DAILY MEETING SCHEDULE, HIGHLIGHTS, AND SESSIONS
Registration, exhibits, and sessions take place at the Oregon Convention Center unless otherwise noted by the room name or number.

FRIDAY, JULY 31

8:00 a.m. departs	**Field Trip:** Tree Fruit Diseases *(through Saturday, August 1st)*	
9:00 – 10:00 a.m.	APS Councilors Forum Meeting	Bellmont B, Crowne Plaza
10:00 a.m. – 5:00 p.m.	APS Council Meeting	Bellmont A, Crowne Plaza

FRIDAY HIGHLIGHTS

FIELD TRIP
Tree Fruit Diseases – Two-Day Trip
8:00 a.m. July 31 departure – 4:00 p.m. August 1 return
Sponsoring Committees: Chemical; Postharvest
Organizers: Chang-Lin Xiao, Washington State University, Wenatchee, WA, U.S.A; Alex Cochran, Syngenta Crop Protection, Granite Bay, CA, U.S.A.; Robert Spotts, Mid-Columbia Agric Res & Ext Center, Hood River, OR, U.S.A.

Participants will explore a tree fruit orchard and packinghouse in Yakima, WA, and Hood River, OR. In Yakima the group will visit apple, pear, and cherry orchards and packinghouses. This part of the tour will be hosted by Chang-Lin Xiao, Washington State University. The group will stay in Yakima the first night and continue the field trip on Saturday by going to Hood River. In Hood River the group will visit orchards and packinghouses and return to Portland in the afternoon. This part of the tour will be hosted by Robert Spotts, Oregon State University. Presentations from various researchers from the Northwest will also be included.

SATURDAY, AUGUST 1

8:00 a.m. – 12:00 p.m.	APS Leadership Forum, *by invitation*	Bellmont B-C, Crowne Plaza
8:00 a.m. – 5:00 p.m.	**Field Trip:** Forest Pathology	
8:00 a.m. – 5:00 p.m.	**Field Trip:** Ornamental Plant Disease	
12:00 – 3:30 p.m.	APS PRESS Board Meeting	E147
1:00 – 3:00 p.m