornell University, Ithaca, NY, U.S.A.
- 91-P **NED** Characterization of recent clonal lineages of *Phytophthora infestans* in the United States using micro-satellite markers. I. M. SMALL (1), K. L. Myers (1), G. Danies (1), S. Guha Roy (2), K. Bekoscke (3), W. E. Fry (1). (1) Department of Plant Pathology, Cornell University, Ithaca, NY, U.S.A.; (2) Department of Botany, West Bengal State University, Barasat, Kolkata, India; (3) St. John Fisher College, Rochester, NY, U.S.A.
- 92-P Phylogeny of the genus *Phytophthora* estimated by multilocus analysis of mitochondrial genes and comparison with the nuclear phylogeny. F. N. MARTIN (1), J. E. Blair (2), M. D. Coffey (3). (1) USDA-ARS, Salinas, CA, U.S.A.; (2) Franklin and Marshall College, Lancaster, PA, U.S.A.; (3) University of California, Riverside, CA, U.S.A.
- 93-P Distribution of genotypes of *Phytophthora infestans* isolated from potato and tomato in Canada in 2011. L. M. Kawchuk (1), R. D. PETERS (2), K. I. Al-Mughrabi (3), K. Conn (4), K. F. Dobinson (4), F. Daayf (5), H. W. Platt (2), B. W. Beaton (6), C. J. Banks (6), A. MacPhail (2). (1) Agriculture and Agri-Food Canada, Lethbridge, AB, Canada; (2) Agriculture and Agri-Food Canada, Charlottetown, PE, Canada; (3) New Brunswick Department of Agriculture and Aquaculture, Wicklow, NB, Canada; (4) Agriculture and Agri-Food Canada, London, ON, Canada; (5) University of Manitoba, Winnipeg, MB, Canada; (6) Prince Edward Island Department of Agriculture, Charlottetown, PE, Canada
- 94-P Resolving the *Pythium ultimum* species complex. Q. A. EGGERTSON (1), C. A. Levesque (2), C. R. Buell (3), J. P. Hamilton (3). (1) Carleton University, Ottawa, ON, Canada; (2) Agriculture and Agri-Food Canada, Ottawa, ON, Canada; (3) Michigan State University, East Lansing, MI, U.S.A.
- 95-P Identification of novel markers from whole genome sequences for phylogenetic analyses of oomycetes. C. F. SPIES (1), N. Rodrigue (1), B. Adhikari (2), J. P. Hamilton (2), C. Buell (2), H. Borhan (3), M. Links (3), N. Tisserat (4), C. Levesque (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON, Canada; (2) Michigan State University, East Lansing, MI, U.S.A.; (3) Agriculture and Agri-Food Canada, Saskatoon, SK, Canada; (4) Colorado State University, Fort Collins, CO, U.S.A.
- 96-P How do *Phytophthora* pathogens emerge? N. J. GRUNWALD (1). (1) USDA-ARS, Corvallis, OR, U.S.A.
- 97-P Stimulation of sexual structure production by *Pythium*. K. ZITNICK-ANDERSON (1), B. Nelson Jr. (1). (1) Department of Plant Pathology, North Dakota State University, Fargo, ND, U.S.A.
- 98-P Zoospore lysis occurs in sporangial suspensions made from petunia late blight lesions. M. C. BECKTELL (1). (1) Mesa State College, Grand Junction, CO, U.S.A.
- 99-P **Systematics/Evolution/Ecology – Viruses**
Identification, transmission, and genomic characterization of a novel member of the Caulimoviridae causing yellow vein disease of cultivated rose. D. MOLLOV (1), B. Lockhart (1), D. Zlesak (2). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) University of Wisconsin-River Falls, River Falls, WI, U.S.A.
- 100-P Genetic variation of a novel ampelovirus in blackberry. T. THEKKE VEETIL (1), S. Sabanadzovic (2), K. E. Keller (3), R. R. Martin (3), I. E. Tzanetakis (1). (1) Department of Plant Pathology, Division of Agriculture, University of Arkansas, Fayetteville, AR, U.S.A.; (2) Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS, U.S.A.; (3) USDA-ARS, Corvallis, OR, U.S.A.
- 101-P An outbreak of the *Potato virus Y^{NTN}* (PVY^{NTN}) strain in foundation seed potatoes in Japan. M. CHIKH ALI (1), A. Karasev (1), N. Furutani (2), M. Taniguchi (3), Y. Kano (3), M. Sato (2), T. Natsuaki (4), T. Maoka (5).. (1) University of Idaho, Moscow, ID, U.S.A.; (2) National Center for Seed and Seedlings, Tsukuba, Japan; (3) National Center for Seed and Seedlings, Sapporo, Japan; (4) Utsunomiya University, Utsunomiya, Japan; (5) National Research Center for Hokkaido Region, Sapporo, Japan
- 102-P Selective RNA packaging of *Maize rayado fino virus* viruslike particles transiently expressed in *Nicotiana benthamiana* plants. A. Natilla (1), R. W. HAMMOND (1). (1) USDA-ARS MPPL, Beltsville, MD, U.S.A.
- 103-P A *Tobacco etch virus*-NW isolate overcomes two resistance genes in *Capsicum* sp. N. Velasquez (1), J. F. MURPHY (1). (1) Auburn University, Auburn, AL, U.S.A.
- 104-P Three *Tobacco etch virus* strains that induce distinctly different disease phenotypes. J. F. MURPHY (1). (1) Auburn University, Auburn, AL, U.S.A.
- 105-P Virus movement within grafted watermelon plants. C. G. WEBSTER (1), C. S. Kousik (2), R. L. Hassell (3), K. S. Ling (2), W. W. Turechek (1), S. Adkins (1). (1) U.S. Horticultural Research Laboratory, USDA-ARS, Fort Pierce, FL, U.S.A.; (2) U.S. Vegetable Laboratory, USDA-ARS, Charleston, SC, U.S.A.; (3) Clemson University, CREC, Charleston, SC, U.S.A.
- 106-P In vivo interaction studies of *Iris yellow spot virus* proteins using bimolecular fluorescence (BiFC) technique. D. TRIPATHI (1), M. Goodin (2), R. Dietzgen (3), H. Pappu (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) University of Kentucky, Lexington, KY, U.S.A.; (3) The University of Queensland, St. Lucia, QLD, Australia
- 107-P Differential acquisition and transmission of Florida *Tomato spotted wilt virus* isolates by Western flower thrips. S. R. Reitz (1), S. ADKINS (2). (1) USDA-ARS, Tallahassee, FL, U.S.A.; (2) USDA-ARS USHRL, Fort Pierce, FL, U.S.A.
- 108-P Analysis of *Iris yellow spot virus* N-gene sequences from the United States, 2003-2011. V. KOUNDAL (1), R. Iftikhar (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.
- 109-P Thrips transmission of a tospovirus reassortant. C. G. WEBSTER (1), S. R. Reitz (2), G. Frantz (3), H. C. Mellinger (3), J. Funderburk (4), S. Adkins (1). (1) U.S. Horticultural Research Laboratory, USDA-ARS, Fort Pierce, FL, U.S.A.; (2) Centre for Medical, Agricultural

- and Veterinary Entomology, USDA-ARS, Tallahassee, FL, U.S.A.; (3) Glades Crop Care, Jupiter, FL, U.S.A.; (4) North Florida Research and Education Centre, University of Florida, Quincy, FL, U.S.A.
- 110-P Genetic diversity and whitefly transmission of *Tomato apex necrosis virus*. R. Felix (1), A. M. Cochran (2), N. Yu (2), G. H. Rodriguez (1), S. A. Trinh (2), Z. XIONG (2). (1) University of Occidente, Los Mochis, Sinaloa, Mexico; (2) University of Arizona, Tucson, AZ, U.S.A.
- 111-P Diversity of begomoviruses isolated from weed and cultivated plants in the Yucatan Peninsula of Mexico. O. A. MORENO-VALENZUELA (1), C. Hernandez-Zepeda (2), Y. Mínero-García (1), G. Carnevali (1), J. K. Brown (3), G. Argüello-Astorga (4), I. Torres-Herrera (4). (1) Centro de Investigación Científica de Yucatán, Mérida, Yucatán, Mexico; (2) Centro de Investigación Científica de Yucatán, Cancun, Quintana Roo, Mexico; (3) University of Arizona, Tucson, AZ, U.S.A.; (4) IPICYT, San Luis Potosi, Mexico
- 112-P Host range studies of a *Beet curly top virus* (Logan) infectious clone. A. POPLAWSKY (1), S. Eid (1), A. V. Karasev (1). (1) University of Idaho, Moscow, ID, U.S.A.
- 113-P Detection and characterization of *Banana bract mosaic virus* in flowering ginger in Hawaii. I. Wang (1), D. Sether (1), W. Borth (1), M. Melzer (1), K. Dey (1), J. HU (1). (1) University of Hawaii, Honolulu, HI, U.S.A.
- 114-P A reporter gene-transactivation system to study early events in the curtovirus infection process. L. CHEN (1), R. L. Gilbertson (1). (1) University of California-Davis, Davis, CA, U.S.A.
- 115-P WITHDRAWN
- 116-P Characterization of *Beet curly top virus* genome plasticity. S. HANSON (1), J. Achata (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.
- 117-P Genome organization and structure of a virus associated with cherry twisted leaf and apricot ring pox diseases. D. V. VILLAMOR (1), K. C. Eastwell (1). (1) Washington State University, IAREC, Prosser, WA, U.S.A.
- 118-P Genetic diversity of *Apple stem grooving virus* and *Apple stem pitting virus* in North America. S. A. AKINBADE (1), D. V. Villamor (1), K. C. Eastwell (1). (1) Washington State University, IAREC, Prosser, WA, U.S.A.
- 119-P Assessing the genetic diversity of *Cherry leaf roll virus* with coat protein gene from different hosts. T. A. MEKURIA (1), K. C. Eastwell (1). (1) Washington State University, IAREC, Prosser, WA, U.S.A.
- 120-P Sequence analysis of the capsid protein of a *Cherry leaf roll virus* isolate causing blackline disease of walnuts in California. N. Lynn (1), A. Rowhani (2), M. R. SUDARSHANA (1). (1) USDA-ARS, Davis, CA, U.S.A.; (2) University of California-Davis, Davis, CA, U.S.A.
- 121-P Biological and molecular characterization of *Tomato chlorotic dwarf viroid* in Arizona. Z. XIONG (1), B. C. Wong (1), N. Yu (1), J. Cantúa (1), E. F. Allee (1), A. M. Cochran (1), S. A. Trinh (1). (1) University of Arizona, Tucson, AZ, U.S.A.
- 122-P Coat protein expression strategy of *Oat blue dwarf virus*. M. C. EDWARDS (1), J. J. Weiland (1). (1) USDA-ARS, Fargo, ND, U.S.A.
- DISEASE CONTROL AND PEST MANAGEMENT**
- Biological Control-IPM-Sanitation**
- 123-P Long-term control of Pierce's disease in various grape genotypes with a benign strain of *Xylella fastidiosa*. D. L. HOPKINS (1). (1) University of Florida, Apopka, FL, U.S.A.
- 124-P Thermal treatments eliminate or suppress the bacterial pathogen in huanglongbing-affected citrus. M. S. DOUD (1), M. T. Hoffman (1), M. Zhang (2), E. Stover (1), D. Hall (1), S. Zhang (3), Y. Duan (1). (1) USDA-ARS-USHRL, Fort Pierce, FL, U.S.A.; (2) IFAS-IRREC, University of Florida, Fort Pierce, FL, U.S.A.; (3) IFAS-TREC, University of Florida, Homestead, FL, U.S.A.
- 125-P A new generation of bacterial biofungicides based on the bacterium *Bacillus amyloliquefaciens* (strain D747) from Certis USA for use in vegetable and fruit disease control. H. HIGHLAND (1), S. Ockey (2), M. Dimock (3). (1) Certis USA, Nokomis, FL, U.S.A.; (2) Certis USA, Yakima, WA, U.S.A.; (3) Certis USA, Columbia, MD, U.S.A.
- 126-P WITHDRAWN
- 127-P In vitro activity of *Pseudomonas fluorescens* strain CL145A against phytopathogenic microorganisms. C. E. TODD (1), R. N. Asolkar (1), A. Cordova-Kreylos (1), P. G. Marrone (1). (1) Marrone Bio Innovations, Davis, CA, U.S.A.
- 128-P WITHDRAWN
- 129-P Resident bacteria of plums and their potential for controlling brown rot after harvest. W. J. JANISIEWICZ (1), W. M. Jurick (2), I. Vico (2), K. A. Peter (2), J. S. Buyer (3). (1) USDA-ARS, Appalachian Fruit Research Station, Kearneysville, WV, U.S.A.; (2) USDA-ARS, Food Quality Laboratory, Beltsville, MD, U.S.A.; (3) USDA-ARS, Sustainable Agricultural System Laboratory, Beltsville, MD, U.S.A.
- 130-P Characterization of glycoside hydrolase-producing bacteria isolated from Thailand soils. S. SARAIHOM (1), D. Kobayashi (2), P. Lotrakul (1), S. Prasongsuk (1), D. Eveleigh (2), H. Punnapayak (1) (1) Chulalongkorn University, Bangkok, Thailand; (2) Rutgers University, New Brunswick, NJ, U.S.A.
- 131-P New antagonistic strains of nonpathogenic *Rhizobium vitis* to control grapevine crown gall. A. KAWAGUCHI (1), K. Inoue (1). (1) Research Institute for Agriculture, Okayama Prefectural Technology Center for Agriculture, Forestry and Fisheries, Akaiwa, Japan
- 132-P Genetic analysis of antimicrobial activities of bacteria isolated from plant disease-suppressive niches. J. Xu (1), Y. Liu (2), P. Deng (3), S. Baird (3), S. LU (3). (1) Institute of Food Quality and Safety Detection, Jiangsu Academy of Agricultural Sciences, Nanjing, Peoples Republic of China; (2) Institute of Plant Protection, Jiangsu Academy of Agricultural Sciences, Nanjing, Peoples Republic of China; (3) Mississippi State University, Mississippi State, MS, U.S.A.
- 133-P Genomic comparisons of two *Bacillus subtilis* biocontrol strains with different modes of actions. C. DUNLAP (1). (1) USDA/NCAUR/CBP, Peoria, IL, U.S.A.

- 134-P Study on the culturable microbes from different organs of *Populus euphratica* and *P. pruinosa*. Q. LI (1), C. S. Gu (1), J. Z. Li (2), Q. J. Li (1). (1) China Agricultural University, Beijing, Peoples Republic of China; (2) Tarim University, Alar, Peoples Republic of China
- 135-P Natural products for suppression of damping-off pathogens in organic cucumber production. D. ROBERTS (1), L. F. McKenna (2), J. E. Maul (2), D. K. Lakshman (2), J. Buyer (2), S. E. Emche (2). (1) USDA, Sustainable Agricultural Systems Lab, Beltsville, MD, U.S.A.; (2) Sustainable Agricultural Systems Lab, Beltsville, MD, U.S.A.
- 136-P Induction of plant defense enzymes by plant growth-promoting rhizobacterium *Bacillus subtilis* IN937b in relation to suppression of Phytophthora blight on squash. X. MO (1), S. Zhang (1). (1) University of Florida, Homestead, FL, U.S.A.
- 137-P Beneficial effect of ectomycorrhiza on conifer seedlings colonized by dark septate endophytes. V. REININGER (1), T. N. Sieber (1). (1) ETH Zürich, Zürich, Switzerland
- 138-P Effect of simultaneous application of selected fungal endophytes and *Coniothyrium minitans* against sclerotia of *Sclerotinia sclerotiorum*. N. BITSADZE (1), J. Strauss (2), H. R. Dillard (2). (1) Agricultural University of Georgia, Tbilisi, Georgia; (2) Cornell University, Geneva, NY, U.S.A.
- 139-P Use of Lamiaceae essential oils to control postharvest rots caused by *Botrytis cinerea* and *Penicillium expansum* on four cultivars of apple. D. Spadaro (1), G. Lopez (2), A. Garibaldi (2), M. GULINO (2). (1) University of Torino, Grugliasco Torino, Italy; (2) Agroinnova-University of Torino, Grugliasco Torino, Italy
- 140-P Biorational alternatives to control the soilborne plant pathogen *Rhizoctonia solani*. D. K. LAKSHMAN (1), K. Chauhan (2). (1) USDA-ARS, FNPRU & SASL, Beltsville, MD, U.S.A.; (2) USDA-ARS, IIBBL, Beltsville, MD, U.S.A.
- 141-P Role of phenazine structural derivatives in fungal inhibition and biofilm formation. J. YU (1), J. Levy (2), D. Wang (1), L. S. Pierson (3), E. A. Pierson (3). (1) Department of Plant Pathology and Microbiology, Texas A&M University, College Station, TX, U.S.A.; (2) Department of Horticultural Sciences, Texas A&M University, College Station, TX, U.S.A.; (3) Department of Plant Pathology and Microbiology, Department of Horticultural Sciences, Texas A&M University, College Station, TX, U.S.A.
- 142-P Efficacy of resistance inducers against *Magnaporthe oryzae* causing blast disease of rice. Y. VARMA (1), S. P (2). (1) Kerala Agricultural University, Calicut, Kerala, India; (2) Kerala Agricultural University, Thiruvananthapuram, Kerala, India
- 143-P Effect of soil type and compaction on severity of clubroot (*Plasmodiophora brassicae*). B. D. GOSSEN (1), H. Kasinathan (2), M. McDonald (2), G. Peng (1) (1) Agriculture and Agri-Food Canada, Saskatoon Research Centre, Saskatoon, SK, Canada; (2) Department of Plant Agriculture, University of Guelph, Guelph, ON, Canada
- 144-P Natural suppression of *Rhizoctonia* root rot by soil microbial communities in wheat from a *Rhizoctonia* decline site. C. Yin (1), S. Hulbert (1), K. L. Schroeder (1), O. Mavrodi (1), D. Mavrodi (1), W. Schillinger (2), T. C. PAULITZ (3). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) Department of Crop and Soil Sciences, Washington State University, Pullman, WA, U.S.A.; (3) USDA-ARS, Root Disease and Biological Control Research Unit, Pullman, WA, U.S.A.
- 145-P Associative effects of arbuscular mycorrhizal fungi and *Rhizobium* on plant growth, yield, and resistance to charcoal rot of green gram (*Vigna radiata* (L.) Wilczek). B. NARSIMHA REDDY (1). (1) Osmania University College for Women, Hyderabad, India
- 146-P Aflatoxin management in corn with Affa-Guard. M. A. WEAVER (1), H. Abbas (2), G. Sciumbato (3), H. Pringle (3), T. Allen (3). (1) USDA-ARS BCPRU, Stoneville, MS, U.S.A.; (2) USDA-ARS, Stoneville, MS, U.S.A.; (3) Mississippi State University, Stoneville, MS, U.S.A.
- 147-P Determination of cape gooseberry (*Physalis peruviana*) plant growth regulators produced by rhizobacteria. C. Soto (1), J. Riaño (1), E. Coy (1), P. JIMÉNEZ (1). (1) Universidad Militar Nueva Granada, Bogotá, Colombia
- 148-P Ecology of *Bacillus amyloliquefaciens* on wheat florets in relation to biological control of *Fusarium graminearum*. J. M. CRANE (1), D. M. Gibson (2), G. C. Bergstrom (1). (1) Cornell University, Department of Plant Pathology and Plant-Microbe Biology, Ithaca, NY, U.S.A.; (2) USDA-ARS, Robert Holley Center for Agriculture and Health, Ithaca, NY, U.S.A.
- 149-P Detection of aflatoxigenic *Aspergillus flavus* contamination of coconut (*Cocos nucifera*) nutmeat (copra) using ammonia treatment. H. D. ABBAS (1), W. Shier (2), M. A. Weaver (1), B. W. Horn (3). (1) USDA-ARS BCPRU, Stoneville, MS, U.S.A.; (2) University of Minnesota, Minneapolis, MN, U.S.A.; (3) USDA-ARS, National Peanut Research Laboratory, Dawson, GA, U.S.A.
- 150-P Biological and physical control of leaf miner and nettle caterpillar on oil palm (*Eleais guineensis* Jacq) in Pamol Plantations, Cameroon, Central Africa. T. T. OBEN (1), C. E. Etta (1), W. O. Obi-Okpun (1), C. O. Mekanya (1), K. O. Ojong (1). (1) Pamol Plantations Plc, Lobe, Ekondo Titi, Cameroon
- 151-P Assessing organic vegetable growers' beliefs regarding soilborne disease management. F. BAYSAL-GUREL (1), K. Parajuli (2), B. McSpadden Gardener (1), G. Norton (2), S. A. Miller (1). (1) The Ohio State University, Wooster, OH, U.S.A.; (2) Virginia Tech, Blacksburg, VA, U.S.A.
- 152-P An expert perspective on the organic vegetable grower decision-making process related to soilborne disease management. F. BAYSAL-GUREL (1), B. Spadden Gardener (1), S. A. Miller (1). (1) The Ohio State University, Wooster, OH, U.S.A.
- 153-P WITHDRAWN
- 154-P Preliminary survey of blueberry yeasts and their potential for disease control. J. A. TRAQUAIR (1), P. D. Hildebrand (2), D. H. Langdon (3), G. J. Boland (4). (1) Agriculture & Agri-Food Canada, London, ON, Canada; (2) Atlantic Food and Horticulture Research Center, Agriculture & Agri-Food Canada, Kentville, NS, Canada; (3) University of Guelph, Guelph, ON, Canada; (4) Environmental Biology Department, University of Guelph, Guelph, ON, Canada
- 155-P Controlling charcoal rot, an emerging disease of strawberry. J. C. MERTELY (1), T. Seijo (2), N. A. Peres (2).

- (1) University of Florida, GCREC, Wimauma, FL, U.S.A.; (2) University of Florida, Wimauma, FL, U.S.A.
- 156-P WITHDRAWN
- 157-P Inhibition of *Ophiognomonium clavignenti-juglandacearum* in vitro by fungi associated with butternut, Japanese walnut, and hybrid butternut. J. JACOBS (1), K. Woeste (2), M. Ostry (3), C. Michler (2). (1) Hardwood Tree Improvement and Regeneration Center, Purdue University, Department of Forestry and Natural Resources, West Lafayette, IN, U.S.A.; (2) USDA Forest Service, Hardwood Tree Improvement and Regeneration Center, Purdue University, Department of Forestry and Natural Resources, West Lafayette, IN, U.S.A.; (3) USDA Forest Service, Northern Research Station, St. Paul, MN, U.S.A.
- 158-P Effect of two bacterial biocontrol agents on *Macrophomina* root rot and powdery mildew disease severity in flowering dogwood. L. MACKASMIEL (1). (1) Tennessee State University, College of Agriculture, McMinnville, TN, U.S.A.
- 159-P Screening for biocontrol agents for protection of chile peppers against *Phytophthora capsici* and *Verticillium dahlia*. S. HANSON (1), A. Garcia (1), J. Achata (1), R. Trejo (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.
- 160-P Efficacy of chemical and biological treatments on the control of premature vine decline in California processing tomatoes. N. N. MAHARAJ (1), E. M. Miyao (2), J. H. Leveau (1), R. M. Davis (1). (1) University of California-Davis, Davis, CA, U.S.A.; (2) University of California Cooperative Extension, Yolo County, Woodland, CA, U.S.A.
- 161-P Pathogenic and molecular characterization of a *Sclerotinia* isolate used as a mycoherbicide for selective control of ground ivy. M. RAHMAN (1), K. Lympus (1), B. MacDonald (1). (1) West Virginia University, Morgantown, WV, U.S.A.
- 162-P Potential of nematophagous fungi for control of the pale cyst nematode, *Globodera pallida*. J. Worapong (1), L. DANDURAND (1). (1) University of Idaho, Moscow, ID, U.S.A.
- 163-P WITHDRAWN
- 164-P The use of volatile organic compounds to control *Colletotrichum coccodes* on potato in large-scale storage. P. Wharton (1), E. WOOD (1). (1) University of Idaho, Aberdeen, ID, U.S.A.
- Chemical Control**
- 165-P WITHDRAWN
- 166-P Epidemiology and management of *Septoria tritici* leaf blotch in winter wheat in Ontario. R. BURLAKOTI (1), K. Jackson (1). (1) Weather INnovations Incorporated, Chatham, ON, Canada
- 167-P Impact of fungicides on rust intensity and biomass yield of switchgrass. K. L. BOWEN (1), A. K. Hagan (1), J. Akridge (2). (1) Auburn University, Auburn, AL, U.S.A.; (2) Auburn University, Brewton, AL, U.S.A.
- 168-P Effect of chlorine dioxide on disinfecting fungi in wheat seeds under various relative humidity conditions. Y. JEON (1), H. Lee (1), Y. Lee (1), S. Lee (1), S. Yu (2). (1) National Academy of Agricultural Science, Suwon, South Korea; (2) Chungnam National University, Suwon, South Korea
- 169-P Evaluating seed treatments for their ability to control Fusarium root rot in legumes. N. HEGDE (1), D. Baer (1), P. Asija (1), K. Shetty (2), J. B. Rasmussen (1), R. S. Goswami (3). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) Syngenta, Greensboro, NC, U.S.A.; (3) DuPont Crop Protection, Newark, DE, U.S.A.
- 170-P Seed and in-furrow fungicides with and without post-emergence azoxystrobin for control of *Rhizoctonia solani* on sugar beet. J. R. BRANTNER (1), C. E. Windels (1), J. D. Nielsen (1). (1) University of Minnesota, Northwest Research and Outreach Center, Crookston, MN, U.S.A.
- 171-P Comparison of amended agar and greenhouse assays to evaluate the efficacy seed treatment fungicide ethaboxam. A. E. DORRANCE (1), M. L. Ellis (2), C. B. Meador (3), K. Arthur (4). (1) The Ohio State University, Wooster, OH, U.S.A.; (2) The Ohio State University, OARDC, Wooster, OH, U.S.A.; (3) Valent U.S.A. Corporation, Leland, MS, U.S.A.; (4) Valent U.S.A. Corporation, Plano, TX, U.S.A.
- 172-P Development of an electronic-nose technology for the rapid detection of agricultural pesticide residues. A. WILSON (1). (1) USDA Forest Service, Stoneville, MS, U.S.A.
- 173-P Development of smart spray systems to enhance delivery of pesticides in field nursery production. H. Zhu (1), E. Ozkan (2), R. D. Derksen (1), M. E. Reding (1), C. M. Ranger (1), L. Canas (3), C. R. Krause (1), J. C. LOCKE (4), S. C. Ernst (5), R. H. Zondag (6), A. Fulcher (7), R. Rosetta (8), H. Jeon (1), Y. Chen (9), J. Gu (10), H. Liu (9), Y. Shen (9), A. A. Rios (3). (1) USDA-ARS ATRU, Wooster, OH, U.S.A.; (2) Fabe, The Ohio State University, Columbus, OH, U.S.A.; (3) Entomology, The Ohio State University, Wooster, OH, U.S.A.; (4) USDA-ARS ATRU, Toledo, OH, U.S.A.; (5) Agricultural, Environmental, and Development Economics, The Ohio State University, Columbus, OH, U.S.A.; (6) Horticulture & Crop Science, The Ohio State University, Columbus, OH, U.S.A.; (7) University of Tennessee, Knoxville, TN, U.S.A.; (8) North Willamette Research and Extension Center, Oregon State University, Aurora, OR, U.S.A.; (9) Fabe, The Ohio State University, Wooster, OH, U.S.A.; (10) College of Engineering, Nanjing Agricultural University, Nanjing, Peoples Republic of China
- 174-P Yield and net return on investment following an automatic fungicide application to field corn in Arkansas, Louisiana, and Mississippi. T. W. ALLEN (1), B. R. Golden (1), C. A. Hollier (2), G. Padgett (3), J. Kelley (4), D. Ingram (5), C. Coker (6), A. Henn (7), E. Larson (7), N. Buehring (8). (1) Mississippi State University, Stoneville, MS, U.S.A.; (2) Louisiana State University AgCenter, Baton Rouge, LA, U.S.A.; (3) Louisiana State University AgCenter, Winnsboro, LA, U.S.A.; (4) University of Arkansas, Little Rock, AR, U.S.A.; (5) Mississippi State University, Raymond, MS, U.S.A.; (6) University of Arkansas, Monticello, AR, U.S.A.; (7) Mississippi State University, Starkville, MS, U.S.A.; (8) Mississippi State University, Verona, MS, U.S.A.
- 175-P Field evaluation of foliar fungicides for control of northern corn leaf blight. J. D. WEEMS (1), K. A. Ames (1), C. A. Bradley (1). (1) University of Illinois, Urbana, IL, U.S.A.

- 176-P Flutriafol, a new fungicide for managing root rot of cotton, caused by *Phymatotrichopsis omnivora*, in Texas. T. Isakeit (1), R. R. Minzenmayer (2), G. D. Morgan (3), D. R. Drake (4), D. A. Mott (3), D. D. Fromme (5), W. L. Multer (6), M. P. Jungman (7), A. Abrameit (8), R. L. NICHOLS (9). (1) Texas A&M University, College Station, TX, U.S.A.; (2) Texas AgriLife Extension Service, Ballinger, TX, U.S.A.; (3) Texas AgriLife Extension Service, College Station, TX, U.S.A.; (4) Texas AgriLife Extension Service, San Angelo, TX, U.S.A.; (5) Texas AgriLife Extension Service, Corpus Christi, TX, U.S.A.; (6) Texas AgriLife Extension Service, Garden City, TX, U.S.A.; (7) Texas AgriLife Extension Service, Hillsboro, TX, U.S.A.; (8) Texas AgriLife Extension Service, Thrall, TX, U.S.A.; (9) Cotton Incorporated, Cary, NC, U.S.A.
- 177-P Effects of glyphosate application rates on soybean sudden death syndrome. S. S. Navi (1), L. Jing (1), X. YANG (1). (1) Iowa State University, Ames, IA, U.S.A.
- 178-P Occurrence of soybean sudden death syndrome after adoption of Roundup Ready technology in North America. X. YANG (1). (1) Iowa State University, Ames, IA, U.S.A.
- 179-P Effects of application timing and rates of application of a demethylation inhibitor fungicide on *Cercospora* leaf blight of soybean. R. W. SCHNEIDER (1), C. L. Robertson (1), N. A. Ward (2). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (2) University of Kentucky, Lexington, KY, U.S.A.
- 180-P Associations between the timing of fungicide application and percent control of Fusarium head blight and deoxynivalenol contamination in wheat. D. D'ANGELO (1), K. T. Willyerd (2), J. D. Salgado (3), L. V. Madden (3), P. A. Paul (3). (1) Ohio State University, Orient, OH, U.S.A.; (2) Ohio State University, OARDC, Wooster, OH, U.S.A.; (3) Ohio State University, Wooster, OH, U.S.A.
- 181-P Evaluating fungicide programs for potato early blight control and fungicide resistance management in Wisconsin. A. J. GEVENS (1), S. A. Jordan (1), K. M. Cleveland (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 182-P Evaluating fumigation and at-plant treatments for the control of potato common scab in Wisconsin. B. J. WEBSTER (1), S. A. Jordan (1), A. J. Gevens (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 183-P First-year almond tree performance as affected by preplant soil steam, backhoe, and fumigation treatments in a replanted site with the presence of plant-parasitic nematodes. D. A. DOLL (1), G. T. Browne (2), B. Hanson (3), S. A. Fennimore (4). (1) University of California, Merced, CA, U.S.A.; (2) USDA-ARS, Davis, CA, U.S.A.; (3) University of California-Davis, Davis, CA, U.S.A.; (4) University of California, Salinas, CA, U.S.A.
- 184-P Comparative ability of some fungicides to manage the avocado branch canker (formerly *Dothiorella* canker) in California. M. TWIZEYIMANA (1), J. Mayorquin (1), D. H. Wang (1), F. Na (1), S. D. Akgul (2), A. Eskalen (1). (1) Department of Plant Pathology and Microbiology, University of California, Riverside, CA, U.S.A.; (2) Manisa Viticulture Research Station, Turkish Department of Agriculture, Manisa, Turkey
- 185-P WITHDRAWN
- 186-P Chemotherapy for citrus huanglongbing disease in the field. M. Zhang (1), C. A. POWELL (2), Y. Guo (2), Y. Duan (3). (1) University of Florida, Fort Pierce, FL, U.S.A.; (2) Indian River Research and Education Center, IFAS, University of Florida, Fort Pierce, FL, U.S.A.; (3) U.S. Horticultural Lab, USDA-ARS, Fort Pierce, FL, U.S.A.
- 187-P Optimal timing of fungicide applications for control of citrus scab sporulation caused by *Elsinoë fawcettii*. S. N. MONDAL (1), M. M. Dewdney (2). (1) CREC, University of Florida, Lake Alfred, FL, U.S.A.; (2) University of Florida, Lake Alfred, FL, U.S.A.
- 188-P The sanitary effect of alkyl dimethyl benzyl ammonium chloride on bean pods infected by *Pseudomonas syringae* pv. *syringae*. K. M. TUBAJIKA (1). (1) USDA APHIS PPQ CPHST, Raleigh, NC, U.S.A.
- 189-P Optimizing use of MCW-2 for management of root-knot nematode, *Meloidogyne javanica*, on tomatoes and cucumbers. B. B. WESTERDAHL (1), C. T. Schiller (2), C. A. Wilen (3). (1) University of California, Davis, CA, U.S.A.; (2) Makhteshim Agan of North America, Raleigh, NC, U.S.A.; (3) University of California Cooperative Extension, San Diego, CA, U.S.A.
- 190-P Influence of insecticide programs on *Tomato spotted wilt virus* in California processing tomatoes. T. A. TURINI (1), D. A. Rodriguez (1), M. Le Strange (2). (1) University of California Agriculture and Natural Resources, Fresno, CA, U.S.A.; (2) University of California Agriculture and Natural Resources, Tulare, CA, U.S.A.
- 191-P Effect of planting date, fungicide timing, and varietal susceptibility levels on development of narrow brown leaf spot of rice. K. K. MANI (1), C. Hollier (1), D. E. Groth (2). (1) Louisiana State University, Agcenter, Baton Rouge, LA, U.S.A.; (2) Louisiana State University, Agcenter, Crowley, LA, U.S.A.
- 192-P Field evaluation of fungicides for management of rice false smut and kernel smut. X. ZHOU (1). (1) Texas A&M University System, AgriLife Research, Beaumont, TX, U.S.A.
- 193-P Managing *Rhizoctonia solani* on sugar beet with fungicides. M. KHAN (1). (1) North Dakota State University/University of Minnesota, Fargo, ND, U.S.A.
- 194-P Management of *Cercospora apii* on celery using conventional and reduced-risk fungicides. R. N. RAID (1). (1) University of Florida, Belle Glade, FL, U.S.A.
- 195-P Alternative spray schedule of fungicides and potassium phosphonate to control watermelon powdery mildew caused by *Sphaerotheca fusca* in Korea. H. KANG (1), B. Han (1), T. Kim (1), J. Noh (1), Y. Kim (1), Y. Kim (1). (1) Watermelon Research Institute, CBARES, Eumseong-gun, Chungcheongbuk-do, South Korea
- 196-P Control of watermelon powdery mildew caused by *Sphaerotheca fusca* in Korea using egg yolk and cooking oil. H. KANG (1), B. Han (1), J. Noh (1), T. Kim (1), Y. Kim (1), Y. Kim (1). (1) Watermelon Research Institute, CBARES, Eumseong-gun, Chungcheongbuk-do, South Korea
- 197-P Use of sulfur dioxide (SO₂) as a postharvest treatment to control gray mold of blueberry (*Vaccinium corymbosum*). S. A. RIVERA (1), J. P. Zoffoli (1), B. A. Latorre (1). (1) Pontificia Universidad Católica de Chile, Santiago, Chile

- 198-P Rainfastness of fungicides on grape leaves. A. C. SCHILDER (1), J. M. Gillett (1). (1) Michigan State University, East Lansing, MI, U.S.A.
- 199-P Use of film-forming polymers for management of olive knot disease. E. J. FICHTNER (1), G. Kasun (2), C. DeBuse (3), W. H. Krueger (4), B. Kirkpatrick (2). (1) University of California Cooperative Extension, Tulare, CA, U.S.A.; (2) Department of Plant Pathology, University of California-Davis, Davis, CA, U.S.A.; (3) University of California Cooperative Extension, Woodland, CA, U.S.A.; (4) University of California Cooperative Extension, Orland, CA, U.S.A.
- 200-P Combining sclerotia germination stimulants and fungicides for control of white rot of onions and garlic. A. 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.
- 201-P Plant health benefits of strobilurin fungicide applications incorporated within a programmatic fungicide approach on creeping bentgrass. J. J. BENELLI (1), B. J. Horvath (1), J. T. Brosnan (1), D. A. Kopsell (1). (1) University of Tennessee, Knoxville, TN, U.S.A.
- 202-P Management of foliar nematodes, *Aphelenchoides fragariae*, in ornamentals. J. A. LAMONDIA (1). (1) Connecticut Agricultural Experiment Station, Windsor, CT, U.S.A.
- 203-P Insecticidal effect and cloning of *Inga laurina* trypsin inhibitor on *Diatraea saccharalis* and *Heliothis virescens*. V. S. RAMOS (1), G. A. Pereira (1), O. G. Cabrera (1), M. R. Macedo (2). (1) Institute of Biology, UNICAMP, Campinas, Brazil; (2) UFMS, Campo Grande, Brazil
- 204-P Effects of piperidine alkaloids from the red imported fire ant on cucumber damping-off caused by *Pythium ultimum* in the greenhouse. S. Li (1), X. JIN (2), J. Chen (2). (1) Institute of Plant Protection, Hebei Academy of Agricultural and Forestry Sciences, Baoding, Hebei Province, Peoples Republic of China; (2) USDA-ARS MSA, Stoneville, MS, U.S.A.
- Cultural Control**
- 205-P Organic chlorine to reduce apple rots caused by *Penicillium expansum*. R. VALDEBENITO-SANHUEZA (1), G. A. Meyer (2), M. C. Santos (3). (1) Proterra, Vacaria, Brazil; (2) Proterra Research Center, Vacaria, Brazil; (3) Universidade de Caxias do Sul, Vacaria, Brazil
- 206-P WITHDRAWN
- 207-P WITHDRAWN
- 208-P **NED & APS Foundation Awardee** Mechanisms of silicon-induced resistance in gray leaf spot-perennial ryegrass pathosystem. A. RAHMAN (1), W. Uddin (1). (1) The Pennsylvania State University, State College, PA, U.S.A.
- 209-P Effects of micronutrients on *Fusarium oxysporum* f. sp. *spinaciae* and limestone-mediated suppression of spinach Fusarium wilt. E. W. GATCH (1), L. J. du Toit (1). (1) Washington State University, Mount Vernon NWREC, Mount Vernon, WA, U.S.A.
- 210-P Effect of inoculum concentration on the development of anthracnose fruit rot on flowers and fruit of different strawberry cultivars. B. B. FORCELINI (1), F. P. Gonçalves (2), N. A. Peres (1). (1) University of Florida, Wimauma, FL, U.S.A.; (2) University of São Paulo, Piracicaba, Brazil
- 211-P Use of brassica biofumigation cover crop and plant growth-promoting rhizobacteria to manage sheath blight of rice. X. ZHOU (1), G. Liu (1), J. W. Kloepfer (2), M. S. Reddy (2). (1) Texas A&M University System, AgriLife Research, Beaumont, TX, U.S.A.; (2) Auburn University, Department of Entomology and Plant Pathology, Auburn, AL, U.S.A.
- 212-P **APS Foundation Awardee** Efficacy of a *Vicia villosa* green manure and *Streptomyces lydicus* for management of Fusarium wilt of watermelon in the greenhouse and in vitro. J. C. HIMMELSTEIN (1), K. Everts (1), Y. Balci (2). (1) University of Maryland, Salisbury, MD, U.S.A.; (2) University of Maryland, College Park, MD, U.S.A.
- 213-P Effect of mixed- and single-species green manures on tomato diseases and nematodes. K. EVERTS (1), S. Meyer (2), B. B. McSpadden-Gardener (3). (1) University of Maryland College Park, Salisbury, MD, U.S.A.; (2) USDA-ARS, Nematology Laboratory, Beltsville, MD, U.S.A.; (3) Ohio State University, Wooster, OH, U.S.A.
- 214-P **NED & APS Foundation Awardee** The impact of mixed-species cover crops on rhizosphere pathogens of organically managed tomato crops in New York, Ohio, and Maryland. C. F. SUMMERS (1), C. D. Smart (2), B. B. McSpadden Gardener (3), K. L. Everts (4), A. R. Dunn (2), S. Park (3). (1) Cornell University-NYAES, Ithaca, NY, U.S.A.; (2) Cornell University-NYAES, Geneva, NY, U.S.A.; (3) Ohio State University, OARDC, Wooster, OH, U.S.A.; (4) University of Maryland, College Park, MD, U.S.A.
- 215-P Suppression of soybean diseases through the use of cover crops. L. WEN (1), G. L. Hartman (2), D. M. Eastburn (1). (1) University of Illinois, Urbana, IL, U.S.A.; (2) USDA-ARS, University of Illinois, Urbana, IL, U.S.A.
- 216-P Effects of conventional, organic, and no-till field soils on development of southern blight of tomato caused by *Sclerotium rolfsii*. J. Díaz-Pérez (1), V. PARKUNAN (1), M. Purvis (1), M. Finger (1), P. Ji (1). (1) University of Georgia, Tifton, GA, U.S.A.
- 217-P Impact of cropping sequence on diseases, nematodes, and yield of peanut, cotton, and corn in Southwest Alabama. A. K. Hagan (1), H. L. CAMPBELL (1), K. L. Bowen (1), M. Pegues (2), J. Jones (2). (1) Auburn University, Auburn, AL, U.S.A.; (2) Gulf Coast Research and Extension Center, Fairhope, AL, U.S.A.
- 218-P Irrigation management for the reduction of dollar spot disease of creeping bentgrass. N. DYKEMA (1), J. Vargas (1), K. Frank (1), W. Kirk (1) (1) Michigan State University, East Lansing, MI, U.S.A.
- 219-P Transformation of soil microbial community structure in response to anaerobic soil disinfestation for soilborne disease control in strawberry. M. MAZZOLA (1), J. Muramoto (2), C. Shennan (2). (1) USDA-ARS, Wenatchee, WA, U.S.A.; (2) University of California-Santa Cruz, Santa Cruz, CA, U.S.A.

Fungicide Resistance

- 220-P Mefenoxam sensitivity of recent strains of *Phytophthora infestans* in the United States. K. L. MYERS (1), R. Childers (1), D. Camuzeaux (1), G. Danies (1), I. M. Small (1), W. E. Fry (1). (1) Cornell University, Ithaca, NY, U.S.A.
- 221-P *Plasmopara viticola* isolates from the Lake Erie region with the G143A mutation that confers resistance to strobilurin-class fungicides. S. L. Chestnut (1), C. T. GEE (1). (1) Penn State University, Erie, PA, U.S.A.
- 222-P  Status of streptomycin-resistant *Erwinia amylovora* in Illinois apple orchards. A. G. JURGENS (1), M. Babadoost (1). (1) University of Illinois, Urbana, IL, U.S.A.
- 223-P Reduced sensitivity to propiconazole found in *Monilinia vaccinii-corymbosi* from lowbush blueberry fields in Maine. A. A. THOMPSON (1), S. L. Annis (1). (1) University of Maine, Orono, ME, U.S.A.
- 224-P Detection and characterization of boscalid resistance in *Alternaria solani* causing early blight on potatoes in Idaho. K. L. FAIRCHILD (1), L. A. Miles (1), T. D. Miles (1), P. S. Wharton (1). (1) University of Idaho, Aberdeen, ID, U.S.A.
- 225-P In vitro *Phakopsora pachyrhizi* isolate sensitivity to fungicides and effect of fungicide and timing of application on soybean rust severity. M. TWIZEYIMANA (1), G. L. Hartman (2). (1) University of California-Riverside, Riverside, CA, U.S.A.; (2) USDA-ARS and Department of Crop Sciences, University of Illinois, Urbana, IL, U.S.A.
- 226-P Baseline sensitivity of *Exserohilum turcicum* to the quinone outside inhibitor pyraclostrobin. V. CHAPARA (1), D. K. Pedersen (1), P. Balint-Kurti (2), P. D. Esker (3), A. E. Robertson (4), P. A. Paul (5), C. A. Bradley (1). (1) University of Illinois, Urbana, IL, U.S.A.; (2) North Carolina State University, Raleigh, NC, U.S.A.; (3) University of Wisconsin-Madison, Madison, WI, U.S.A.; (4) Iowa State University, Ames, IA, U.S.A.; (5) Ohio State University, Wooster, OH, U.S.A.
- 227-P Status of fluopyram resistance development. G. MUSSON (1), H. Young (1). (1) Bayer CropScience, Research Triangle Park, NC, U.S.A.
- 228-P Occurrence of resistance to respiratory inhibitors in *Corynespora cassicola* isolates from Florida tomatoes. H. M. ADKISON (1), E. Margenthaler (1), V. Burlacu (1), R. Willis (1), G. E. Vallad (1). (1) University of Florida Gulf Coast Research and Education Center, Wimauma, FL, U.S.A.
- 229-P Possible alternative mechanisms of azoxystrobin resistance in *Bipolaris* spp. M. TOMASO-PETERSON (1). (1) Mississippi State University, Mississippi State, MS, U.S.A.
- 230-P Sensitivity of *Penicillium* spp. from decayed apple fruit to postharvest fungicides and identification of a new codon associated with thiabendazole resistance. V. L. GASKINS (1), I. Vico (1), K. A. Peter (1), W. J. Janisiewicz (2), W. M. Jurick (3). (1) USDA-ARS, Beltsville, MD, U.S.A.; (2) USDA-ARS, AFRS, Kearneysville, WV, U.S.A.; (3) USDA-ARS, Food Quality Laboratory, Beltsville, MD, U.S.A.
- 231-P Characterization of *Sclerotinia sclerotiorum* sensitivity to metconazole in North Central United States. G. AMEEN (1), L. del Rio-Mendoza (1), B. D. Nelson (1). (1) North Dakota State University, Fargo, ND, U.S.A.
- 232-P  Detection and molecular characterization of fenhexamid resistance in *Botrytis cinerea* isolates from strawberries. A. GRABKE (1), D. Fernández-Ortuño (1), G. Schnabel (1). (1) Clemson University, Clemson, SC, U.S.A.
- 233-P Multiple fungicide resistance in *Botrytis cinerea* isolates from strawberry fields in Florida. A. AMIRI (1), S. M. Heath (1), N. A. Peres (1). (1) University of Florida, Wimauma, FL, U.S.A.
- 234-P New insights into mechanisms of resistance to respiratory inhibitor fungicides in *Botrytis cinerea*. A. AMIRI (1), S. M. Heath (1), N. N. Peres (1). (1) University of Florida, Wimauma, FL, U.S.A.
- 235-P Sensitivity of *Botrytis cinerea* field isolates to the novel succinate dehydrogenase inhibitors fluopyram, pen-thiopyrad, and fluxapyroxad. A. AMIRI (1), S. M. Heath (1), N. A. Peres (1). (1) University of Florida, Wimauma, FL, U.S.A.
- 236-P Sensitivity of *Didymella bryoniae* isolates obtained from Florida greenhouses watermelon seedlings to boscalid. K. E. HENDRICKS (1), P. D. Roberts (2). (1) University of Florida, SWFREC, Immokalee, FL, U.S.A.; (2) University of Florida, Immokalee, FL, U.S.A.
- 237-P Sensitivity of *Guignardia citricarpa* Florida isolates to copper. K. E. HENDRICKS (1), P. D. Roberts (2). (1) University of Florida, SWFREC, Immokalee, FL, U.S.A.; (2) University of Florida, Immokalee, FL, U.S.A.
- 238-P Prevalence of dodine resistance in *Venturia inaequalis* populations in the northeastern United States following renewed use of Syllit for the management of apple scab. K. D. COX (1), S. M. Villani (1), L. Ramaekers (2). (1) Cornell University, Geneva, NY, U.S.A.; (2) Agriphar, Ougrée, Belgium
- 239-P **NED** Characterizing the role of *CYP51A1* overexpression in myclobutanil- and difenoconazole-resistant *Venturia inaequalis*. S. M. VILLANI (1), J. Freier (2), K. D. Cox (1). (1) Cornell University, Geneva, NY, U.S.A.; (2) Hobart and William Smith Colleges, Geneva, NY, U.S.A.
- 240-P Evidence for heterokaryon formation and nuclear disproportion in *Sclerotinia homoeocarpa* using fungicide sensitivity phenotypes and genotypic markers. D. KES-SLER (1), J. Hulvey (1), G. Jung (1). (1) University of Massachusetts-Amherst, Amherst, MA, U.S.A.
- 241-P Detection of resistance to QoI fungicides in *Rhizoctonia solani* isolates from rice. G. OLAYA (1), C. Buitrago (2), D. Pearsaul (1), H. Sierotzki (2), A. Tally (3). (1) Syngenta, Vero Beach, FL, U.S.A.; (2) Syngenta, Stein, Switzerland; (3) Syngenta, Greensboro, NC, U.S.A.
- 242-P The usefulness of concurrent, alternating, and mixture use of two high-risk fungicides as resistance management strategy. P. H. HOBBELEN (1), N. D. Paveley (2), F. van den Bosch (1). (1) Rothamsted Research, Harpenden, United Kingdom; (2) ADAS UK Ltd., High Mowthorpe, Duggleby, Malton, United Kingdom

Host Resistance

- 243-P Three improved *Citrullus lanatus* var. *citroides* lines USVL246-FR2, USVL252-FR2, and USVL335-FR2, with resistance to *Fusarium oxysporum* f. sp. *niveum* race 2. W. WECHTER (1), C. Kousik (1), M. McMILLAN (1), M. Farnham (1), A. Levi (1). (1) USDA-ARS, Charleston, SC, U.S.A.
- 244-P Susceptibility of red potato cultivars (*Solanum tuberosum* L.) to *Meloidogyne incognita*, *M. javanica*, and *M. konaensis*. B. Kandouh (1), B. SIPES (1). (1) University of Hawaii at Manoa, Honolulu, HI, U.S.A.
- 245-P Evaluation of pathogen and pest resistance in select commercial soybean cultivars from 1923 to 2007. E. D. WEST (1), C. R. Bowen (2), J. S. Haudenschild (1), G. L. Hartman (3). (1) University of Illinois at Urbana-Champaign, Champaign, IL, U.S.A.; (2) USDA-ARS, Urbana, IL, U.S.A.; (3) USDA-ARS, University of Illinois at Urbana-Champaign, Urbana, IL, U.S.A.
- 246-P Evaluation of commercial soybean cultivars for pathogen and pest resistance. S. CHAWLA (1), C. R. Bowen (2), H. A. Hobbs (1), G. L. Hartman (3). (1) University of Illinois, National Soybean Research Center, Department of Crop Sciences, Urbana, IL, U.S.A.; (2) USDA-ARS, National Soybean Research Center, Urbana, IL, U.S.A.; (3) USDA-ARS, National Soybean Research Center, University of Illinois, Department of Crop Sciences, Urbana, IL, U.S.A.
- 247-P Resistance of daylily cultivars to isolates of the daylily rust pathogen *Puccinia hemerocallidis*. W. Dong (1), J. BUCK (1). (1) University of Georgia, Griffin, GA, U.S.A.
- 248-P Predisposition to Phytophthora root rot varies among rhododendron genotypes subjected to flooding stress. S. KREBS (1), P. Bonello (2). (1) The Holden Arboretum, Kirtland, OH, U.S.A.; (2) The Ohio State University, Columbus, OH, U.S.A.
- 249-P Effects of light density on resistance of bigleaf hydrangea to *Cercospora* leaf spot. Y. LI (1), M. Windham (2), R. Trigiano (2), A. Windham (2), S. Reed (3), J. Spiers (4), T. Rinehart (5). (1) Connecticut Agricultural Experiment Station, New Haven, CT, U.S.A.; (2) University of Tennessee, Knoxville, TN, U.S.A.; (3) USDA-ARS, McMinnville, TN, U.S.A.; (4) USDA-ARS, Poplarville, MS, U.S.A.
- 250-P Downy mildew of spinach—An overview of resistance. J. C. CORRELL (1), C. Feng (1), K. E. Kammeijer (2), S. Koike (2). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) University of California-Davis, Salinas, CA, U.S.A.
- 251-P Reaction of lines of *Arabidopsis* and the Rapid Cycling Brassica Collection to Canadian pathotypes of *Plasmiodiophora brassicae*. K. Sharma (1), B. D. Gossen (2), M. MCDONALD (1). (1) Department of Plant Agriculture, University of Guelph, Guelph, ON, Canada; (2) Agriculture and Agri-Food Canada, Saskatoon Research Centre, Saskatoon, SK, Canada
- 252-P Identification of sources of crown gall resistance in the *Juglans* germplasm. A. E. McClean (1), D. A. KLUEPFEL (2), M. Aradyha (3), J. Moersfelder (3), W. P. Hackett (4), A. Dull (1), C. Marsden (5). (1) USDA-ARS, University of California, Davis, CA, U.S.A.; (2) USDA-ARS, CPGRU, Davis, CA, U.S.A.; (3) USDA-ARS Germplasm Repository, Davis, CA, U.S.A.; (4) University of California-Davis, Davis, CA, U.S.A.; (5) USDA-ARS, Davis, CA, U.S.A.
- 253-P Screening citrus and its relatives in Aurantioideae for tolerance to huanglongbing. M. KEREMANE (1), C. Ramadugu (2), E. Stover (3), S. E. Halbert (4), Y. Duan (3), R. F. Lee (5). (1) USDA-ARS, Citrus Germplasm Repository, Riverside, CA, U.S.A.; (2) University of California, Riverside, CA, U.S.A.; (3) USDA-ARS USHRL, Fort Pierce, FL, U.S.A.; (4) FDACS Division of Plant Industry, Gainesville, FL, U.S.A.; (5) National Clonal Germplasm Repository for Citrus & Dates, USDA-ARS, Riverside, CA, U.S.A.
- 254-P Assessing anthracnose symptoms in Andean lupin *Lupinus mutabilis*. C. E. FALCONI (1), A. W. van Heusden (2). (1) ESPE University, Conocoto, Pichincha, Ecuador; (2) Wageningen University, Wageningen, Netherlands
- 255-P Reaction of thirteen sugarcane varieties to orange rust, caused by *Puccinia kuehnii*. A. S. MOREIRA (1), C. R. Gonçalves (2), A. Ricci (2), A. Bergamin Filho (1). (1) Escola Superior de Agricultura Luiz de Queiroz/Universidade de São Paulo, Piracicaba, Brazil; (2) Centro de Tecnologia Canavieira - CTC, Piracicaba, Brazil
- 256-P Evaluation of resistance to *Phytophthora*-induced fruit rot and its correlation with fruit traits in *Capsicum annuum*. R. P. NAEGELE (1), A. Tomlinson (1), H. Gutting (1), S. Boyle (1), M. K. Hausbeck (1). (1) Michigan State University, East Lansing, MI, U.S.A.
- 257-P Disease reactions of IRRI near-isogenic rice to U.S. isolates of *Magnaporthe oryzae*. C. FENG (1), F. Rotich (1), J. Correll (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.
- 258-P Resistance to *Phytophthora* in new rootstocks for almond and stone fruits. L. S. SCHMIDT (1), R. G. Bhat (2), D. A. Kluepfel (1), G. T. Browne (1). (1) USDA-ARS CPGRU, Davis, CA, U.S.A.; (2) University of California, Davis, CA, U.S.A.
- 259-P Response of melon grafted on different cucurbit rootstocks to root-knot nematodes. J. A. THIES (1), J. J. Ariss (1), R. L. Hassell (2), A. Levi (1). (1) U.S. Vegetable Laboratory, USDA-ARS, Charleston, SC, U.S.A.; (2) Clemson University, Charleston, SC, U.S.A.
- 260-P Single nucleotide polymorphism study of recombinant inbred lines population for resistance to root-knot nematode (*Meloidogyne incognita*) in soybean (*Glycine max* (L.) Merr.). D. W. WRIGHT (1), S. K. Kantartzi (2), K. Meksem (2). (1) Southern Illinois University-Carbondale, Carbondale, IL, U.S.A.; (2) Southern Illinois University, Carbondale, IL, U.S.A.
- 261-P Engineering plant defenses to broaden resistance in soybean to soybean cyst nematode. A. MALDONADO (1). (1) USDA, Beltsville, MD, U.S.A.
- 262-P Reproduction of soybean cyst nematode on accessions of the core collection of *Phaseolus vulgaris*. S. H. POROMARTO (1), B. D. Nelson (1), R. S. Goswami (2), M. Welsh (3). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) DuPont Crop Protection, Stine Haskell Research Center, Newark, DE, U.S.A.; (3) USDA-ARS, Western Regional Plant Introduction Station, Pullman, WA, U.S.A.

- 263-P Examination of race structure for *Verticillium dahliae* isolates affecting chile pepper production in New Mexico. S. HANSON (1), M. Radionenko (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.
- 264-P Combining isolates to screen for novel sources of resistance to *Phytophthora sojae* in soybean. R. MATTHIESEN (1), N. Abeyssekara (1), A. Robertson (1), S. Maroof (2). (1) Iowa State University, Ames, IA, U.S.A.; (2) Virginia Tech, Blacksburg, VA, U.S.A.
- 265-P Identification of quantitative trait loci for partial resistance to *Phytophthora sojae* in soybean. N. ABEYSEKARA (1), R. Matthiesen (1), S. Cianzio (1), M. Bhattacharaya (1), A. Robertson (1). (1) Iowa State University, Ames, IA, U.S.A.
- 266-P Evaluation of lima bean germplasm for resistance to *Phytophthora capsici*, the causal agent of lima bean pod rot. T. A. EVANS (1), N. F. Gregory (1), E. G. Ernest (2). (1) University of Delaware, Newark, DE, U.S.A.; (2) University of Delaware, Georgetown, DE, U.S.A.
- 267-P Phenotypic reactions of 1050 barley accessions to a new spot blotch pathotype of *Cochliobolus sativus*. S. ALI (1), R. Wang (1), S. Zhong (1). (1) North Dakota State University, Fargo, ND, U.S.A.
- 268-P Mapping of genes associated with Diplodia ear rot resistance in maize. M. P. ROMERO (1), C. P. Woloshuk (1), G. S. Johal (1), K. A. Wise (1). (1) Purdue University, West Lafayette, IN, U.S.A.
- 269-P Identifying resistance to Sclerotinia stalk and root rot in perennial sunflower germplasm. C. BLOCK (1), L. F. Marek (2), T. J. Gulya (3). (1) USDA-ARS, Ames, IA, U.S.A.; (2) Iowa State University, Ames, IA, U.S.A.; (3) USDA-ARS, Fargo, ND, U.S.A.
- 270-P VitisGenPM: A precision phenotyping center for powdery mildew resistance breeding in grapevine. L. CADLE-DAVIDSON (1), A. Nowogrodzki (2), M. Schaub (2), P. Barba (2), B. I. Reisch (2), R. C. Seem (2), D. M. Gadoury (2). (1) USDA-ARS, Grape Genetics Research Unit, Geneva, NY, U.S.A.; (2) Cornell University, Geneva, NY, U.S.A.
- 271-P A comparison of clubroot resistance in *Brassica* vegetable crops. M. MCDONALD (1), K. Sharma (1), A. V. Nieuwelaar (1), B. D. Gossen (2). (1) Department of Plant Agriculture, University of Guelph, Guelph, ON, Canada; (2) Agriculture and Agri-Food Canada, Saskatoon Research Centre, Saskatoon, SK, Canada
- 272-P Efficient inoculation of *Rice black-streaked dwarf virus* to maize using the planthopper *Laodelphax striatellus*. H. MIAO (1), D. Di (1), Y. Lu (1), M. Redinbaugh (2), L. Tian (1), A. Zhang (1). (1) Plant Protection Institute, Hebei Academy of Agriculture and Forestry Sciences, Baoding, Peoples Republic of China; (2) USDA-ARS, Corn and Soybean Research, Department of Plant Pathology, Ohio State University, Wooster, OH, U.S.A.
- 273-P Enhanced resistance to CYSDV in melon (*Cucumis melo* L.) and identification of significant reservoir hosts for virus transmission in the southwestern United States. W. M. WINTERMANTEL (1), J. D. McCreight (1). (1) USDA-ARS, Salinas, CA, U.S.A.
- 274-P Determining resistance conferred by *Wsm* loci to *Johnsongrass mosaic virus* (JGMV) and *Sorghum mosaic virus* (SrMV). L. R. STEWART (1), M. W. Jones (1), M. Haque (2), M. G. Redinbaugh (1). (1) USDA-ARS, Wooster, OH, U.S.A.; (2) Bangladesh Agricultural University, Mymensingh, Bangladesh
- 275-P WITHDRAWN
- 276-P A new soybean rust resistance gene identified in PI 567102B. S. LI (1), J. Ray (1), J. Smith (1), R. Frederick (2). (1) USDA-ARS, Crop Genetics Research Unit, Stoneville, MS, U.S.A.; (2) USDA-ARS, Foreign Disease-Weed Science Research Unit, Ft. Detrick, MD, U.S.A.
- 277-P WITHDRAWN
- 278-P Evaluation of *Aegilops tauschii* as a source of adult plant resistance to leaf rust of wheat. B. KALIA (1), D. L. Wilson (1), R. L. Bowden (2), B. S. Gill (1). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) USDA-ARS, Manhattan, KS, U.S.A.
- 279-P Deoxynivalenol concentration in primary spikes and tillers of barley and wheat. P. GAUTAM (1), S. Halley (2), J. M. Stein (3). (1) South Dakota State University, Brookings, SD, U.S.A.; (2) Langdon Extension Research Center, North Dakota State University, Langdon, ND, U.S.A.; (3) Monsanto Company, Waterman, IL, U.S.A.
- 280-P Transcriptomic and protein profiling of mature maize seed of two closely related genotypes varying in aflatoxin accumulation. M. Luo (1), R. L. BROWN (2), Z. Chen (3), A. Menkir (4), C. Grimm (2), D. Bhatnagar (2). (1) Louisiana State University Health Science Center, New Orleans, LA, U.S.A.; (2) USDA-ARS SRRC, New Orleans, LA, U.S.A.; (3) Louisiana State University, Baton Rouge, LA, U.S.A.; (4) International Institute of Tropical Agriculture, Ibadan, Nigeria
- 281-P Breeding papaya on Guam for PRSV tolerance. G. WALL (1), A. Wiecko (1). (1) University of Guam, Mangilao, Guam
- 282-P Characterization of ontogenic resistance to powdery mildew in hop cones. S. N. WOLFENBARGER (1), M. E. Nelson (2), G. G. Grove (2), J. L. Woods (3), D. H. Gent (4). (1) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.; (2) Department of Plant Pathology, Washington State University, Irrigated Agriculture Research and Extension Center, Prosser, WA, U.S.A.; (3) Department of Crop and Soil Science, Oregon State University, Corvallis, OR, U.S.A.; (4) USDA-ARS, Forage Seed and Cereal Research Unit, and Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.
- IPM**
- 283-P Analysis of subjectivities about leafroll disease management among Napa grape growers and winemakers. K. L. ARNOLD (1), N. McRoberts (1), D. A. Golino (1). (1) University of California-Davis, Davis, CA, U.S.A.
- 284-P Replant disease control and soil system resilience to pathogen infestation in response to Brassicaceae seed meal amendment. M. MAZZOLA (1). (1) USDA-ARS, Wenatchee, WA, U.S.A.
- 285-P Differential use of insecticidal plants and organic flowers as inert carriers in controlling cowpea, *Vigna unguiculata* against *Callosobruchus maculatus*. O. F. OLOTUAH (1). (1) Adekunle Ajasin University, Akungba-Akoko, Nigeria

- 286-P Physiological and biochemical aspects of the resistance of banana plants to *Fusarium* wilt potentiated by silicon. A. Fortunato (1), F. RODRIGUES (1), K. Nascimento (1). (1) Universidade Federal de Viçosa, Viçosa, Brazil
- 287-P WITHDRAWN
- 288-P Oomycete and bacterial pathogens in New York surface irrigation water: Survey results and ultraviolet treatment. L. A. JONES (1), R. W. Worobo (1), C. D. Smart (1). (1) Cornell University, Geneva, NY, U.S.A.
- 289-P Early detection of airborne inoculum from wind-disseminated oomycetes. M. A. TANCOS (1), I. M. Small (1), W. E. Fry (1), C. D. Smart (2). (1) Cornell University, Ithaca, NY, U.S.A.; (2) Cornell University, Geneva, NY, U.S.A.
- 290-P Frequency and levels of N and K supplied by fertigation in brown eye spot of coffee plants. A. A. Custódio (1), E. A. POZZA (2), A. A. Pozza (3), A. Colombo (4), G. B. Vasco (2), M. L. Silva (2), M. S. Scalco (5). (1) Federal University of Lavras, Lavras, MG, Brazil; (2) Department of Plant Pathology, Federal University of Lavras, Lavras, MG, Brazil; (3) Federal University of Viçosa, Florestal, MG, Brazil; (4) Engineering Department, Federal University of Lavras, Lavras, MG, Brazil; (5) Agricultural Department, Federal University of Lavras, Lavras, MG, Brazil
- 291-P **NED** On-farm management factors associated with bacterial bulb rots of onion in Pennsylvania. E. E. PFEUFER (1), M. Mansfield (1), B. K. Gugino (1). (1) Pennsylvania State University, University Park, PA, U.S.A.
- 292-P Comparative epidemiology of late blight and early blight of potatoes under different environmental conditions and fungicide programs in Brazil. H. S. DUARTE (1), L. Zambolim (1), F. Machado (1), H. Porto (1), E. Mizubuti (1), P. Paul (2). (1) Universidade Federal de Viçosa, Viçosa, Brazil; (2) The Ohio State University/OARDC, Wooster, OH, U.S.A.
- 293-P WITHDRAWN
- 294-P Effects of different foliar fungicides and application timings on *Stagonospora nodorum* leaf blotch in soft red winter wheat: A multistate study. K. T. Willyerd (1), C. A. Bradley (2), S. P. Conley (3), P. D. Esker (3), L. V. Madden (1), K. A. Wise (4), P. A. PAUL (1). (1) Ohio State University, Wooster, OH, U.S.A.; (2) University of Illinois, Urbana, IL, U.S.A.; (3) University of Wisconsin-Madison, Madison, WI, U.S.A.; (4) Purdue University, West Lafayette, IN, U.S.A.
- 295-P Managing early-season stripe rust in soft red winter wheat. E. MILUS (1), J. Kelley (2), K. Lee (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) University of Arkansas Cooperative Extension Service, Little Rock, AR, U.S.A.
- 296-P Evaluation of fungicides and mustard meal to manage black root rot of strawberry and analysis of *Pythium*, *Fusarium*, and *Rhizoctonia* on strawberry roots. F. Louws (1), J. SUN (1), H. Whittington (1), J. Driver (1), K. Peeden (1), B. Liu (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 297-P Vegetable grafting: An alternative method for soil fumigation with methyl bromide—The Egyptian experience. A. TOHAMY (1), N. M. Abou-Zeid (1), M. S. Khalil (1). (1) Plant Pathology Research Institute, Giza, Egypt
- 298-P High-grafted tomatoes to control bacterial wilt caused by *Ralstonia solanacearum*. K. NAKAHO (1), H. Kajihara (2), M. Maeda (3), A. Notsu (4), T. Kawara (5). (1) National Agricultural Research Center, NARO, Tsukuba, Ibaraki, Japan; (2) Yamaguchi Prefectural Agriculture and Forestry General Engineering Center, Yamaguchi, Yamaguchi, Japan; (3) Niigata Agricultural Research Institute, Nagaoka, Niigata, Japan; (4) Hokkaido Ornamental Plants and Vegetables Research Center, Takikawa, Hokkaido, Japan; (5) Bergearth Co. Ltd., Uwajima, Ehime, Japan
- 299-P Utility of grafting to manage Verticillium wilt of tomato and extension education of grafting in North Carolina. M. IOTT (1), J. G. Driver (1), F. J. Louws (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 300-P Effects of rootstock grafting on root-knot nematode (*Meloidodityne arenaria*, race 2)-infested soil. Y. RYU (1). (1) Gyeongbuk Agricultural Research and Extension Service, Uisung-gun, Gyeongbuk, South Korea
- 301-P Growth of new rootstocks for *Prunus* spp. in fumigated and nonfumigated replant soil. G. T. BROWNE (1), L. S. Schmidt (1), R. G. Bhat (2), J. Gartung (3), D. Wang (3), D. A. Kluepfel (1). (1) USDA-ARS CPGRU, Davis, CA, U.S.A.; (2) University of California, Davis, CA, U.S.A.; (3) USDA-ARS WMRL, Parlier, CA, U.S.A.
- 302-P Evaluation of SAR inducers, chitosan, and silicon for control of Phytophthora blight of tomato. Z. MERSHA (1), S. Zhang (1), X. Mo (1). (1) University of Florida, Homestead, FL, U.S.A.
- 303-P Phytophthora crown rot of strawberry: Cultivar resistance and chemical and cultural control. T. SEIJO (1), J. Mertely (1), M. Oliveira (1), V. Whitaker (1), N. A. Peres (2). (1) University of Florida, GCREC, Wimauma, FL, U.S.A.; (2) University of Florida, Wimauma, FL, U.S.A.
- 304-P Formation of *Phytophthora infestans* oospores in planta of potato, tomato, and solanaceous weeds. A. J. Gevens (1), A. SANCHEZ PEREZ (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 305-P Increased pepper yields following incorporation of biofumigation cover crops and their effects on soilborne pathogen populations and pepper diseases. Z. Hansen (1), A. KEINATH (1). (1) Clemson University, Charleston, SC, U.S.A.
- 306-P Commercial-scale soil test *Verticillium dahliae* and *Pratylenchus penetrans* counts as influenced by long-term crop rotation and fumigation history. N. GOESER (1), P. J. Mitchell (2), A. J. Gevens (2), D. I. Rouse (2), A. MacGuidwin (2). (1) Alsum Farms and Produce, Inc., Arena, WI, U.S.A.; (2) University of Wisconsin-Madison, Madison, WI, U.S.A.
- 307-P Developing an integrated approach to cucumber downy mildew management. F. BAYSAL-GUREL (1), J. Mera (1), S. A. Miller (1). (1) The Ohio State University, Wooster, OH, U.S.A.
- 308-P Onion ipmPIPE network—Interactive resource for onion stakeholders. H. F. SCHWARTZ (1), B. K. Schroeder (2), J. VanKirk (3), K. Douce (4), G. Jibilian (5), J. Lafferty (6), G. W. Norton (7). (1) Colorado State University, Fort Collins, CO, U.S.A.; (2) Washington State University, Pullman, WA, U.S.A.; (3) Southern Region IPM Center, Raleigh, NC, U.S.A.; (4) Center for Invasive Species & Ecosystem Health, Tifton,

- GA, U.S.A.; (5) Multigrain International, LLC, Fort Collins, CO, U.S.A.; (6) Planalytics, Inc., Berwyn, PA, U.S.A.; (7) Virginia Tech, Blacksburg, VA, U.S.A.
- 309-P Multisite validation of a weather-based fungicide application advisor for the control of dollar spot of creeping bentgrass. D. L. SMITH (1), J. Kerns (2), J. E. Kaminski (3), B. J. Horvath (4), M. Tomaso-Peterson (5). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) University of Wisconsin, Madison, WI, U.S.A.; (3) The Pennsylvania State University, University Park, PA, U.S.A.; (4) University of Tennessee, Knoxville, TN, U.S.A.; (5) Mississippi State University, Mississippi State, MS, U.S.A.
- 310-P **NED** Influence of dew removal methods and plant growth regulators on fungicide efficacy for the control of dollar spot in turf. Y. HUANG (1), P. Landschoot (1), J. Kaminski (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.
- 311-P Modelling the effect of soybean rust on soybean yield using the CSM CROPGRO: Soybean. R. A. RODRIGUES (1), J. Pedrini (2), C. W. Fraisse (3), J. C. Fernandes (4), F. B. Justino (1), A. Heinemann (5), F. X. Vale (6), L. Costa (1). (1) Agricultural Engineering Department, Federal University of Viçosa, Viçosa, MG, Brazil; (2) University of Passo Fundo, Passo Fundo, RS, Brazil; (3) University of Florida, Agricultural & Biological Engineering Department, Gainesville, FL, U.S.A.; (4) Embrapa Trigo, Passo Fundo, RS, Brazil; (5) Embrapa Arroz e Feijão, Santo Antônio de Goiás, Goiás, Brazil; (6) Plant Pathology Department, Federal University of Viçosa, Viçosa, MG, Brazil
- 312-P Sustainable grape pest management for California using weather data and disease risk models. F. PEDUTO (1), L. B. Coop (2), J. F. Strand (1), L. J. Bettiga (3), J. C. Broome (1), W. F. Mahaffee (4), W. D. Gubler (1). (1) University of California, Davis, CA, U.S.A.; (2) Oregon State University, Corvallis, OR, U.S.A.; (3) University of California Cooperative Extension, Monterey County, Salinas, CA, U.S.A.; (4) USDA-ARS HCRL, Corvallis, OR, U.S.A.
- 313-P A weather-based fungicide application advisor for control of black rot of grape in Oklahoma. D. L. SMITH (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.

Regulatory Plant Pathology

- 314-P Integrated measures approaches as a pest risk management strategy for plants for planting: The case of *Dracaena* plants from Costa Rica. C. MARASAS (1). (1) USDA APHIS, Riverdale, MD, U.S.A.
- 315-P Incidence of five common pests in nurseries participating in three different certification schemes for pest risk mitigation. N. OSTERBAUER (1), M. Lujan (1), G. McAninch (1). (1) Oregon Department of Agriculture, Salem, OR, U.S.A.
- 316-P Steam disinfection of *Phytophthora ramorum* from field soil in a U.S. federally quarantined nursery. S. A. Johnson-Brousseau (1), K. L. KOSTA (2), J. Hernandez (3), S. Rooney-Latham (2), R. Arias (4), T. Pelican (5), T. L. Widmer (6), R. Bulluck (7), S. Ghosh (1). (1) Dominican University of California, San Rafael, CA, U.S.A.; (2) California Department of Food and Agriculture, Sacramento, CA, U.S.A.; (3) Morris Wholesale Nursery, Riverbank, CA, U.S.A.; (4) California Department of Food and Agriculture, Riverside, CA, U.S.A.; (5) Stanislaus County Agricultural Commissioner's Office, Modesto, CA, U.S.A.; (6) USDA-ARS FDWSRU, Fort Detrick, CA, U.S.A.; (7) USDA APHIS PPQ CPHST, Raleigh, NC, U.S.A.
- 317-P Steam disinfection of *Phytophthora ramorum* from research field soils at the National Ornamentals Research Site at Dominican University of California. S. A. Johnson-Brousseau (1), K. L. KOSTA (2), G. Copeland (1), M. Henkes (1), R. Bulluck (3), S. Ghosh (1). (1) Dominican University of California, San Rafael, CA, U.S.A.; (2) California Department of Food and Agriculture, Sacramento, CA, U.S.A.; (3) USDA APHIS PPQ CPHST, Raleigh, NC, U.S.A.
- 318-P Use of young indicator plants for biological indexing: Application to citrus certification programs. R. F. LEE (1), K. Manjunath (2), C. Ramadugu (3). (1) National Clonal Germplasm Repository for Citrus & Dates, USDA-ARS, Riverside, CA, U.S.A.; (2) USDA-ARS, Riverside, CA, U.S.A.; (3) University of California, Riverside, CA, U.S.A.
- 319-P Development of high-throughput assays for rapid and accurate 10-plex detection of citrus pathogens. J. WANG (1), G. Vidalakis (1), R. F. Lee (2), R. K. Yokomi (3). (1) University of California-Riverside, Riverside, CA, U.S.A.; (2) National Clonal Germplasm Repository for Citrus & Dates, USDA-ARS, Riverside, CA, U.S.A.; (3) USDA-ARS, Parlier, CA, U.S.A.

DISEASE OF PLANTS

Crop Loss Assessment

- 320-P Postharvest respiration rate and sucrose concentration of *Rhizoctonia*-infected sugar beet roots. C. E. WIND-ELS (1), J. R. Brantner (1), L. G. Campbell (2), K. K. Fugate (2). (1) University of Minnesota, Northwest Research and Outreach Center, Crookston, MN, U.S.A.; (2) USDA-ARS, Northern Crop Science Laboratory, Fargo, ND, U.S.A.
- 321-P Further studies on upright dieback in cranberry. F. L. CARUSO (1). (1) University of Massachusetts, East Wareham, MA, U.S.A.
- 322-P Frequency of isolation, aggressiveness, and impact on yield of Fusarium root rot species in soybean in Iowa. M. M. DIAZ-ARIAS (1), L. F. Leandro (1), G. P. Munkvold (1). (1) Iowa State University, Ames, IA, U.S.A.
- 323-P Black leg and yield responses of winter canola cultivars to timing of inoculation with *Leptosphaeria maculans*. J. P. DAMICONE (1), T. J. Pierson (1), C. B. Godsey (1), M. C. Boyles (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
- 324-P Effects of single and double infections of winter wheat by *Triticum mosaic virus* and *Wheat streak mosaic virus* on grain yield and yield components. S. Wegulo (1), E. BYAMUKAMA (1), S. Tatineni (2), G. L. Hein (1), R. A. Graybosch (3), P. S. Baenziger (1). (1) University of Nebraska, Lincoln, NE, U.S.A.; (2) USDA-ARS, University of Nebraska, Lincoln, NE, U.S.A.; (3) USDA-ARS, Lincoln, NE, U.S.A.
- 325-P Pathogenicity and virulence of *Bipolaris* species and impact on switchgrass biomass. O. L. FAJOLU (1), M.


- M. Dee (1), K. Gwinn (1), P. A. Wadl (1), A. L. Vu (2), R. N. Trigiano (1), B. H. Ownley (1). (1) University of Tennessee, Knoxville, TN, U.S.A.; (2) University of Massachusetts, Amherst, MA, U.S.A.
- 326-P Quantification of yield losses caused by bacterial panicle blight in rice. X. ZHOU (1), G. Liu (1). (1) Texas A&M University System, AgriLife Research, Beaumont, TX, U.S.A.

Detection and Diagnosis – Bacteria

- 327-P Magnetic capture hybridization and real-time PCR detection of *Agrobacterium vitis* in grapevines. K. L. JOHNSON (1), S. Kaewan (1), D. Zheng (1), T. Burr (1). (1) Cornell University, Geneva, NY, U.S.A.
- 328-P Comparative analysis of methods to detect race 3 biovar 2 and native U.S. strains of *Ralstonia solanacearum*. T. M. TRAN (1), R. Kubota (2), A. M. Alvarez (2), C. Allen (1), A. Milling (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.; (2) University of Hawaii-Manoa, Honolulu, HI, U.S.A.
- 329-P Comparison of methods of DNA extraction for identification of *Leifsonia xyli* subsp. *xyli*: Feasibility for routine diagnosis in young plants in Brazil. A. RASHIMA (1), A. Zavaglia (1). (1) Universidade Federal de Sao Carlos, Araras, Brazil
- 330-P A TaqMan-based real-time PCR assay for specific detection and quantification of *Xylella fastidiosa* strains causing bacterial leaf scorch in oleander. W. GUAN (1), J. Shao (2), R. Singh (3), R. Davis (2), T. Zhao (4), Q. Huang (1). (1) FNPRU, U.S. National Arboretum, USDA-ARS, Beltsville, MD, U.S.A.; (2) MPPL, PSI, USDA-ARS, Beltsville, MD, U.S.A.; (3) Plant Disease Diagnostic Clinic, Louisiana State University AgCenter, Baton Rouge, LA, U.S.A.; (4) Chinese Academy of Agricultural Sciences, Beijing, Peoples Republic of China
- 331-P Optimization of copper resistance testing methods for foliar bacterial pathogens of tomato. S. BOST (1), J. Mixon (1), B. Ownley (2), K. Gwinn (2), C. Sams (2). (1) University of Tennessee, Nashville, TN, U.S.A.; (2) University of Tennessee, Knoxville, TN, U.S.A.
- 332-P Evaluation of *Ralstonia* CANARY technology. K. RAPPAPORT (1), H. Bowman (1), J. Elphinstone (2), L. Levy (3), Z. Liu (1). (1) USDA APHIS PPQ CPHST, Beltsville, MD, U.S.A.; (2) The Food and Environmental Research Agency, York, United Kingdom; (3) USDA APHIS, Riverdale, MD, U.S.A.
- 333-P Evaluation and adaptation of the Lincoln Nucleic-acid kit (LiNK) technology for rapid extraction of plant pathogen DNA. H. BOWMAN (1), K. Rappaport (1), L. Parameswaran (2), C. R. Cabrera (2), F. Nargi (2), L. Levy (3), Z. Liu (1). (1) USDA APHIS PPQ CPHST, Beltsville, MD, U.S.A.; (2) MIT Lincoln Laboratory, Lexington, MA, U.S.A.; (3) USDA APHIS PPQ CPHST, Riverdale, MD, U.S.A.

Detection and Diagnosis – Fungi

- 334-P Development of loop-mediated isothermal amplification method for detection of *Rhizoctonia* spp. J. S. Patel (1), M. Brennan (1), G. S. ALI (1). (1) University of Florida, Apopka, FL, U.S.A.
- 335-P Pentaplex Q-PCR quantifies DNA from fungi causing anthracnose, brown stem rot, and charcoal rot in field samples of soybean. J. S. HAUDENSHIELD (1), C.

- R. Bowen (1), G. L. Hartman (1). (1) USDA-ARS, Urbana, IL, U.S.A.
- 336-P  Detection, seed transmission, and control of *Hyaloperonospora camelinae* on *Camelina sativa* (L.) in Washington State. E. M. BABIKER (1), S. H. Hulbert (2), T. Paulitz (3). (1) Washington State University, Pullman, WA, U.S.A.; (2) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (3) USDA-ARS, Root Disease and Biological Control Research Unit/Washington State University, Pullman, WA, U.S.A.
- 337-P Development and characterization of microsatellite markers for soybean sudden death syndrome pathogen *Fusarium virguliforme*. J. WANG (1), J. L. Jacobs (1), M. I. Chilvers (1). (1) Michigan State University, East Lansing, MI, U.S.A.
- 338-P Improved molecular detection of the soybean sudden death syndrome pathogen *Fusarium virguliforme* by real-time qPCR. J. WANG (1), J. L. Jacobs (1), M. I. Chilvers (1). (1) Michigan State University, East Lansing, MI, U.S.A.
- 339-P A multiplexed immunofluorescence method identifies *Phakopsora pachyrhizi* urediniospores and determines their viability. R. VITTAL (1), J. S. Haudenshield (2), G. L. Hartman (3). (1) University of Illinois at Urbana-Champaign, Urbana, IL, U.S.A.; (2) USDA-ARS, Urbana, IL, U.S.A.; (3) USDA-ARS, University of Illinois at Urbana-Champaign, Urbana, IL, U.S.A.
- 340-P DNA microarray for the detection of fungal onion bulb rot pathogens. C. M. VAHLING-ARMSTRONG (1), J. L. Humann (1), S. Lupien (2), F. Dugan (2), L. J. du Toit (3), B. K. Schroeder (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Pullman, WA, U.S.A.; (3) Washington State University, Mount Vernon, WA, U.S.A.
- 341-P Development of diagnostic assays for detection of *Verticillium* in alfalfa and flax and detection of blackleg (*Leptosphaeria maculans*) in canola using real-time PCR. G. J. BILODEAU (1), R. Tropiano (1), S. C. Briere (1). (1) Canadian Food Inspection Agency, Ottawa, ON, Canada
- 342-P Validation of EDNA, a newly developed bioinformatics tool, for detection of *Phakopsora pachyrhizi* from metagenomic samples. A. S. ESPINDOLA (1), C. D. Garzon (1), J. Fletcher (1), W. L. Schneider (2). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) USDA, Fort Detrick, MD, U.S.A.
- 343-P **NED** Molecular detection and host adaptation of *Sclerotinia homoeocarpa*, the causal agent of dollar spot of turfgrass. B. A. AYNARDI (1), M. M. Jimenez-Gasco (1), W. Uddin (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.
- 344-P Molecular identification of species and chemotypes of *Fusarium* causing head blight of wheat in Nebraska. S. Wegulo (1), A. PANTHI (1), H. Hallen-Adams (1). (1) University of Nebraska, Lincoln, NE, U.S.A.
- 345-P WITHDRAWN
- 346-P Development of a semiselective media for enhanced detection of *Sclerotinia homoeocarpa* from plant tissues. R. RIOUX (1), B. van Ryzin (1), J. Kerns (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.
- 347-P Identification of a potential pyrophilous fungus following a forest fire in Bastrop County, TX. S. A.


MCBRIDE (1), C. J. Richards (1), D. N. Appel (1), H. A. Pase (2). (1) Texas A&M University, College Station, TX, U.S.A.; (2) Texas Forest Service, Lufkin, TX, U.S.A.

- 348-P A comparison of two isolation techniques for *Geosmithia morbida*, the causal agent of thousand cankers disease in black walnut. L. VITO (1), J. Grant (1), M. Windham (1). (1) University of Tennessee, Knoxville, TN, U.S.A.
- 349-P A novel method to monitor *Penicillium expansum*. R. VALDEBENITO-SANHUEZA (1). (1) Proterra, Vacaria, Brazil
- 350-P Rapid and specific detection of *Penicillium* species causing blue mold decay on pome fruit in storage using molecular tools. V. L. GASKINS (1), K. A. Peter (1), I. Vico (1), W. J. Janisiewicz (2), W. M. Jurick (3). (1) USDA-ARS, Beltsville, MD, U.S.A.; (2) USDA-ARS, AFRS, Kearneysville, WV, U.S.A.; (3) USDA-ARS, Food Quality Laboratory, Beltsville, MD, U.S.A.

Detection and Diagnosis – Nematodes

- 351-P Amplification of *Meloidogyne minor* with primers reported to be specific for *Meloidogyne fallax*. C. NISCHWITZ (1), M. Schmitt (2), M. McClure (2). (1) Utah State University, Logan, UT, U.S.A.; (2) University of Arizona, Tucson, AZ, U.S.A.
- 352-P An improved method for DNA sequence-based identification of nematodes. S. HANSON (1), F. Solano (1), S. Thomas (1), J. Beacham (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.
- 353-P Extraction of *Pratylenchus* sp. and *Hoplolaimus* sp. from corn roots using two methods and two extraction solutions. M. BATISTA DA SILVA (1), G. L. Tylka (1). (1) Iowa State University, Ames, IA, U.S.A.

Detection and Diagnosis – Oomycetes

- 354-P Evaluation and adaptation of CANARY technology for rapid detection of *Phytophthora*. H. BOWMAN (1), K. Rappaport (1), Z. Abad (1), L. Levy (1), Z. Liu (1). (1) USDA APHIS PPQ CPHST, Beltsville, MD, U.S.A.
- 355-P Validation of EDNA, a newly developed bioinformatics tool, for the detection of *Pythium ultimum* from metagenomic samples. A. S. ESPINDOLA (1), C. D. Garzon (1), J. Fletcher (1), W. L. Schneider (2). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) USDA-ARS, Fort Detrick, MD, U.S.A.
- 356-P  Distribution and involvement of *Phytophthora cinnamomi* in white oak decline in northeastern U.S. forests. M. MCCONNELL (1), Y. Balci (1). (1) University of Maryland, College Park, MD, U.S.A.
- 357-P Tracking plant diseases by monitoring a sentinel plant system at the National Ornamentals Research Site at Dominican University of California. T. Pastalka (1), S. A. Johnson-Brousseau (1), K. L. KOSTA (2), S. Rooney-Latham (2), C. Blomquist (2), K. Suslow (3), R. Bulluck (4), S. Ghosh (1). (1) Dominican University of California, San Rafael, CA, U.S.A.; (2) California Department of Food and Agriculture, Sacramento, CA, U.S.A.; (3) Hines Growers LLC, norCal, Winters, CA, U.S.A.; (4) USDA APHIS PPQ CPHST, Raleigh, NC, U.S.A.
- 358-P Stream baiting in South Louisiana for *Phytophthora*

ramorum. J. PREUETT (1), D. Collins (2), A. Williams (3). (1) Southern University & A&M College, Greenwell Springs, LA, U.S.A.; (2) Southern University and A&M College, Baton Rouge, LA, U.S.A.; (3) Southern University and A&M College, Pride, LA, U.S.A.

- 359-P Development of a multiplex real-time PCR assay for multiple seedborne spinach pathogens. C. FENG (1), J. C. Correll (1), L. J. du Toit (2), B. H. Bluhm (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Washington State University, Mount Vernon, WA, U.S.A.
- 360-P Incidence and detection of *Peronospora variabilis* in quinoa seeds and plant tissue. A. L. TESTEN (1), J. B. Ochoa (2), G. Plata R. (3), P. A. Backman (1). (1) The Pennsylvania State University, Department of Plant Pathology, University Park, PA, U.S.A.; (2) National Institute of Agricultural Research (INIAP) Santa Catalina Station, Quito, Ecuador; (3) Foundation for the Promotion and Investigation of Andean Products (PROINPA), Cochabamba, Bolivia
- 361-P Repeating structure of internal transcribed spacer region 2 in *Peronosclerospora* spp. downy mildews. D. G. LUSTER (1), M. L. Carter (1), G. L. Peterson (1), M. B. McMahon (1). (1) USDA-ARS, Fort Detrick, MD, U.S.A.

Detection and Diagnosis – Viruses

- 362-P Comparison of methodologies used for the detection of grapevine viruses. J. MONIS (1), H. G. Stanghellini (1), Z. Morales (1), L. Abdelshahid (1). (1) Eurofins STA Laboratories, Gilroy, CA, U.S.A.
- 363-P WITHDRAWN
- 364-P Rapid and simple detection of *Plum pox virus* by recombinase polymerase amplification. S. ZHANG (1), R. Bohannon (1), P. Russell (1), N. McOwen (1), S. Bohannon (1), A. Vrient (1), C. Sutula (1). (1) Agdia Inc., Elkhart, IN, U.S.A.
- 365-P Progress in development of a Universal Plant Virus Microarray for the detection and identification of plant viruses. J. HAMMOND (1), D. C. Henderson (1), B. Bagewadi (2), K. F. Fischer (3), D. Wang (4), U. Melcher (5), K. L. Perry (6), R. L. Jordan (1), C. M. Fauquet (2). (1) USDA-ARS FNPRU, Beltsville, MD, U.S.A.; (2) Danforth Plant Science Center, St. Louis, MO, U.S.A.; (3) University of Utah, Salt Lake City, UT, U.S.A.; (4) Washington University, St. Louis, MO, U.S.A.; (5) Oklahoma State University, Stillwater, OK, U.S.A.; (6) Cornell University, Ithaca, NY, U.S.A.
- 366-P Molecular identification of legume-infecting begomoviruses in Southeast Asia. W. TSAI (1), S. Shih (1), R. Safitri (2), B. Huyen (3), L. Kenyon (1). (1) AVRDC, The World Vegetable Center, Tainan, Taiwan; (2) PT. East West Seed Indonesia, Purwakarta, Indonesia; (3) Plant Resources Centre, Hanoi, Vietnam
- 367-P A multiplex TaqMan real-time RT-PCR assay for detection of Asian prunus viruses, *Plum bark necrosis stem pitting associated virus*, and *Peach latent mosaic viroid*. L. LIN (1), R. Li (1), R. Mock (1), G. Kinard (1). (1) USDA-ARS, Beltsville, MD, U.S.A.
- 368-P Multiplex detection of viruses infecting grapevine using a randomly primed, RT-PCR/microarray platform. K. L. PERRY (1), M. Fuchs (1), K. Fisher (2), J.

- Thompson (1). (1) Cornell University, Ithaca, NY, U.S.A.; (2) University of Utah, Salt Lake City, UT, U.S.A.
- 369-P *Pospiviroid* detection in greenhouse and field crops: A sensitive RT-PCR assay for genus- and species-level identification. D. L. GROTH-HELMS (1), S. Zhang (1), P. Russell (1), S. Juszczak (1). (1) Agdia, Inc., Elkhart, IN, U.S.A.
- 370-P Detection of *Bean pod mottle virus* using RT-PCR, RT-qPCR, and isothermal amplification. C. Chalam (1), M. ARIF (2), J. Fletcher (2), F. M. Ochoa Corona (2). (1) Division of Plant Quarantine, National Bureau of Plant Genetic Resources, New Delhi, India; (2) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.
- 371-P Discrimination among *Cherry leafroll virus*, *Grapevine fanleaf virus*, and *Tomato ringspot virus* using multiplex RT-PCR. C. Chalam (1), M. ARIF (2), D. R. Caasi (2), J. Fletcher (2), F. M. Ochoa Corona (2). (1) Division of Plant Quarantine, National Bureau of Plant Genetic Resources, Stillwater, OK, U.S.A.; (2) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.
- 372-P RT-PCR assays for the detection and discrimination of *Maize dwarf mosaic virus*, *Sugarcane mosaic virus*, and *Sorghum mosaic virus*. Y. ÖZAKMAN (1), M. Arif (2), D. R. Caasi (2), F. M. Ochoa Corona (2). (1) Biology Department of Hacettepe University, Ankara, Turkey; (2) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.
- 373-P The first report of the occurrence of begomoviruses in a cucurbit species in Brazil. M. F. LIMA (1), N. R. Madeira (1). (1) Embrapa, Brasília, Brazil
- 374-P WITHDRAWN
- 375-P Detection of *High plains virus* with loop-mediated isothermal amplification. M. ARIF (1), J. Daniels (1), C. Chalam (2), J. Fletcher (1), F. M. Ochoa Corona (1). (1) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.; (2) Division of Plant Quarantine, National Bureau of Plant Genetic Resources, New Delhi, India
- 376-P Development of an immunoassay for detection of *Citrus psorosis virus*. C. RAMADUGU (1), M. Kayim (2), M. Keremane (3), R. F. Lee (4). (1) University of California, Riverside, CA, U.S.A.; (2) University of Cukurova, Adana, Turkey; (3) USDA-ARS, Citrus Germplasm Repository, Riverside, CA, U.S.A.; (4) National Clonal Germplasm Repository for Citrus & Dates, USDA-ARS, Riverside, CA, U.S.A.
- 377-P Validation of a unique sequence-based detection of plant pathogens using next-generation sequence data. A. STOBBE (1), U. K. Melcher (1), J. Fletcher (2), W. L. Schneider (3). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.; (3) USDA-ARS FDWSRU, Fort Detrick, MD, U.S.A.
- 378-P Designing and validation of e-probes to strain type *Plum pox virus*. A. STOBBE (1), U. K. Melcher (1), W. L. Schneider (2). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) USDA-ARS FDWSRU, Fort Detrick, MD, U.S.A.
- New and Emerging Diseases – Bacteria**
- 379-P Goss's wilt: Can *Clavibacter michiganensis* subsp. *nebraskensis* infect corn through natural openings? S. Mallowa (1), S. SCHEIDING (1), A. Ahamed (1), A. Robertson (1). (1) Iowa State University, Ames, IA, U.S.A.
- 380-P *Xanthomonas axonopodis* pv. *vasculorum* affecting susceptible cultivar of sugarcane in Mexico. H. V. SILVA-ROJAS (1), A. Rebollar-Alviter (2), A. M. Malpica-Gutierrez (3), A. L. Cortes-Cueto (3), A. Aguilar-Granados (4), C. R. Martinez-Gonzalez (5), E. N. Zambrano-Zepeda (6), E. Molina-Gayosso (6), S. Garcia-Morales (3). (1) Colegio de Postgraduados, Edo De Mexico, Mexico; (2) Centro Regional Morelia/ Universidad Autónoma Chapingo, Morelia, Michoacan, Mexico; (3) Colegio de Postgraduados, Texcoco, Mexico; (4) Direccion General de Sanidad Vegetal, Centro Nacional de Referencia, Mexico; (5) Universidad Nacional Autonoma de Mexico, Instituto de Biologia, Mexico; (6) Universidad Politecnica de Puebla, Puebla, Mexico
- 381-P Characterization of saprophytic bacteria that react with *Clavibacter michiganensis* subsp. *michiganensis* in seed health testing. P. SUDARSHANA (1), M. May (1), C. Kurowski (1), S. Thomas (1). (1) Monsanto Vegetable Seeds, Woodland, CA, U.S.A.
- 382-P Management of bacterial spot caused by *Xanthomonas euvesicatoria* in organic tomato production systems. J. G. DRIVER (1), M.C. Iott (1), C. T. Taylor (1), F. J. Louws (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 383-P WITHDRAWN
- 384-P WITHDRAWN
- 385-P Evaluating efficacy of black rot control caused by *Xanthomonas campestris* pv. *campestris* in greenhouse transplant production. H. W. LANGE (1), C. D. Smart (1). (1) Cornell University, Geneva, NY, U.S.A.
- 386-P Identification and characterization of soft-rot pathogens isolated from *Vanda*, *Phalaenopsis*, *Oncidium*, and *Tolumnia* orchids in Florida. R. A. CATING (1), M. A. Hoy (2), E. R. Dickstein (2), A. J. Palmateer (3). (1) Twyford International, Apopka, FL, U.S.A.; (2) University of Florida, Gainesville, FL, U.S.A.; (3) University of Florida, Homestead, FL, U.S.A.
- 387-P Survey for 'Candidatus Phytoplasma' species from nursery plants, urban shade trees, and agricultural crops in Nevada. A. Munoz (1), S. WANG (1), J. Rascoe (2). (1) Nevada Department of Agriculture, Sparks, NV, U.S.A. (2) USDA-APHIS-PPQ-PHP-PSPI-NIS, Beltsville, MD, U.S.A.
- 388-P Seed transmissibility of sugarcane white leaf phytoplasma. C. J. MAROON-LANGO (1), H. M. Brown (1), U. Pliansinchai (2). (1) USDA APHIS PPQ PHP PGQP, Beltsville, MD, U.S.A.; (2) Mitr Phol Sugarcane Research Center Co., Ltd., Phukieo, Chaiyaphum, Thailand

- 389-P The iPhyClassifier II: An update to the online tool for phytoplasma identification and classification. Y. ZHAO (1), I. Lee (1), W. Wei (1), J. Shao (1), X. Suo (1), R. E. Davis (1). (1) USDA-ARS, Molecular Plant Pathology Laboratory, Beltsville, MD, U.S.A.
- 390-P Molecular detection and characterization of phytoplasmas associated with blueberry stunt disease in New Jersey. P. G. Bagadia (1), J. Polashock (2), K. D. Bottner-Parker (3), Y. Zhao (3), R. E. Davis (3), I. LEE (3). (1) University of Maryland, College Park, MD, U.S.A.; (2) USDA-ARS GIFVL, Chatsworth, NJ, U.S.A.; (3) USDA-ARS, Molecular Plant Pathology Laboratory, Beltsville, MD, U.S.A.
- 391-P Widespread distribution of Goss's bacterial leaf blight and wilt of corn and potential variation in virulence of *Clavibacter michiganensis* subsp. *nebraskensis* in Minnesota. D. K. MALVICK (1), R. D. Curland (1), C. A. Ishimaru (2). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) Department of Plant Pathology, University of Minnesota, St. Paul, MN, U.S.A.
- 392-P Effect of Goss's leaf blight severity on grain quality and on *Clavibacter michiganensis* subsp. *nebraskensis* seed infection. A. E. Robertson (1), C. C. Block (2), C. R. Hurburgh (1), L. M. SHEPHERD (2). (1) Iowa State University, Ames, IA, U.S.A.; (2) USDA-ARS, Ames, IA, U.S.A.
- 393-P First report of citrus huanglongbing in Texas. M. KUNTA (1), M. Sétamou (2), M. Skaria (2), J. E. Rascoe (3), W. Li (3), M. K. Nakhla (3), J. V. da Graça (2). (1) Texas A&M University-Kingsville, Weslaco, TX, U.S.A.; (2) Texas A&M University, Kingsville Citrus Center, Weslaco, TX, U.S.A.; (3) USDA APHIS, Beltsville, MD, U.S.A.
- 394-P *Dickeya* spp.—Emerging pathogen of potato in Russia. K. KORNEV (1), A. Ignatov (1), A. Karlov (2), G. Karlov (2), F. Dzhilov (2), E. Pekhtereva (1), D. Luster (3). (1) Russian Research Institute of Phytopathology, Moscow, Russia; (2) Russian State Agrarian University-MSKhA, Moscow, Russia; (3) USDA-ARS, Foreign Disease, Weed Science Research Unit, Fort Detrick, MD, U.S.A.
- 395-P Detection of phytoplasmas in Cicadellidae morphotypes of Bogotá, Colombia. L. FRANCO-LARA (1). (1) Universidad Militar Nueva Granada, Bogotá, Colombia
- 399-P First report of *Colletotrichum chlorophyti* and a new *Colletotrichum* species causing soybean anthracnose. H. YANG (1), J. S. Haudenschild (1), G. L. Hartman (2). (1) University of Illinois, Urbana, IL, U.S.A.; (2) USDA-ARS, University of Illinois, Urbana, IL, U.S.A.
- 400-P Identification and characterization of soybean seedborne fungi in Kansas. R. PEDROZO (1), C. R. Little (1). (1) Kansas State University, Manhattan, KS, U.S.A.
- 401-P Observations on blueberry leaf rust, caused by *Thekopsora minima*, in Michigan. A. C. SCHILDER (1), T. D. Miles (1), J. M. Gillett (1), R. W. Sysak (1). (1) Michigan State University, East Lansing, MI, U.S.A.
- 402-P Characterization of switchgrass rust fungus and evaluation of genetic variability in rust resistance of switchgrass populations. S. R. UPPALAPATI (1), S. Desalegn (2), Y. Ishiga (1), L. J. Szabo (3), M. C. Saha (4), K. S. Mysore (4). (1) Plant Biology Division, The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; (2) Forage Improvement Division, The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; (3) Cereal Disease Laboratory, USDA-ARS, St. Paul, MN, U.S.A.; (4) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.
- 403-P Diseases of giant miscanthus and switchgrass in Mississippi. M. D. GILLEY (1), M. Tomaso-Peterson (1), T. W. Allen (2), B. S. Baldwin (2). (1) Mississippi State University, Mississippi State, MS, U.S.A.; (2) Mississippi State University, Starkville, MS, U.S.A.
- 404-P Fungi isolated from diseased inflorescences of mango in Puerto Rico. L. M. SERRATO-DIAZ (1), L. I. Rivera-Vargas (2), E. I. Latoni-Brailowsky (2), R. D. French-Monar (1). (1) Department of Plant Pathology and Microbiology, Texas AgriLife Extension Service, Texas A&M System, Amarillo, TX, U.S.A.; (2) Department of Crops and Agro-Environmental Sciences, University of Puerto Rico, Mayaguez, Puerto Rico
- 405-P *Macrophomina phaseolina* (Tassi Goid.), cause of sugar beet charcoal root rot. V. B. STOJŠIN (1), D. B. Budakov (1), F. F. Bagi (1), N. B. Đuragin (1), O. T. Neher (2). (1) Faculty of Agriculture, Novi Sad, Serbia; (2) University of Idaho, Kimberly, ID, U.S.A.
- 406-P Identification of microorganisms associated with spear rot disease in Peruvian oil palm plantations. M. TALLEDO (1), R. Acuña (1), G. Huamani (2), A. Chigne (2), A. Trelles (2), E. Trinidad (2), J. Arevalo (1), Y. Montoya (1). (1) Bio Links SA, Lima, Peru; (2) Palmas del Shanusi SA, Yurimaguas, Peru
- 407-P Cercospora leaf blight disease of soybean: Variety differences, source of inoculum, and environmental effects. J. REZENDE (1), B. Buckley (2), Z. Chen (2). (1) Louisiana State University, Baton Rouge, LA, U.S.A.; (2) Agcenter, Louisiana State University, Baton Rouge, LA, U.S.A.
- 408-P *Colletotrichum* fungal pathogens and symbionts of ornamental nursery and landscape plants. J. CROUCH (1). (1) USDA-ARS, Beltsville, MD, U.S.A.
- 409-P WITHDRAWN
- 410-P *Phaeoemoniella chlamydospora* on grapevine (*Vitis vinifera*) with black-vascular symptoms in Chile. G. A. DIAZ (1), B. A. Latorre (1). (1) Pontificia Universidad Católica de Chile, Santiago, Chile
- New and Emerging Diseases – Fungi and Oomycetes**
- 396-P *Diplodia agrifolia* sp. nov. (Botryosphaeriaceae) is a new pathogen on coast live oak (*Quercus agrifolia*) in southern California. S. C. Lynch (1), A. ESKALEN (2), P. J. Zambino (3), J. S. Mayorquin (2), D. H. Wang (2). (1) Center for Conservation Biology, University of California-Riverside, Riverside, CA, U.S.A.; (2) Department of Plant Pathology and Microbiology, University of California, Riverside, CA, U.S.A.; (3) Coeur d'Alene Field Office, Coeur d'Alene, ID, U.S.A.
- 397-P Characterization and identification of *Pythium* from soybean roots in North Dakota. K. ZITNICK-ANDERSON (1), B. Nelson (2). (1) Department of Plant Pathology, North Dakota State University, Fargo, ND, U.S.A.; (2) North Dakota State University, Fargo, ND, U.S.A.
- 398-P New *Meliola* species on native Fabaceae from the Brazilian Cerrado. W. R. Soares (1), C. A. Inácio (1), M. D.

- 411-P Infection responses of diverse *Brachypodium distachyon* accessions to the cereal spot blotch pathogen *Cochliobolus sativus*. S. ALI (1), S. Zhong (1). (1) North Dakota State University, Fargo, ND, U.S.A.
- 412-P Occurrence of spot-form net blotch of barley in the Mon-Dak area of the United States. R. T. LARTEY (1), R. G. Evans (1), T. Caesar-TonThat (1), A. J. Caesar (1). (1) USDA-ARS, Sidney, MT, U.S.A.
- 413-P *Corynespora* leaf spot: A new disease in Alabama cotton. H. L. CAMPBELL (1), A. K. Hagan (1), K. L. Bowen (1), S. P. Nightengale (2). (1) Auburn University, Auburn, AL, U.S.A.; (2) Plant Breeding Unit, Tallassee, AL, U.S.A.
- 414-P Postharvest development of citrus black spot symptoms and the viability of conidia. H. ER (1), K. Hendricks (2), P. D. Roberts (2), A. H. vanBruggen (3). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Southwest Florida Research and Education Center, IFAS, University of Florida, Immokalee, FL, U.S.A.; (3) Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.
- 415-P First report of downy mildew (*Peronospora parasitica*) on *Camelina* in Florida. P. SRIVASTAVA (1), H. M. Young (1), J. J. Marois (1), D. L. Wright (1), N. S. Dufault (1), H. Dankers (1). (1) University of Florida, Quincy, FL, U.S.A.
- 416-P Survey of wood decay fungi of *Casuarina equisetifolia* (ironwood) on the islands of Guam and Saipan. R. L. SCHLUB (1), R. C. Mendi (1), C. C. Aisem (1), R. C. Mendi (1), J. K. Davis (1), M. C. Aime (2). (1) University of Guam, Mangilao, Guam; (2) Louisiana State University, Baton Rouge, LA, U.S.A.
- 417-P First report of *Cryphonectria parasitica* on chestnut in Lebanon. A. T. SAAD (1), M. Temsah (2), L. T. Hanna (1). (1) American University of Beirut, Beirut, Lebanon; (2) Biology Department, Lebanese University, Beirut, Lebanon
- 418-P New species of Tubakia leaf spot, *Tubakia koreanum* sp. nov., on *Quercus* spp. from South Korea. H. YUN (1), Y. Kim (1). (1) Seoul National University, Seoul, South Korea
- 419-P What is causing white pine needle damage in northeastern North America? I. A. MUNCK (1), B. Burns (2), K. Lombard (3), J. Weimer (3), W. D. Ostrofsky (4). (1) USDA Forest Service, Durham, NH, U.S.A.; (2) Vermont Department of Forests, Parks, & Recreation, Springfield, VT, U.S.A.; (3) New Hampshire Department of Natural Resources and Economic Development, Hillsborough, NH, U.S.A.; (4) Maine Forest Service, Augusta, ME, U.S.A.
- 420-P First report of *Phomopsis amygdali* causing dieback of *Pieris japonica* in the United States. J. C. BIENAPFL (1), Y. Balci (1). (1) University of Maryland, College Park, MD, U.S.A.
- 421-P *Neofusicoccum mediterraneum* causing cankers and *Diplodia mutila* and *Diplodia seriata* isolated from pomegranate (*Punica granatum*) in California. D. P. MORGAN (1), T. J. Michailides (1). (1) University of California-Davis, Kearney Agricultural Center, Parlier, CA, U.S.A.
- 422-P Probability of *Magnaporthe oryzae* (*Triticum* pathotype) introduction into the United States: A quantitative pathway analysis. C. D. CRUZ (1), J. P. Stack (1), R. D. Magarey (2), G. A. Fowler (3). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) North Carolina State University, Raleigh, NC, U.S.A.; (3) USDA-APHIS-PPQ-CPHST-PERAL, Raleigh, NC, U.S.A.
- 423-P Identification and characterization of two new *Pencilium* species causing blue mold of stored apple fruit in the United States. K. A. PETER (1), I. Vico (1), V. L. Gaskins (1), W. J. Janisiewicz (2), W. M. Jurick (3). (1) USDA-ARS, Beltsville, MD, U.S.A.; (2) USDA-ARS, AFRS, Kearneysville, WV, U.S.A.; (3) USDA-ARS, Food Quality Laboratory, Beltsville, MD, U.S.A.
- 424-P Identification and characterization of tar spot on seashore paspalum in Georgia. A. D. MARTINEZ-ESPINOZA (1), O. A. Martinez-Urbe (2), D. Kim (3). (1) University of Georgia, Griffin, GA, U.S.A.; (2) University of Georgia, Athens, GA, U.S.A.; (3) Georgia State University, Atlanta, GA, U.S.A.
- 425-P Resistance of sugarcane varieties to *Puccinia kuehnii* in Brazil. J. BOMBECINI (1), C. Gonçalves (2), I. Ascencio (3), A. Urashima (1). (1) Universidade Federal de Sao Carlos, Araras, Brazil; (2) Centro Tecnologia Canavieira, Piracicaba, Brazil; (3) ESALQ, Universidade Sao Paulo, Piracicaba, Brazil
- 426-P Rot disease of lettuce, cilantro, and chervil caused by *Plectosporium tabacinum*. T. USAMI (1), S. Morii (1), Y. Amemiya (1). (1) Chiba Univ., Matsudo-city, Chiba, Japan
- 427-P *Pilidium concavum* on *Fallopia japonica* in the United States. W. L. BRUCKART (1), F. M. Eskandari (1), E. M. Coombs (2), A. Y. Rossman (3), M. E. Palm (4). (1) USDA-ARS FDWSRU, Fort Detrick, MD, U.S.A.; (2) Oregon Department of Agriculture, Salem, OR, U.S.A.; (3) USDA-ARS SMMML, Beltsville, MD, U.S.A.; (4) USDA, Animal and Plant Health Inspection Service, Riverdale, MD, U.S.A.
- 428-P Pathogenicity and disease development of tree tomato anthracnose in Ecuador. F. P. Poveda (1), J. B. OCHOA (2), E. Morillo (2), P. A. Backman (3). (1) Central University of Ecuador, Quito, Ecuador; (2) National Institute of Agricultural Research (INIAP), Santa Catalina, Quito, Ecuador; (3) The Pennsylvania State University, Department of Plant Pathology, University Park, PA, U.S.A.
- 429-P  Grasses as a new cryptic host of the pitch canker pathogen *Fusarium circinatum*. C. L. SWETT (1), M. Huang (1), T. R. Gordon (1). (1) University of California-Davis, Davis, CA, U.S.A.

New and Emerging Diseases – Viruses

- 430-P Characterization of *Cucumber mosaic virus* (CMV) isolated from passion fruits in Korea. M. KIM (1), H. Kwak (1), H. Young (2), S. Lee (3), J. Kim (1), K. Kim (4), B. Cha (5), H. Choi (1). (1) National Academy of Agricultural Science, RDA, Suwon, South Korea; (2) Jeju Agricultural Research and Extension Services, Jeju, South Korea; (3) Kyungpook National University, Daegu, South Korea; (4) Seoul National University, Seoul, South Korea; (5) Chungbuk National University, Cheongju, South Korea

- 431-P A novel *Marafivirus* from *Ranunculus repens*. N. Abou Ghanem-Sabanadzovic (1), A. Lawrence (2), S. SABANADZOVIC (3). (1) Institute for Genomics, Biocomputing and Biotechnology, Mississippi State University, Mississippi State, MS, U.S.A.; (2) Institute for Imaging and Analytical Technologies, Mississippi State University, Mississippi State, MS, U.S.A.; (3) Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS, U.S.A.
- 432-P Two new highly divergent spinach curtoviruses that arose from recombination. C. HERNANDEZ-ZEPEDA (1), A. Varsani (2), J. K. Brown (3). (1) Water Sciences Unit, The Yucatan Center for Scientific Research, Cancún, Mexico; (2) School of Biological Sciences, The University of Canterbury, Christchurch, New Zealand; (3) The University of Arizona, Tucson, AZ, U.S.A.
- 433-P Molecular characterization of an isolate of *Japanese holly fern mottle virus* from leatherleaf fern. S. SABANADZOVIC (1), R. A. Valverde (2). (1) Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS, U.S.A.; (2) Department of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.
- 434-P Incidence of virus infecting pepper (*Capsicum annuum* L.) in two main pepper-producing regions of Chihuahua, Mexico. L. ROBLES-HERNANDEZ (1), A. Karasev (2), A. Gonzalez-Franco (1). (1) Universidad Autonoma de Chihuahua, Chihuahua, Mexico; (2) University of Idaho, Moscow, ID, U.S.A.
- 435-P Predominance of potato cultivar Agata in Brazil and its effect in the dissemination and variability of *Potato virus Y*. T. O. Ramalho (1), S. B. GALVINO-COSTA (1), A. R. Figueira (1). (1) Federal University of Lavras, Lavras, Brazil
- 436-P Incidence and distribution of banana bunchy top and *Cucumber mosaic virus* diseases on banana and plantain in Gabon, Central Africa. T. T. OBEN (1), G. I. Atiri (2), H. R. Hanna (3), L. P. Kuma (4). (1) Pamol Plantations Plc, Lobe, Ekondo Titi, Cameroon; (2) Department of Crop Protection and Environmental Biology, University of Ibadan, Ibadan, Nigeria; (3) International Institute of Tropical Agriculture (IITA), Yaounde, Cameroon; (4) International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria
- 437-P Biological and molecular characterization of a distinct genetic variant of *Sweet potato virus*. G. M. WANG (1), J. Abad (2), R. Li (1). (1) USDA-ARS, Beltsville, MD, U.S.A.; (2) USDA APHIS, Beltsville, MD, U.S.A.
- 438-P Identification and characterization of a new bipartite begomovirus associated with yellow mosaic disease of *Jatropha* sp. in Dominican Republic. T. A. MELGAR-EJO (1), T. Kon (1), R. L. Gilbertson (1). (1) University of California, Davis, CA, U.S.A.
- 439-P Epidemiology of *Soybean vein necrosis associated virus*. J. ZHOU (1), I. Tzanetakis (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.
- 440-P The appearance of an unknown viruslike disease of sunflowers in Nebraska. R. HARVESON (1), T. Gulya (2), A. Karasev (3), S. Lenardon (4). (1) University of Nebraska, Scottsbluff, NE, U.S.A.; (2) USDA, Fargo, ND, U.S.A.; (3) University of Idaho, Moscow, ID, U.S.A.; (4) CIAP-INTA, Cordova, Argentina
- 441-P The first report of *Columnea latent viroid* (CLVd) in tomato in West Africa. O. BATUMAN (1), R. L. Gilbertson (1). (1) University of California-Davis, Davis, CA, U.S.A.
- 442-P An update on grapevine viruses and viroids in Washington State vineyards. N. RAYAPATI (1). (1) Washington State University, Prosser, WA, U.S.A.
- 443-P Blueberry necrotic ring blotch: A new disorder of southern highbush blueberries. T. S. ROBINSON (1), P. M. Brannen (1), C. M. Deom (1). (1) University of Georgia, Athens, GA, U.S.A.
- 444-P A potential vector of *Blueberry necrotic ring blotch virus* and symptoms on various host genotypes. C. BURKLE (1), J. W. Olmstead (1), P. F. Harmon (1). (1) University of Florida, Gainesville, FL, U.S.A.
- 445-P *Ambrosia asymptomatic virus 1*—A novel *Mandarivirus*. M. DUTTA (1), U. K. Melcher (1), N. S. Bashir (2). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) University of Tabriz, Tabriz, Iran


Plant Stress and Abiotic Disorders

- 446-P Comparative analysis of oxidative metabolism in *Xanthomonas citri* pv. *citri* of kumquat and grapefruit. R. C. EBEL (1), N. Kumar (1). (1) University of Florida, Immokalee, FL, U.S.A.
- 447-P Canker development in Buddha Hand (*Citrus medica* var. *sarcodactylis*). N. KUMAR (1), R. C. Ebel (2), P. D. Roberts (2). (1) University of Florida, Fort Myers, FL, U.S.A.; (2) University of Florida, Immokalee, FL, U.S.A.
- 448-P Influence of watering on the dynamics of *Heterodera glycines* and *Fusarium virguliforme* interaction in soybean roots. N. TATALOVIC (1), G. L. Tylka (1), L. F. Leandro (1). (1) Iowa State University, Ames, IA, U.S.A.
- 449-P Effects of planting environment and seed quality on the field emergence of soybean. K. COCHRAN (1), J. Rupe (1), R. Holland (1), A. Steger (1), A. Palmer (2), S. Goeke (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Arkansas Soybean Promotion Board, Little Rock, AR, U.S.A.
- 450-P Recent mortality episodes of *Populus tremuloides* and climate in North America. J. J. WORRALL (1), E. H. Hogg (2), G. E. Rehfeldt (3), A. Hamann (4), M. Michaelian (2), L. Gray (4). (1) U.S. Forest Service, Gunnison, CO, U.S.A.; (2) Natural Resources Canada, Canadian Forest Service, Edmonton, AB, Canada; (3) U.S. Forest Service, Moscow, ID, U.S.A.; (4) University of Alberta, Department of Renewable Resources, Edmonton, AB, Canada
- 451-P Normal destruction of cortical tissue in pine roots. C. H. WALKINSHAW (1), W. J. Otrosina (1). (1) USDA Forest Service, Athens, GA, U.S.A.
- 452-P Xylem hydraulic conductance in southern highbush blueberry cultivars with different levels of field resistance to bacterial leaf scorch. R. M. HOLLAND (1), H. Scherm (1). (1) University of Georgia, Athens, GA, U.S.A.
- 453-P Episodic abiotic stress and *Phytophthora ramorum* blight in rhododendron: Impacts on root infection, symptom expression, and chemical management. T. V. ROUBTSOVA (1), S. A. Johnson-Brousseau (2), R. M. Bostock

(3). (1) Department of Plant Pathology, University of California-Davis, Woodland, CA, U.S.A.; (2) Department of Natural Sciences & Mathematics, Dominican University of California, San Rafael, CA, U.S.A.; (3) Department of Plant Pathology, University of California-Davis, Davis, CA, U.S.A.

■ ECOLOGY AND EPIDEMIOLOGY

Analytical and Theoretical Plant Pathology

- 454-P AUDPC and AUDPS: What is the difference? I. SIMKO (1), H. Piepho (2). (1) USDA-ARS, Salinas, CA, U.S.A.; (2) Universität Hohenheim, Stuttgart, Germany
- 455-P Wavelet analysis as a statistical tool for spatial and temporal analysis of epidemics. A. B. KRISS (1), T. R. Gottwald (2), P. A. Paul (3), L. V. Madden (3). (1) USDA-ARS, Fort Pierce, FL, U.S.A.; (2) USDA, Fort Pierce, FL, U.S.A.; (3) Ohio State University, Wooster, OH, U.S.A.
- 456-P Modeling flush-to-flush transmission of huanglongbing in a citrus tree and effects of control strategies on disease dynamics. C. Chiyaka (1), B. H. Singer (1), S. E. Halbert (2), J. G. Morris (1), A. H. VAN BRUGGEN (3). (1) Emerging Pathogens Institute, University of Florida, Gainesville, FL, U.S.A.; (2) FDACS Division of Plant Industry, Gainesville, FL, U.S.A.; (3) University of Florida, Gainesville, FL, U.S.A.
- 457-P Projecting Monterey pine populations over time in the presence of pitch canker disease. G. J. REYNOLDS (1), N. McRoberts (1), T. R. Gordon (1). (1) University of California-Davis, Davis, CA, U.S.A.
- 458-P Temperature influences stem canker development in blueberry caused by *Neofusicoccum parvum*. K. ELFAR AEDO (1), B. A. Latorre (1), R. Torres (1). (1) Pontificia Universidad Católica de Chile, Santiago, Chile
- 459-P Statistical parameters of spatial patterns of spread for leafroll disease (GLRaV-3). K. L. ARNOLD (1), N. McRoberts (1), D. A. Golino (1). (1) University of California-Davis, Davis, CA, U.S.A.
- 460-P Predictive model of eradication and management strategies for pale cyst nematode. G. R. KNUDSEN (1), L. C. Dandurand (1). (1) University of Idaho, Moscow, ID, U.S.A.
- 461-P Genetic variation and evolutionary adaptability of *Rhizoctonia solani* AG-1 IA from soybean under stress conditions. C. G. Ferro (1), P. C. CERESINI (2), G. M. Ferraudo (3), P. C. dos Santos (4), D. Percin (1). (1) Universidade Estadual Paulista (UNESP), Jaboticabal, SP, Brazil; (2) FAPESP/Universidade Estadual Paulista (UNESP), Ilha Solteira, Brazil; (3) CanaVialis/Monsanto, Campinas, SP, Brazil; (4) Universidade Estadual Paulista (UNESP), Ilha Solteira, SP, Brazil
- 462-P Addressing uncertainty in powdery mildew epidemiology. R. A. CHOUDHURY (1), N. McRoberts (1), W. D. Gubler (1). (1) University of California-Davis, Davis, CA, U.S.A.
- ### Climate Change and Risk Assessment
- 463-P Interactions between winter chilling, asynchronous crop phenology, ontogenic resistance, and the risk of disease in grapevine and other perennial fruit crops. D. M. Gadoury (1), R. C. Seem (1), W. F. Wilcox (1), A. Stensvand (2), A. Ficke (2), M. M. MOYER (3). (1) Cornell University, Geneva, NY, U.S.A.; (2) Bioforsk, Aas, Norway; (3) Washington State University, Prosser, WA, U.S.A.
- 464-P Weather variables for predicting aflatoxin occurrence in peanuts. K. L. BOWEN (1), H. L. Campbell (1), A. K. Hagan (1). (1) Auburn University, Auburn, AL, U.S.A.
- 465-P Reliability and accuracy of SkyBit 2011 weather and disease forecasts in Pennsylvania. N. O. HALBRENDT (1), H. K. Ngugi (1), J. W. Travis (1). (1) Penn State University, Biglerville, PA, U.S.A.
- 466-P Climate patterns as predictors of *Stagonospora nodorum* glume blotch in Ohio. A. B. KRISS (1), P. A. Paul (2), L. V. Madden (2). (1) USDA-ARS, U.S. Horticultural Research Laboratory, Fort Pierce, FL, U.S.A.; (2) Ohio State University, Wooster, OH, U.S.A.
- 467-P Changes in importance of corn diseases in the past two decades in the U.S. Corn Belt. M. L. ZACCARON (1), T. L. Bruns (1), X. Li (1), S. O. Mallowa (1), N. A. Abdelsamad (1), E. Whigham (1), X. B. Yang (1). (1) Iowa State University, Ames, IA, U.S.A.
- 468-P Increased CO₂ and temperature effects on *Alternaria* leaf spot and black spot of basil under controlled environment. M. Pugliese (1), E. Cogliati (2), A. Garibaldi (2), M. GULLINO (2). (1) University of Torino, Grugliasco Torino, Italy; (2) AgriInnova-University of Torino, Grugliasco Torino, Italy
- 469-P Relative potential of major root-rot and bole-rot fungi to decay sapwood in landscape trees of southern temperate regions. A. WILSON (1). (1) USDA Forest Service, Stoneville, MS, U.S.A.
- ### Cropping Systems – Sustainability
- 470-P  Early-season cryptic development of powdery mildew (*Podosphaera aphanis*) in June bearing strawberries. B. ASALF (1), D. M. Gadoury (2), R. C. Seem (2), A. Tronsmo (3), A. Stensvand (3). (1) Norwegian University of Life Sciences, Aas, Norway; (2) Cornell University, Geneva, NY, U.S.A.; (3) Bioforsk, Aas, Norway
- 471-P Influence of tillage systems on *Rhizoctonia*-bacterial root rot complex in sugar beet. C. A. STRAUSBAUGH (1), I. A. Eujayl (1). (1) USDA-ARS NWISRL, Kimberly, ID, U.S.A.
- 472-P Integrated management of foliar diseases of pyrethrum in spring. S. J. PETHYBRIDGE (1), T. Groom (1), S. Pilkington (2), F. S. Hay (2). (1) Botanical Resources Australia, Ulverstone, Australia; (2) University of Tasmania, Burnie, Australia
- 473-P Temporal dynamics of Asian soybean rust as influenced by leaf area index. E. N. MOREIRA (1), F. X. Vale (1), P. A. Paul (2), L. A. Maffia (1), F. W. Neves (1), P. Schulman (1), C. A. Silva (1). (1) Universidade Federal de Viçosa, Viçosa, Brazil; (2) The Ohio State University, Ohio Agricultural Research and Development Center, Wooster, OH, U.S.A.

- 474-P Assessment of damage caused by in soybean crop in the 2011/2012 season in Brazil. R. M. MESQUINI (1), C. V. Godoy (2), A. Bergamin Filho (1). (1) Escola Superior de Agricultura Luiz de Queiroz, Universidade de São Paulo, Piracicaba, Brazil; (2) Embrapa Soja, Londrina, Brazil
- 475-P Long-term crop rotations suppress soybean sudden death syndrome in Iowa. N. ABDELSAMAD (1), G. C. Mbofung (1), A. E. Robertson (1), M. Liebman (1), L. F. Leandro (1). (1) Iowa State University, Ames, IA, U.S.A.
- 476-P The effect of height on severity of pecan scab in non-treated mature pecan trees. C. H. BOCK (1), B. W. Wood (1), T. E. Cottrell (1). (1) USDA-ARS SEFT-NRL, Byron, GA, U.S.A.
- 477-P Ground application provides adequate control of pecan scab on tall pecan trees in moderate to low epidemic risk years. C. H. Bock (1), B. W. Wood (1), M. H. HOTCHKISS (1), T. E. Cottrell (1). (1) USDA-ARS-SEFTNRL, Byron, GA, U.S.A.
- 478-P Longer-term potato cropping system effects on soil-borne diseases and tuber yield. R. P. LARKIN (1), J. M. Halloran (1). (1) USDA-ARS, New England Plant, Soil, and Water Laboratory, Orono, ME, U.S.A.
- 479-P Progress of brown eye spot of coffee in three cropping systems. A. G. SOUZA (1), L. A. Maffia (1), E. S. Mizubuti (1), F. F. Silva (2), H. Teixeira (3). (1) Universidade Federal de Viçosa/Departamento de Fitopatologia, Viçosa, MG, Brazil; (2) Universidade Federal de Viçosa/Departamento de Informática, Viçosa, MG, Brazil; (3) EPAMIG, Lavras, MG, Brazil
- 480-P Predisposition of citrus foliage to infection with *Xanthomonas citri* subsp. *citri*. C. H. BOCK (1), J. H. Graham (2), A. Z. Cook (3), P. E. Parker (3), T. R. Gottwald (4). (1) USDA-ARS SEFTNRL, Byron, GA, U.S.A.; (2) University of Florida, Lake Alfred, FL, U.S.A.; (3) USDA-APHIS, Edinburg, TX, U.S.A.; (4) USDA-ARS, Fort Pierce, FL, U.S.A.
- 481-P ‘*Candidatus* Phytoplasma pruni’ and its relatedness to phytoplasmas causing grapevine yellows disease in eastern United States. R. E. DAVIS (1), Y. Zhao (1), E. Dally (1), I. Lee (1), R. Jomantiene (2), S. M. Douglas (3). (1) USDA-ARS, Beltsville, MD, U.S.A.; (2) Nature Research Centre, Vilnius, Lithuania; (3) Connecticut Agricultural Experiment Station, New Haven, CT, U.S.A.
- 482-P Validation of water quality fluctuation patterns in runoff water containment basins of eastern and central Virginia. C. HONG (1). (1) Virginia Polytechnic Institute & State University, Virginia Beach, VA, U.S.A.
- 483-P Investigation of *Salmonella enterica* survival in water. S. RICHARDSON (1), J. M. Cevallos-Cevallos (1), J. Hu (1), V. Zelenev (2), A. Wright (1), A. H. Van Bruggen (1). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Moscow State University, Moscow, Russia
- 485-P Role of virus titer and aphid species population abundance in the spread of three potyviruses in Louisiana sweet potato fields. E. N. WOSULA (1), C. A. Clark (1), J. A. Davis (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.
- 486-P Overwintering onion thrips (*Thrips tabaci*) are a source of *Iris yellow spot virus* in Colorado. S. SZOSTEK (1). (1) Colorado State University, Fort Collins, CO, U.S.A.
- 487-P Acquisition and transmission of *Pantoea ananatis* and *Pantoea agglomerans* (causal agents of center rot of onion) by onion thrips (*Thrips tabaci*). B. DUTTA (1), R. D. Gitaitis (1), R. Srinivasan (1), D. Langston (1), A. Barman (1). (1) University of Georgia, Tifton, GA, U.S.A.
- 488-P Estimation of incidence and spatial temporal distribution of citrus stubborn disease. R. YOKOMI (1), M. Sisterson (2). (1) USDA-ARS PWA, Parlier, CA, U.S.A.; (2) USDA-ARS PWA, SJVASC, CDPG, Parlier, CA, U.S.A.
- 489-P Effects of plant water stress on vector feeding behaviors that control acquisition and inoculation of *Xylella fastidiosa*. E. A. BACKUS (1), R. Krugner (1). (1) USDA-ARS, Parlier, CA, U.S.A.
- 490-P Changes in ROS and lignin associated with progression of *Plasmodiophora brassicae* (clubroot) from cortical to stele cells. A. Deora (1), B. D. GOSSEN (2), M. McDonald (1). (1) Department of Plant Agriculture, University of Guelph, Guelph, ON, Canada; (2) Agriculture and Agri-Food Canada, Saskatoon Research Centre, Saskatoon, SK, Canada
- 491-P New and simple methods for studying the stylets of hemipteran nymphs and the salivary sheaths in host plants. E. AMMAR (1), D. G. Hall (1). (1) USDA-ARS, Fort Pierce, FL, U.S.A.

Population Genetics – Bacteria

- 492-P Molecular profiling of sequence data—A case study with 16S rRNA genes in *Betaproteobacteria*. S. SOBY (1). (1) Midwestern University, Glendale, AZ, U.S.A.
- 493-P Comparison of *Ralstonia solanacearum* strains isolated from tobacco and vegetable crops in North Carolina. H. TSENG (1), M. Katawczik (2), A. Mila (1). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) USDA-ARS, North Charleston, SC, U.S.A.
- 494-P Population diversity of ‘*Candidatus* Liberibacter asiaticus’ in southern China revealed by tandem repeat number variation in a hypervariable genomic locus. W. Ma (1), X. Wen (1), Y. Gu (1), X. DENG (1), J. Chen (2). (1) South China Agricultural University, Guangzhou, Peoples Republic of China; (2) USDA-ARS PWA, Parlier, CA, U.S.A.
- 495-P Characterizing *Xylella fastidiosa* subsp. *multiplex* in symptomatic northeastern and mid-Atlantic oak trees. G. BEHRINGER (1), A. B. Gould (1), D. Kobayashi (1). (1) Rutgers University, New Brunswick, NJ, U.S.A.


Population Genetics – Fungi

- 496-P A target-specific approach for screening fungal symbionts of native *Sirex* populations. R. OLATINWO (1), J. Allison (2), J. Meeker (3), W. Johnson (3), D. Streett (4), C. Carlton (5). (1) Louisiana State University, Pineville, LA, U.S.A.; (2) Natural Resources Canada, Great Lakes Forestry Centre, Sault Ste. Marie, ON,

- Canada; (3) USDA Forest Service, R8-FHP, Pineville, LA, U.S.A.; (4) USDA, Forest Service, Southern Research Station, Pineville, LA, U.S.A.; (5) Department of Entomology, Louisiana State University, Baton Rouge, LA, U.S.A.
- 497-P Ambrosia beetle populations and associated fungal symbionts in central Louisiana. R. OLATINWO (1), J. Allison (2), D. Streett (3), C. Carlton (4). (1) Louisiana State University, Pineville, LA, U.S.A.; (2) Natural Resources Canada, Great Lakes Forestry Centre, Sault Ste. Marie, ON, Canada; (3) USDA, Forest Service, Southern Research Station, Pineville, LA, U.S.A.; (4) Department of Entomology, Louisiana State University, Baton Rouge, LA, U.S.A.
- 498-P WITHDRAWN
- 499-P Evaluation of the effect of butternut canker on the genetic diversity of regenerating butternut in New England. A. BORAKS (1), K. Broders (1). (1) University of New Hampshire, Durham, NH, U.S.A.
- 500-P Genetic diversity of *Geosmithia morbida*, the causal agent of thousand canker disease in the southeastern United States. D. HADZIABDIC (1), L. M. Vito (1), P. A. Wadl (1), M. T. Windham (1), R. N. Trigiano (1). (1) University of Tennessee, Knoxville, TN, U.S.A.
- 501-P Fine-scale genetic structure of *Monilinia fructicola* populations within peach tree canopies. S. E. EVERHART (1), H. Scherm (1). (1) University of Georgia, Athens, GA, U.S.A.
- 502-P Canada-wide spore-trapping network provides effective monitoring of microbial phytopathogens in air and rain samples. W. CHEN (1), C. T. Lewis (1), J. T. Chapados (1), S. Hambleton (1), K. A. Seifert (1), K. Temple (1), A. Biernacka-Larocque (1), Z. Robleh Djama (1), C. A. Lévesque (1). (1) Agriculture and Agri-Food Canada, Ottawa, ON, Canada
- 503-P Genetic structure of sympatric populations of *Rhizoctonia solani* AG-1 IA from *Brachiaria* and rice in Colombia. L. M. Ramos Molina (1), M. Zala (2), B. A. McDonald (2), P. C. CERESINI (3). (1) University of São Paulo State (UNESP), Jaboticabal, Brazil; (2) ETH Zurich, Institute of Integrative Biology (IBZ), Zurich, Switzerland; (3) FAPESP-Biota/University of São Paulo State (UNESP), Ilha Solteira, SP, Brazil
- 504-P  Diversity of endophytic *Fusarium oxysporum* populations in tomato: An ecological perspective. J. DEMERS (1), B. K. Gugino (1), M. Jimenez-Gasco (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.
- 505-P Clues to the origins of individual lineages from the *Fusarium graminearum* species complex from genome-wide SNPs. C. TOOMAJIAN (1). (1) Kansas State University, Manhattan, KS, U.S.A.
- 506-P High-depth genome coverage of an unusual *Gibberella fujikuroi* species complex isolate that is cross-fertile with multiple species. C. TOOMAJIAN (1), M. Chiara (2), W. Strouts (1), D. Horner (2), A. Logrieco (3), G. Pesole (4), J. F. Leslie (1), J. Stack (1). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) Università Degli Studi di Milano, Milano, Italy; (3) Istituto di Scienze delle Produzioni Alimentari, Consiglio Nazionale delle Ricerche, Bari, Italy; (4) Università Degli Studi di Bari, Bari, Italy
- 507-P Incidence and diversity of fungal endophytes in *Elymus* species. N. CHARLTON (1), C. Young (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.
- 508-P Epichloid endophytes of *Bromus laevipes*. G. SWOBODA (1), B. Hall (1), N. Charlton (1), M. Afkhami (2), S. Ghimire (3), K. Craven (1), C. 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.
- 509-P WITHDRAWN
- Population Genetics – Oomycetes**
- 510-P Identification and characterization of *Pythium* species present in floricultural crops from Long Island, New York. P. A. Garrido (1), C. A. Salazar (1), C. I. Diaz (1), S. Posey (1), G. K. Orquera (1), H. A. Castillo (1), M. Daughtrey (2), C. D. GARZON (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) Cornell University, Riverhead, NY, U.S.A.
- 511-P Survey of oomycete species associated with soybean seedling diseases in the United States. A. ROJAS (1), J. Jacobs (1), C. A. Bradley (2), P. D. Esker (3), L. Giesler (4), D. Jardine (5), B. D. Nelson (6), D. K. Malvick (7), S. Markell (6), A. E. Robertson (8), J. C. Rupe (9), L. Sweets (10), K. A. Wise (11), M. I. Chilvers (1). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) University of Illinois, Urbana, IL, U.S.A.; (3) University Wisconsin-Madison, Madison, WI, U.S.A.; (4) University of Nebraska, Lincoln, NE, U.S.A.; (5) Kansas State University, Manhattan, KS, U.S.A.; (6) North Dakota State University, Fargo, ND, U.S.A.; (7) University of Minnesota, St. Paul, MN, U.S.A.; (8) Iowa State University, Ames, IA, U.S.A.; (9) University of Arkansas, Fayetteville, AR, U.S.A.; (10) University of Missouri, Columbia, MO, U.S.A.; (11) Purdue University, West Lafayette, IN, U.S.A.
- 512-P Pathogenicity and aggressiveness of isolates belonging to a new *Phytophthora infestans* sensu lato population in Colombia. M. F. MIDEROS (1), J. Bastidas (2), Y. V. Castillo (2), L. E. Lagos (2), A. Bernal (1), S. Restrepo (1). (1) Universidad de Los Andes, Bogotá, Colombia; (2) Universidad de Nariño, Pasto, Colombia
- 513-P The dynamics of evolution in *Phytophthora infestans* as told by phylogeographical approaches. J. TABIMA (1), M. Mideros (1), A. Bernal (1), P. Jiménez (2), D. Riaño-Pachón (1), N. Grunwald (3), S. Restrepo (1). (1) Universidad de Los Andes, Bogotá, Colombia; (2) Universidad Militar Nueva Granada, Bogotá, Colombia; (3) Oregon State University, Corvallis, OR, U.S.A.
- 514-P Metagenomic screening for nonculturable oomycetes. J. TABIMA (1), J. Enciso (1), P. Jiménez (2), D. Riaño-Pachón (1), S. Restrepo (1). (1) Universidad de Los Andes, Bogotá, Colombia; (2) Universidad Militar Nueva Granada, Bogotá, Colombia
- 515-P Population structure and genetic diversity of three species of *Pythium* isolated from forest tree nursery soils in Oregon and Washington. P. A. Garrido (1), C. D. GARZON (1), N. J. Grünwald (2), J. Weiland (2). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) USDA-ARS, Corvallis, OR, U.S.A.

- 516-P Use of next-generation sequencing to identify population structure of *Peronospora belbahrii* in the United States. A. L. VU (1), L. Ma (1), R. L. Wick (1). (1) University of Massachusetts, Amherst, MA, U.S.A.
- 517-P Population structure of *Phytophthora colocasiae* assessed using single nucleotide polymorphism (SNP) markers. S. K. SHRESTHA (1), J. Mudge (2), N. A. Miller (2), K. Lamour (1). (1) University of Tennessee, Knoxville, TN, U.S.A.; (2) National Center for Genome Resources, Santa Fe, NM, U.S.A.

Rhizosphere and Phyllosphere Ecology

- 518-P Soil microbes in organic vs. conventional vegetable production: Capturing the active players through soil RNA analysis. L. GOMEZ-MONTANO (1), A. Jumpponen (1), M. Kennelly (1), K. A. Garrett (1). (1) Kansas State University, Manhattan, KS, U.S.A.
- 519-P Profiling microbial communities in soils of SDS-infested soybean fields using next-generation sequencing. A. Y. SORUR (1), A. Warner (1), T. Reinhardt (1), M. Pfaff (1), J. P. Bond (1), L. Leonardo (2), D. Malvick (3), A. M. Fakhoury (1). (1) Southern Illinois University, Carbondale, IL, U.S.A.; (2) Iowa State University, Ames, IA, U.S.A.; (3) University of Minnesota, St. Paul, MN, U.S.A.
- 520-P WITHDRAWN
- 521-P Characterization and pathogenicity of *Rhizoctonia solani* isolates affecting potato in Idaho and Michigan, United States. P. WHARTON (1), J. Woodhall (2), J. Peters (2), W. Kirk (3). (1) University of Idaho, Aberdeen, ID, U.S.A.; (2) The Food and Environment Research Agency, York, United Kingdom; (3) Michigan State University, East Lansing, MI, U.S.A.
- 522-P  Genetic relationships among subpopulations of competitive nonpathogenic strains of *Fusarium oxysporum* and *F. oxysporum* f. sp. *lycopersici*. M. R. WARR (1), T. A. Rush (1), R. W. Schneider (2). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (2) Louisiana State University, Baton Rouge, LA, U.S.A.
- 523-P Response of wild and cultivated blackberry (*Rubus* spp.) species to infection of *Peronospora sparsa* under controlled conditions. J. Boyzo-Marín (1), A. REBOLLAR-ALVITER (2), S. D. Segura-Ledesma (1), H. V. Silva-Rojas (3), N. Avila-Alistac (1). (1) Centro Regional Morelia/Universidad Autónoma Chapingo, Morelia, Michoacan, Mexico; (2) Universidad Autónoma Chapingo, Morelia, Michoacan, Mexico; (3) Colegio de Postgraduados, Produccion de Semillas, Campus Montecillo, Texcoco, Mexico
- 524-P Predisposition factors affecting brown spot disease development in rice. N. F. MAGCULIA (1), A. H. Sparks (1). (1) International Rice Research Institute, Los Baños Laguna, Philippines
- 525-P Management of cherry leaf spot disease in flowering cherry in mid-Tennessee. J. O. JOSHUA (1). (1) Tennessee State University, College of Agriculture, McMinnville, TN, U.S.A.

Risk Assessment

- 526-P Assessments of edge effect in intensity of HLB disease. W. LUO (1), T. Gottwald (2), M. S. Irey (3). (1) USDA-ARS, Fort Pierce, FL, U.S.A.; (2) USDA, Fort Pierce, FL, U.S.A.; (3) Southern Gardens Citrus, US Sugar Corp., Clewiston, FL, U.S.A.
- 527-P Development and application of a degree-day model to predict thrips growth and development of *Tomato spotted wilt virus* in California tomato fields. A. CAMPBELL (1), O. Batuman (1), L. Chen (1), L. B. Coop (2), R. L. Gilbertson (1), N. McRoberts (1). (1) University of California-Davis, Davis, CA, U.S.A.; (2) Oregon State University, Corvallis, OR, U.S.A.
- 528-P Effects of multiple sources of seasonality on the risk of pathogen spread to vineyards: Vector pressure, natural infectivity, and host recovery. B. GRUBER (1), M. Daugherty (2). (1) University of Florida/IRREC, Fort Pierce, FL, U.S.A.; (2) University of California, Riverside, CA, U.S.A.
- 529-P Isolation of *Phytophthora* and *Pythium* species from different depths of sediments in a runoff water sedimentation pond of eastern Virginia. X. YANG (1), C. Hong (1). (1) Virginia Tech, Virginia Beach, VA, U.S.A.
- 530-P Diversity of *Phytophthora* and *Pythium* in Pennsylvania forest streams. S. KIM (1), T. J. Hall (2), E. Nikolaeva (3), L. H. Lawson (1), S. Kang (3). (1) Pennsylvania Department of Agriculture, Harrisburg, PA, U.S.A.; (2) Pennsylvania Bureau of Forestry, Middletown, PA, U.S.A.; (3) The Pennsylvania State University, University Park, PA, U.S.A.
- 531-P USABlight and fungicide sensitivity of recent genotypes of *Phytophthora infestans* to oomycete-targeted compounds. A. Saville (1), C. Pearce (1), J. B. RISTAINO (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 532-P Survival of *Colletotrichum acutatum*, the causal agent of citrus postbloom fruit drop, on weeds. G. F. FRARE (1), L. Amorim (1). (1) Escola Superior de Agricultura Luiz de Queiroz/Universidade de São Paulo, Piracicaba, Brazil
- 533-P Development and control of grape powdery mildew (*Erysiphe necator*) under different levels of ascospore inoculum dose. M. M. MOYER (1), D. M. Gadoury (2), W. F. Wilcox (3), R. C. Seem (2). (1) Washington State University, Prosser, WA, U.S.A.; (2) New York State Agricultural Experiment Station, Geneva, NY, U.S.A.; (3) Cornell University NYSAES, Geneva, NY, U.S.A.
- 534-P **NED** Using green fluorescent protein to determine the effects of relative humidity on infection, fungal colonization, and conidiation of *Magnaporthe oryzae* on perennial ryegrass turf. Y. LI (1), W. Uddin (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.
- 535-P Seasonal variation in presence and abundance of inoculum of the *Heterobasidion* root disease pathogen in central Wisconsin. D. R. SMITH (1), J. Juzwik (2), G. R. Stanosz (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.; (2) USDA Forest Service, Northern Research Station, St. Paul, MN, U.S.A.
- 536-P Early disease development of cherry powdery mildew and population dynamics of *Podosphaera clandestina* in


- the orchard air in eastern Washington. Q. LIU (1), H. Yan (1), M. E. Nelson (1), G. G. Grove (1). (1) Washington State University, Prosser, WA, U.S.A.
- 537-P Spatial assessment of *Rhizoctonia solani* in fields undergoing rice and soybean rotations. T. SPURLOCK (1), C. Rothrock (1), W. Monfort (2). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Clemson University, Blackville, SC, U.S.A.
- 538-P Influence of variable moisture patterns on the association between *Fusarium* head blight and deoxynivalenol contamination in wheat. K. F. ANDERSEN (1), K. T. Willyerd (1), L. V. Madden (1), P. A. Paul (1). (1) Ohio State University, OARDC, Wooster, OH, U.S.A.
- 539-P Using boosted regression trees to evaluate the association of drought indices and local weather conditions with stripe rust epidemics in Kansas. B. S. GRABOW (1), E. D. De Wolf (1). (1) Kansas State University, Manhattan, KS, U.S.A.

■ MOLECULAR/CELLULAR/PLANT-MICROBE INTERACTIONS

Genetics, Biochemistry, and Cell Biology of Pathogenesis – Bacteria

- 540-P Requirement for a gene encoding a predicted acyl carrier protein for full virulence of the fire blight pathogen *Erwinia amylovora*. S. A. Lee (1), B. Lehman (2), H. K. Ngugi (3), T. MCNELLIS (2). (1) Cornell University, Ithaca, NY, U.S.A.; (2) The Pennsylvania State University, University Park, PA, U.S.A.; (3) Biglerville, PA, U.S.A.
- 541-P Outer membrane protein OmpA is required for disease symptom development and colonization of sugarcane by *Xanthomonas albilineans*. L. A. FLEITES (1), P. C. Rott (2), S. Zhang (1), D. Gabriel (1). (1) University of Florida, Gainesville, FL, U.S.A.; (2) CIRAD Biology and Genetics of Plant-Pathogen Interactions, Montpellier, France
- 542-P The orphan gene amyR, a homolog of *Escherichia coli* ybjN, is a negative regulator of amylovoran production in *Erwinia amylovora*. D. Wang (1), Y. ZHAO (1). (1) University of Illinois, Urbana, IL, U.S.A.
- 543-P Regulation of glycohydrolase family proteins from *Xanthomonas citri* subsp. *citri* in xylan utilization during pathogenesis. D. SHANTHARAJ (1), G. V. Minsavage (1), G. Nong (2), V. Chow (2), J. F. Preston (2), J. B. Jones (1). (1) Plant Pathology Department, University of Florida, Gainesville, FL, U.S.A.; (2) Department of Microbiology and Cell Science, University of Florida, Gainesville, FL, U.S.A.
- 544-P The role of sigma factors in regulating virulence gene expression in *Erwinia amylovora*. W. LI (1), V. Ancona (1), Y. Zhao (1). (1) University of Illinois, Urbana, IL, U.S.A.
- 545-P Plastoquinone partitioning in the chloroplast affects disease resistance in apple. D. K. Singh (1), T. N. Laremore (2), P. B. Smith (2), S. N. Maximova (2), T. MCNELLIS (2). (1) Cornell University, Ithaca, NY, U.S.A.; (2) The Pennsylvania State University, University Park, PA, U.S.A.
- 546-P *hmsF* Is a virulence factor of the citrus canker pathogen *Xanthomonas citri* subsp. *citri* 306. J. WANG (1), Q.

Yan (1), N. Wang (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

- 547-P Gene content or gene expression: Which determines the difference in the host specificity and virulence of strains of *Xanthomonas citri* subsp. *citri*? N. JALAN (1), D. Kumar (2), N. Wang (3). (1) University of Florida, Lake Alfred, FL, U.S.A.; (2) Rutgers University, Piscataway, NJ, U.S.A.; (3) Citrus Research and Education Center, University of Florida, Lake Alfred, FL, U.S.A.
- 548-P WITHDRAWN
- 549-P  Predicted phytochelatin synthase (EAM_2936) and gamma-glutamyl transpeptidase (EAM_2935) are required for full virulence in *Erwinia amylovora* Ea1189. R. R. MCNALLY (1), G. W. Sundin (1). (1) Michigan State University, East Lansing, MI, U.S.A.


Genetics, Biochemistry, and Cell Biology of Pathogenesis – Fungi

- 550-P QTL mapping reveals effector-triggered susceptibility underlying the barley-*Pyrenophora teres* f. *teres* interaction. Z. LIU (1), S. Chao (2), J. D. Faris (2), M. C. EDWARDS (2), T. L. Friesen (2). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) Cereal Crops Research Unit, Northern Crop Science Laboratory, USDA-ARS, Fargo, ND, U.S.A.
- 551-P Comparative study of transcription regulation in genus of *Fusarium* using a multigenome microarray. L. GUO (1), X. Zhao (2), W. Jonkers (3), C. H. Kistler (3), J. Xu (2), L. Ma (1). (1) University of Massachusetts-Amherst, Amherst, MA, U.S.A.; (2) Purdue University, West Lafayette, IN, U.S.A.; (3) University of Minnesota, St. Paul, MN, U.S.A.
- 552-P Loss of abaxial leaf epicuticular wax in *Medicago truncatula* *irg1/palm1* mutants results in reduced spore differentiation of nonhost rust pathogens. S. R. UPPALAPATI (1), Y. Ishiga (2), K. S. Mysore (2). (1) Plant Biology Division, The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; (2) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.
- 553-P WITHDRAWN
- 554-P Differences in fruit surface chemistry in resistant and susceptible genotypes of peach fruit to the brown rot pathogen *Monilinia fructicola*. M. A. YAGHMOUR (1), J. H. Leveau (1), T. M. Gradziel (1), M. Lee (2), R. M. Bostock (1). (1) University of California, Davis, CA, U.S.A.; (2) National Chung-Hsing University, Taichung, Taiwan
- 555-P WITHDRAWN
- 556-P Functional characterization of the *Fusarium verticillioides* *FvSO* gene. L. GUO (1), N. Wenner (2), G. A. Kuldau (2). (1) University of Massachusetts-Amherst, Amherst, MA, U.S.A.; (2) The Pennsylvania State University, University Park, PA, U.S.A.
- 557-P Transcriptome characterization of an Armillaria root disease pathogen reveals candidate pathogenicity-related genes. A. ROSS-DAVIS (1), J. Stewart (2), J. Hanna (3), M. Kim (4), R. Cronn (5), H. Rai (6), B. Richardson (7), G. McDonald (3), N. Klopfenstein (3). (1) USDA Forest Service, Moscow, ID, U.S.A.; (2) USDA-ARS, Horticultural Crops Research Laboratory, Corvallis, OR, U.S.A.; (3) USDA-FS, Rocky Mountain Research Station, Moscow, ID, U.S.A.; (4) Depart-

ment of Forestry, Environment, and Systems, Kookmin University, Seoul, South Korea; (5) USDA-FS, Pacific Northwest Research Station, Corvallis, OR, U.S.A.; (6) Wildland Resources Department, Utah State University, Logan, UT, U.S.A.; (7) USDA-FS, Rocky Mountain Research Station, Provo, UT, U.S.A.


- 558-P Identification of multiple virulence QTL in *Pyrenophora teres f. teres* associated with net form net blotch in barley. R. A. SHJERVE (1), Z. Liu (1), J. D. Faris (2), J. B. Rasmussen (1), T. L. Friesen (2). (1) North Dakota State University, Plant Pathology Department, Fargo, ND, U.S.A.; (2) Cereal Crops Unit, Northern Crops Science Laboratory, USDA-ARS, Fargo, ND, U.S.A.
- 559-P Comparative genome analysis of members of the Magnaporthaceae using DSynd, a novel syntenic detection tool. J. SAILSBERY (1), B. Clay (2), C. Jackson (2), L. Ma (1), R. Dean (2). (1) University of Massachusetts-Amherst, Amherst, MA, U.S.A.; (2) North Carolina State University, Raleigh, NC, U.S.A.
- 560-P DSynd: Dimensional synteny detection, identification of syntenic regions between multiple genomes. J. Sailsbery (1), B. CLAY (2), C. Jackson (2), D. Brown (2), L. Ma (1), R. Dean (2). (1) University of Massachusetts-Amherst, Amherst, MA, U.S.A.; (2) North Carolina State University, Raleigh, NC, U.S.A.

Genetics, Biochemistry, and Cell Biology of Pathogenesis – Viruses



- 561-P Identification of expressed resistance gene analog (RGA) from peanut (*Arachis hypogaea* L.) expressed sequence tags (ESTs) and development of RGA-SSR marker. Z. Liu (1), S. Feng (1), M. K. Pandey (1), A. Culbreath (1), B. GUO (2). (1) University of Georgia, Department of Plant Pathology, Tifton, GA, U.S.A.; (2) USDA-ARS, Crop Protection and Management Research Unit, Tifton, GA, U.S.A.
- 562-P Identification of putative TSWV resistance genes, development of gene-specific markers, and integration to genetic linkage group in peanut (*Arachis hypogaea* L.). S. Feng (1), X. Chen (1), M. Pandey (1), A. Culbreath (1), C. Holbrook (2), B. GUO (3). (1) University of Georgia, Department of Plant Pathology, Tifton, GA, U.S.A.; (2) USDA-ARS, Crop Genetics and Breeding Research Unit, Tifton, GA, U.S.A.; (3) USDA-ARS, Crop Protection and Management Research Unit, Tifton, GA, U.S.A.
- 563-P Virus-induced gene silencing in *Nicotiana benthamiana* using a derivative vector of *Euphorbia mosaic virus Yucatan Peninsula* (EuMV-YP). O.A. MORENO-VALENZUELA (1), H.J. Villanueva-Alonzo (2), L. A. Lopez-Ochoa (1), O. Guerra-Peraza (2), D. Robertson (2). (1) Centro de Investigación Científica de Yucatán, Mérida, Yucatán, Mexico; (2) Department of Plant Biology, North Carolina State University, Raleigh, NC, U.S.A.
- 564-P  Development of infectious clones for *Maize chlorotic mottle virus* (Tomoviridae) using long RT-PCR. D. R. CABANAS (1), A. Bressan (1). (1) University of Hawaii, Honolulu, HI, U.S.A.
- 565-P Comparison of nucleotide and amino acid sequences of three *Tobacco etch virus* strains. N. Velasquez (1), J. F. MURPHY (1). (1) Auburn University, Auburn, AL, U.S.A.

- 566-P Understanding the molecular mechanisms of *Maize fine streak virus* (MFSV) replication and infection. F. CISNEROS (1), Y. Chen (1), A. Michel (1), D. Willis (2), M. Redinbaugh (3). (1) The Ohio State University, Wooster, OH, U.S.A.; (2) University of Wisconsin, Madison, WI, U.S.A.; (3) USDA-ARS, Corn and Soybean Research, Wooster, OH, U.S.A.
- 567-P Development of mtCOI primers for the rapid identification of three *Bemisia tabaci* biotypes and *Trialeurodes vaporariorum*. S. ANDREASON (1), J. K. Brown (2), J. Fletcher (3), F. M. Ochoa Corona (3), M. Arif (3), A. Wayadande (3). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) The University of Arizona, Tucson, AZ, U.S.A.; (3) National Institute for Microbial Forensics & Food and Agricultural Biosecurity, Oklahoma State University, Stillwater, OK, U.S.A.

MPMI – Bacteria

- 568-P  Regulation of effector protein translocation by type III secretion chaperones and HrpN in *Erwinia amylovora*. L. F. CASTIBLANCO (1), L. R. Triplett (2), G. W. Sundin (1). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) Colorado State University, Fort Collins, CO, U.S.A.
- 569-P Novel autotransporters encoded by the citrus huanglongbing bacterium, '*Candidatus Liberibacter asiaticus*'. G. HAO (1), M. Boyle (2), L. Zhou (1), Y. Duan (1). (1) U.S. Horticultural Research Laboratory, Fort Pierce, FL, U.S.A.; (2) Smithsonian Marine Station, Fort Pierce, FL, U.S.A.
- 570-P Polar auxin transport is mandatory for gall formation by *Pantoea agglomerans* on gypsophila. L. Chalupowicz (1), D. Weinthal (1), V. Gaba (1), G. Sessa (2), I. BARASH (2), S. Manulis-Sasson (1). (1) ARO The Volcani Center, Bet Dagan, Israel; (2) Tel Aviv University, Tel Aviv, Israel
- 571-P RNA-Seq analysis of '*Candidatus Liberibacter asiaticus*' gene expression in the two distinct habitats citrus and psyllid. S. Kogenaru (1), V. Aritua (1), N. WANG (1). (1) University of Florida, Lake Alfred, FL, U.S.A.
- 572-P Characterization of *sala*, *syrF*, and *syrG* regulatory networks involved in plant pathogenesis by *Pseudomonas syringae* pv. *syringae* B728a. V. L. VAUGHN (1), D. Gross (1). (1) Texas A&M University, College Station, TX, U.S.A.
- 573-P Comparison between *avrGf1* and *avrGf2* which elicit hypersensitive reactions (HR) in grapefruit and sweet orange. A. M. GOCHEZ (1), G. Minsavage (2), N. Potnis (2), B. I. Canteros (1), R. E. Stall (2), J. B. Jones (2). (1) EEA INTA Bella Vista, Bella Vista, Corrientes, Argentina; (2) Department of Plant Pathology, University of Florida, Gainesville, FL, U.S.A.
- 574-P *Salmonella enterica* growth in the phyllosphere following synergistic interaction with virulent *Xanthomonas perforans*. N. POTNIS (1), J. B. Jones (1), J. D. Barak (2). (1) University of Florida, Gainesville, FL, U.S.A.; (2) University of Wisconsin, Madison, WI, U.S.A.
- 575-P Modulation of plant defense responses by salicylate hydroxylase of '*Candidatus Liberibacter asiaticus*' and its implication on canker pathogen *Xanthomonas citri* subsp. *citri* in huanglongbing-infected plants. P. TRIVEDI (1), N. Wang (2). (1) University of Florida, Lake Alfred, FL, U.S.A.; (2) Citrus Research and Education Center, University of Florida, Lake Alfred, FL, U.S.A.

MPMI – Fungi

- 576-P Analysis of allelic variation in the effector gene *Ave1* among *Verticillium* species. K. MARUTHACHALAM (1), B. P. Thomma (2), K. V. Subbarao (3). (1) University of California, Salinas, CA, U.S.A.; (2) Wageningen University, Wageningen, Netherlands; (3) University of California-Davis, Plant Pathology, Davis, CA, U.S.A.
- 577-P WITHDRAWN
- 578-P A Nep1-like fungal toxin targets a conserved ubiquitin-like protein in rice for necrotic cell death. Q. Wang (1), Z. Liu (1), Y. YANG (1). (1) Penn State University, University Park, PA, U.S.A.
- 579-P Identification of blast resistance genes for managing rice blast disease. J. WANG (1), Y. Jia (2), J. Wen (1), W. Liu (1), J. Ren (1). (1) Jilin Academy of Agricultural Sciences, Changchun, Peoples Republic of China; (2) USDA-ARS DBNRRRC, Stuttgart, AR, U.S.A.
- 580-P Nonhost resistance of *Brachypodium distachyon* to the switchgrass rust pathogen, *Puccinia emaculata*. S. R. UPPALAPATI (1). (1) Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.
- 581-P Role of the ABC transporter ATR1 on resistance to the toxin cercosporin in the cercosporin-sensitive organisms *Neurospora crassa* and tobacco. S. HERRERO (1), J. W. Gillikin (1), H. Eng (1), M. E. Daub (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 582-P Differential expression of the pathogenesis-related protein 1 (*PR-1*) gene family in stem rust (*Puccinia graminis* f. sp. *tritici*)-wheat interactions. S. LU (1), T. L. Friesen (1), J. D. Faris (1). (1) USDA-ARS, Cereal Crops Research Unit, Fargo, ND, U.S.A.
- 583-P *Brachypodium distachyon*-*Cochliobolus sativus* pathosystem—A new model for studying diseases in cereal crops. S. ZHONG (1), S. Ali (1), R. Wang (1), Y. Leng (1). (1) North Dakota State University, Fargo, ND, U.S.A.
- 584-P Disruption of *Fvcp1*, a cyclophilin-encoding gene in *Fusarium virguliforme*. K. T. ISLAM (1), J. P. Bond (1), A. M. Fakhoury (1). (1) Department of Plant, Soil and Agriculture Systems, Southern Illinois University, Carbondale, IL, U.S.A.
- 585-P Identification and characterization of genes conferring resistance to the photoactivated *Cercospora* toxin cercosporin. A. BESELI (1), S. Herrero (1), M. E. Daub (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 586-P  Bioinformatics and expression analysis of *Mycosphaerella fijiensis* reveals candidate polyketide synthase gene clusters for production of phytotoxins. R. D. NOAR (1), S. Herrero (1), M. E. Daub (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
- 587-P A genetic transformation system for *Phomopsis longicolla*, cause of Phomopsis seed decay of soybean. J. Ridenour (1), L. Hirsch (1), S. Li (2), J. RUPE (1), B. Bluhm (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) USDA-ARS, CGRU, Stoneville, MS, U.S.A.
- 588-P  *Fusarium oxysporum* produces volatile organic compounds that affect the growth and disease defense of *Arabidopsis thaliana*. V. BITAS (1), S. Kang (1). (1) The Pennsylvania State University, University Park, PA, U.S.A.
- 589-P Histological and genomic studies on soybean-*Fusarium virguliforme* interaction. O. RADWAN (1), R. Berg (2), S. Clough (3). (1) University of Illinois at Urbana-

Champaign, Urbana, IL, U.S.A.; (2) Danforth Plant Science Center, St. Louis, MO, U.S.A.; (3) Department of Crop Sciences and USDA-ARS, Urbana, IL, U.S.A.

MPMI – Nematodes and Abiotic Stress

- 590-P Functional analyses of parasitism genes of the root-knot nematode *Meloidogyne incognita* in *Arabidopsis thaliana*. A. D. SMITH (1), E. Davis (1), R. Hussey (2), T. Baum (3). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) University of Georgia, Athens, GA, U.S.A.; (3) Iowa State University, Ames, IA, U.S.A.
- 591-P Root-knot nematode infection rates are reduced in roots of tobacco engineered to express RNAi targeted to a nematode parasitism gene. K. SCHWERI (1), G. Huang (2), 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.
- 592-P The influence of parasitic interactions on host gene silencing. E. WALSH (1). (1) Ohio State University, Wooster, OH, U.S.A.
- 593-P Posttranscriptional gene silencing of the gene encoding aldolase from soybean cyst nematode by transformed soybean roots. B. F. Matthews (1), R. Y. ABD EL KREEM (2). (1) USDA-ARS, Beltsville, MD, U.S.A.; (2) USDA, Beltsville, MD, U.S.A.
- 594-P Identification of genes at the Rhg1 locus of soybean that impact soybean cyst nematode development. D. E. COOK (1), X. Guo (1), M. Hudson (2), A. MacGuidwin (1), A. F. Bent (1). (1) University of Wisconsin, Madison, WI, U.S.A.; (2) University of Illinois, Urbana, IL, U.S.A.
- 595-P A predicted interactome for *Zea mays*. B. M. MUSUNGU (1), M. Geisler (2), R. Brown (3), D. Bhatnagar (3), A. M. Fakhoury (1). (1) Department of Plant, Soil and Agriculture Systems, Southern Illinois University, Carbondale, IL, U.S.A.; (2) Department of Plant Biology, Southern Illinois University, Carbondale, IL, U.S.A.; (3) Southern Regional Research Center, USDA-ARS, New Orleans, LA, U.S.A.
- 596-P High-throughput sequencing of date palm transcripts in response to salinity stress. O. RADWAN (1), T. Ahmed (2). (1) University of Illinois at Urbana-Champaign, Urbana, IL, U.S.A.; (2) Department of Biological and Environmental Sciences, Doha, Qatar
- ## MPMI – Oomycetes
- 597-P Selection of candidate genes involved in the defense mechanisms of *Phytophthora infestans* against fungicides by EST analysis. E. R. Champaco (1), R. P. LARKIN (2), B. G. de los Reyes (3). (1) University of Maine, Department of Molecular and Biomedical Sciences, Orono, ME, U.S.A.; (2) USDA-ARS, New England Plant, Soil, and Water Laboratory, Orono, ME, U.S.A.; (3) University of Maine, School of Biology and Ecology, Orono, ME, U.S.A.
- 598-P In vitro and in vivo RNAi silencing of *Phytophthora capsici*. R. A. Stamler (1), N. P. Goldberg (1), S. Sanogo (1), J. J. RANDALL (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.

- 599-P Characterization of induced resistance in chile pepper against *Phytophthora capsici* following inoculation with nonhost *Phytophthora nicotianae*. R. A. STAMLER (1), N. P. Goldberg (1), S. Sanogo (1), J. J. Randall (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.

MPMI – Viruses

- 600-P The host actin cytoskeleton is required for *Barley stripe mosaic virus* TGB3 cell wall localization. M. Li (1), J. Nam (1), C. Jang (1), E. Seo (1), J. Song (1), A. O. Jackson (2), J. Hammond (3), H. LIM (1). (1) Chungnam National University, Daejeon, South Korea; (2) University of California-Berkeley, Berkeley, CA, U.S.A.; (3) USDA-ARS FNPRU, Beltsville, MD, U.S.A.
- 601-P Heterologous expression and functional analysis of the wheat group 1 pathogenesis-related (PR-1) proteins. K. L. Dunnell (1), J. D. Faris (1), T. L. Friesen (1), M. C. Edwards (1), S. LU (1). (1) USDA-ARS, Cereal Crops Research Unit, Fargo, ND, U.S.A.
- 602-P WITHDRAWN
- 603-P A new recombinant *Potato virus Y* isolate classified as belonging to PVY^Z strain group may help to define viral determinant responsible for tuber necrosis in potato. M. CHIKH ALI (1), T. Maoka (2), T. Natsuaki (3), A. V. Karasev (1). (1) University of Idaho, Moscow, ID, U.S.A.; (2) National Research Center for Hokkaido Region, Sapporo, Japan; (3) Utsunomiya University, Utsunomiya, Japan
- 604-P Interaction of *Nicotiana benthamiana* PSBO1 with AltMV TGB3 correlates with chloroplast vesiculation and veinal necrosis caused by TGB3 overexpression. C. Jang (1), J. Nam (1), M. Li (1), Y. Kim (1), S. Yu (1), H. Kim (1), J. Beom (2), J. Hammond (3), H. LIM (1). (1) Chungnam National University, Daejeon, South Korea; (2) Chungcheongnam-do Agricultural Research and Extension Services, Chrysanthemum Experiment Station, Yesan, South Korea; (3) USDA-ARS FNPRU, Beltsville, MD, U.S.A.
- 605-P *Alternanthera mosaic virus* TGB1 interaction with chloroplast beta ATPase is necessary for viral replication. J. Nam (1), C. Jang (1), M. Li (1), H. Kim (1), S. Cho (1), H. Kim (1), D. K. Lakshman (2), J. Hammond (2), H. LIM (1). (1) Chungnam National University, Daejeon, South Korea; (2) USDA-ARS FNPRU, Beltsville, MD, U.S.A.
- 606-P Endornaviruses in common bean (*Phaseolus vulgaris*) germplasm. R. VALVERDE (1), R. Okada (2), S. Sabanadzovic (3), M. Pastor-Corrales (4), T. Fukuhara (2), H. Moriyama (2). (1) Department of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (2) Laboratory of Molecular and Cellular Biology, Faculty of Agriculture, Tokyo University of Agriculture and Technology, Tokyo, Japan; (3) Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS, U.S.A.; (4) Soybean Genomics and Improvement Laboratory, Beltsville Agricultural Research Center, Beltsville, MD, U.S.A.
- 607-P Isolation of *Cowpea mosaic virus* movement tubules and identification of host proteins involved in the viral movement from cell to cell. P. S. GERALDINO DUARTE (1), P. W. den Holander (2), A. R. Figueira

(1), J. W. van Lent (2). (1) Universidade Federal de Lavras, Lavras, MG, Brazil; (2) Wageningen University, Wageningen, Netherlands

- 608-P Construction of a *Cucumber mosaic virus* stably expressing eGFP in *Nicotiana benthamiana* following transmission by the aphid vector *Myzus persicae*. B. KRENZ (1), X. Lu (1), J. R. Thompson (1), K. L. Perry (1). (1) Cornell University, Ithaca, NY, U.S.A.
- 609-P CHUP1, required for movement of chloroplasts on microfilaments, colocalizes with the P6 inclusion body protein of *Cauliflower mosaic virus*. C. A. ANGEL (1), L. Lutz (2), X. Yang (3), S. Leisner (2), R. S. Nelson (3), J. E. Schoelz (1). (1) Division of Plant Sciences, University of Missouri, Columbia, MO, U.S.A.; (2) Department of Biological Sciences, University of Toledo, Toledo, OH, U.S.A.; (3) Plant Biology Division, The Samuel Roberts Noble Foundation, Inc., Ardmore, OK, U.S.A.

Plant Defense Responses – Bacteria

- 610-P WITHDRAWN
- 611-P Large-scale shifts in potato (*Solanum tuberosum*) tuber physiology occur following infection by ‘*Candidatus Liberibacter solanacearum*’. C. WALLIS (1), A. Rashed (2), C. M. Rush (2). (1) USDA-ARS, Parlier, CA, U.S.A.; (2) Texas AgriLife Research, Bushland, TX, U.S.A.
- 612-P Physiological and proteomic characterizations of ‘*Candidatus Liberibacter*’ associated diseases in citrus and potato plants. H. LIN (1), C. C. Nwugo (2), Y. Duan (3). (1) USDA-ARS PWA, Parlier, CA, U.S.A.; (2) USDA-ARS, Parlier, CA, U.S.A.; (3) USDA-ARS, Fort Pierce, FL, U.S.A.
- 613-P Grapevines undergo varying shifts in secondary metabolic profiles when infected with *Xylella fastidiosa*. C. WALLIS (1), J. Chen (1). (1) USDA-ARS, Parlier, CA, U.S.A.
- 614-P Identification of salicylic acid signaling networks in plant immunity. M. TIAN (1), C. von Dahl (1), P. Liu (1), G. Friso (2), K. van Wijk (2), D. F. Klessig (1). (1) Boyce Thompson Institute for Plant Research, Ithaca, NY, U.S.A.; (2) Department of Plant Biology, Cornell University, Ithaca, NY, U.S.A.

Plant Defense Responses – Fungi

- 615-P WITHDRAWN
- 616-P Role of a putative amino acid transporter in fungal disease resistance in alfalfa. D. SAMAC (1), M. Dornbusch (1), D. Foster-Hartnett (2), Z. Tu (2), S. Gantt (2). (1) USDA-ARS, St. Paul, MN, U.S.A.; (2) University of Minnesota, St. Paul, MN, U.S.A.
- 617-P Dynamics of growth regulators during infection of apple leaves by *Alternaria alternata* apple pathotype. Y. CHEN (1), P. Cong (2), C. Zhang (2). (1) Cornell University, Geneva, NY, U.S.A.; (2) Institute of Pomology, Chinese Academy of Agricultural Sciences, Xing Cheng, Liaoning Province, Peoples Republic of China
- 618-P Image analysis of peroxidase localization on the cross section prepared from Japanese birch plantlet No.8 infected with *Inonotus obliquus* IO-U1 strain. S. YOKOTA (1), C. Ri (1), H. Suzuki (1), A. Yoshinaga (2), H. Kamitakahara (2), F. Ishiguri (1), K. Iizuka (1), N. Yoshizawa (1). (1) Utsunomiya University, Utsunomiya, Tochigi, Japan; (2) Kyoto University, Kyoto, Japan

- 619-P Induced systemic resistance in maize. C. PLAN-CHAMP (1), D. Balmer (1), C. Robert (1), C. Zwahlen (1), B. Mauch-Mani (1). (1) University of Neuchatel, Neuchatel, Switzerland
- 620-P Electrophoretic profiles of peroxidases and polyphenol oxidases in jalapeño pepper plants inoculated with non-pathogenic rhizobacteria. A. GONZALEZ-FRANCO (1), L. Robles-Hernandez (1), E. Gonzalez-Gamez (1), E. Sanchez-Chavez (2). (1) Universidad Autonoma de Chihuahua, Chihuahua, Mexico; (2) Centro de Investigación en Alimentación y Desarrollo, A.C. Unidad Delicias, Ciudad Delicias, Mexico

Plant Defense Responses – Oomycetes

- 621-P Evidence that organ-specific modulation of R gene function is achieved through transcriptional regulation. J. M. BRADEEN (1), B. P. Millett (1), L. Gao (1), M. Iorizzo (2), D. Carputo (2). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) University of Naples Federico II, Portici, Italy
- 622-P Sublethal UV irradiation of *Arabidopsis thaliana* primes resistance to *Hyaloperonospora arabidopsidis*. S. J. MINTOFF (1), D. M. Cahill (2). (1) Deakin University, Victoria, Australia; (2) Deakin University, Waurm Ponds, Victoria, Australia
- 623-P Effect of volatile compounds produced by saprophytic fungi from the semi-arid northeast region of Brazil on *Phytophthora nicotianae* growth. D. C. REZENDE (1), D. F. Brandão (1), S. F. Pascholati (1). (1) Escola Superior de Agricultura Luiz de Queiroz, Universidade de São Paulo, Piracicaba, Brazil
- 624-P Eicosapolyenoic acid action in *Arabidopsis* and tomato: Novel PAMPs with reciprocal effects on plant defense signaling networks. S. M. Roberts (1), M. L. Bjornson (1), T. Savchenko (1), T. V. Roubtsova (1), M. F. Pye (1), T. Kasuga (2), C. Lazarus (3), K. Dehesh (1), R. M. BOSTOCK (1). (1) University of California, Davis, CA, U.S.A.; (2) USDA-ARS, University of California, Davis, CA, U.S.A.; (3) University of Bristol, Bristol, United Kingdom
- 625-P WITHDRAWN
- 626-P Examining normalized changes in the expression of selected genes in pea in response to infection by *Aphanomyces euteiches*. G. SAHA (1). (1) Department of Crop and Soil Sciences, Washington State University, Pullman, WA, U.S.A.

Plant Defense Responses – Viruses

- 627-P The *Tomato bushy stunt virus* coat protein elicits a hypersensitive response in *Nicotiana* species. C. A. ANGEL (1), J. E. Schoelz (1). (1) Division of Plant Sciences, University of Missouri, Columbia, MO, U.S.A.

PROFESSIONALISM/OUTREACH

Outreach and Engagement

- 628-P WITHDRAWN
- 629-P Proficiency test results summary for the 2011 National Plant Protection Laboratory Accreditation Program (NPPLAP) citrus greening (huanglongbing) detection assay. P. SHIEL (1), V. Mavrodieva (2), G. Dennis (1). (1) USDA APHIS PPQ CPHST, Raleigh, NC, U.S.A.; (2) USDA APHIS PPQ CPHST, Beltsville, MD, U.S.A.
- 630-P The poetry of phytopathology: Classical and modern verse inspired by plant disease. L. R. TRIPLETT (1). (1) Colorado State University, Fort Collins, CO, U.S.A.

Teaching and Learning

- 631-P Serological tests of transgenic crops learning module. M. C. HAYSLETT (1). (1) University of Wisconsin, Madison, WI, U.S.A.
- 632-P Plants vs. pathogens: *VEGEVADERS*—A game of infiltration and detection. B. E. Adams (1), J. P. LaFountain (1), C. W. Collmer (2), M. Lindeberg (3), A. COLLMER (3). (1) Wells College, Aurora, NY, U.S.A.; (2) Wells College, Ithaca, NY, U.S.A.; (3) Cornell University, Ithaca, NY, U.S.A.
- 633-P Protect U.S.—Engaging researchers, county faculty, and K-12 teachers in invasive species education. A. C. HODGES (1), S. T. Ratcliffe (2), M. A. Draper (3), S. D. Stocks (1). (1) University of Florida, Gainesville, FL, U.S.A.; (2) University of Illinois, Urbana, IL, U.S.A.; (3) USDA NIFA, Washington, DC, U.S.A.

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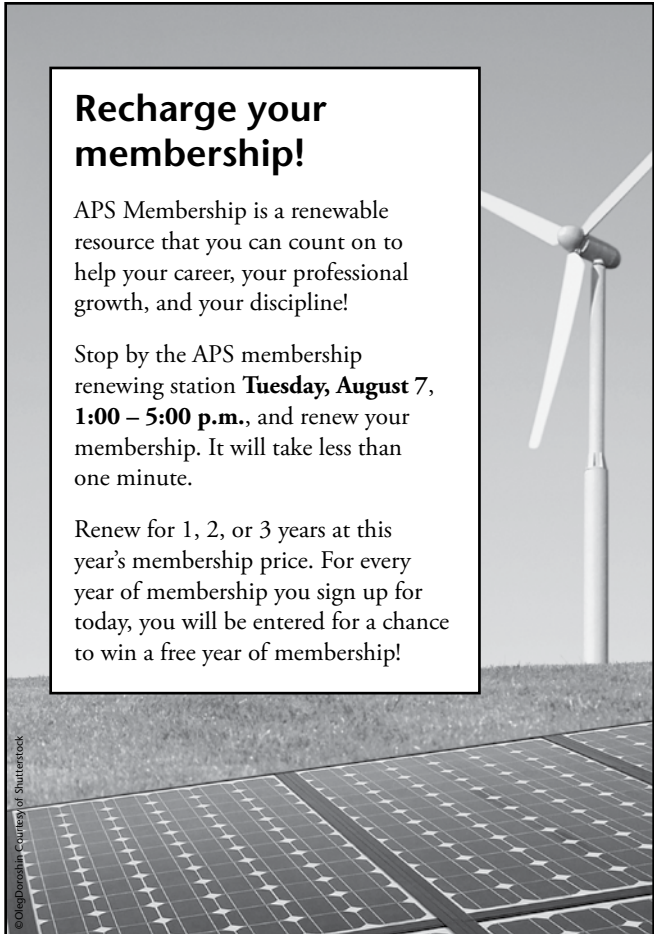


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The following 48 individuals received awards from the APS Foundation, totaling nearly \$32,000 given in 2012. Special thanks to all of the APS Foundation donors for making this support possible. The awardees will be recognized at the APS Annual Meeting during the Opening Session. Be sure to stop by the foundation's booth in Providence to help celebrate their 25th Anniversary and continue to create possibilities for plant pathology!

Browning Plant Medicine and Health Travel Award

Tara Wood, University of Nebraska-Lincoln

French-Monar Latin American Award

Gabriela Romero Estevez, University of Puerto Rico

Lucy Hastings de Gutiérrez Award for Excellence in Teaching

William W. Bockus, Kansas State University

Frank L. Howard Undergraduate Fellowship

Ana Ibarra, Hartnell College

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Vitaly Citovsky, SUNY at Stony Brook

12th I. E. Melhus Graduate Student Symposium

Mala Ganiger, Louisiana State University
Jonathan M. Jacobs, University of Wisconsin
Timothy Miles, Michigan State University
Imana Power, University of Georgia

Schroth Faces of the Future Early Career Professionals Symposium

Dawn R. Bignell, Memorial University
Leonardo De La Fuente, Auburn University
Wenbo Ma, University of California-Riverside
Lindsay R. Triplett, Colorado State University

Raymond J. Tarleton Student Fellowship

Cassandra L. Swett, University of California-Davis

Student Travel Awards

Elsie J. and Robert Aycok Student Travel Award

Christie V. Almeyda, Washington State University

José and Silvia Amador Student Travel Award

Ebrahim M. Babiker, Washington State University

Tsune Kosuge Student Travel Award

Vasileios Bitas, Penn State University

Robert W. Fulton Student Travel Award

Darlene Cabanas, University of Hawaii

The William Moller Award and The Joseph M. Ogawa Award

Luisa F. Castiblanco, Michigan State University

Arthur Kelman Student Travel Award

Yun Chen, Nanjing Agricultural University

The Larry W. Moore Award and The John F. Schafer Award

Luisa F. Cruz, Auburn University

H. David Thurston Student Travel Award

Washington L. Da Silva, Louisiana State University

The Myron K. Brakke Award and The Gustaaf A. and Ineke C. M. de Zoeten Award

Jill E. Demers, Penn State University

Stephen A. Johnston Student Travel Award

Amara R. Dunn, Cornell University

Malcolm C. Shurtleff Student Travel Award

Kathryn Fiedler, Virginia Tech

Virology Student Travel Award

Ana C. Fulladolsa, University of Wisconsin

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J. Artie and Arra Browning Student Travel Award

Martha Hincapie, University of Florida

Luis Sequeira Student Travel Award

Alejandra I. Huerta, University of Wisconsin

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Andrew Jurgens, University of Illinois

The Dennis Hall Award and The Eugene E. Saari Award

Emma Lookabaugh, North Carolina State University

Donald E. Munnecke Student Travel Award

Phillip A. Lujan, New Mexico State University

John S. Niederhauser Student Travel Award

Chakradhar Mattupalli, University of Wisconsin

The Harry E. Wheeler Award and Forest Pathology Award

Megan McConnell, University of Maryland

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Malcolm and Catherine Quigley Student Travel Award

Roslyn Noar, North Carolina State University

The Kenneth and Betty Barker Award and The Stuart D. Lyda Award

Krishna D. Puri, North Dakota State University

Don E. Mathre Student Travel Award

Alamgir Rahman, Penn State University

The Eddie Echandi Award and The Richard Gabrielson Award

Anna C. Seidl, University of Wisconsin

Caribbean Division Student Travel Award

Jose Pablo Soto-Arias, University of Wisconsin

Kenneth F. Baker and R. James Cook Student Travel Award

Carly F. Summers, Cornell University

The Zahir Eyal Award and The Efrat Gamliel-Atinsky Award

Belachew Asalf Tadesse, Norwegian University of Sci & Tech

Raymond G. Grogan Student Travel Award

Michelle Warr, Louisiana State University

APS Elected and Appointed Officers, Representatives, and Committees for 2012

These listings reflect current appointments as of May 1, 2012. For up-to-date listings following the annual meeting, please refer to APSnet.

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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. To-

gether with lighting and temperature control, we create environments ideal for your research needs. Please stop by our booth and pick up our latest information.

106 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. Microbial biopesticides may include a pathogen or parasite that infects the target. Alternatively, they might act as competitors or inducers of plant host resistance. Biochemical biopesticides can also act through a variety of mechanisms. Some act by inhibiting the growth, feeding, development or reproduction of a pest or pathogen. Still other biopesticides may be used to form a barrier on the host, so as to act as a feeding or infection inhibitor. 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.

400/501 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; Web: www.eurofinsus.com/stalabs/products-services-bioreba-ag.html.
Eurofins STA Laboratories and BIOREBA AG are partners in providing agrodiagnostic 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.

102 British Society for Plant Pathology (The)

Marlborough House, Basingstoke Road, Reading RG7 1AG, 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.

303 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.

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- 100/201 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.
- 505 Environmental Growth Chambers**
510 East Washington Street, Chagrin Falls, OH 44022; Phone: 1.800.321.6854; Fax: +1.440.247.8710; Web: www.egc.com. Environmental Growth Chambers has the largest selection of plant growth chambers, lighted and refrigerated biological incubators, shelf-lighted rooms, gas exchange chambers, day-lit chambers, and root zone cabinets. Environmental Growth Chambers is proud to be celebrating our 60th Anniversary. Plan to stop by and discuss your requirements.
- 305 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. Use ARM to establish, manage, analyze, and report information for crop experiments, including field and greenhouse protocols and trials. Use Summary Across Trials to summarize and report a trial series across locations and/or years; links with ARM Trial Database to select trials based on information in any trial data entry field. Use

Psion Workabout Pro with Enhanced Rating Shell to enter trial assessments and descriptions into Excel worksheet and then pull data into ARM on a PC.

- 402 LemnaTec**
18 Schumanstr., Wuerselen 52416, Germany; Phone: +49 2405 4126 12; Fax: +49 2405 4126 26; Web: www.lemnatec.com. LemnaTec’s team of scientists develops hard- and software solutions for plant phenomics; high-throughput and high-content screening of plants, seedlings, insects, and other organisms; and the automated evaluation of bio tests in ecotoxicology. Digital images are primarily taken by the Scanalyzer systems PL, HTS, and 3D, all set up in a modular design. Using advanced LemnaTec image-processing algorithms, every visible parameter (e.g., color, shape, size, and architecture) is subsequently measured and correlated with experimental records (e.g., genetic data). Our aim is to visualize and analyze the biology beyond human vision.
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- 404 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*.

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410 The Samuel Roberts Noble Foundation, Inc.
 PO Box 2180, Ardmore, OK 73402;
 Phone +1.580.224.6230 or 1.866.223.5810;
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 Web: www.noble.org
 The Samuel Roberts Noble Foundation, headquartered in Ardmore, OK, is an independent, nonprofit institute conducting plant science research and agricultural programs. Its mission is to enhance agricultural productivity, which influences agriculture regionally, nationally and internationally. Founded in 1945, the Noble Foundation now has 400 employees, representing more than 29 countries.

307 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.

405 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.

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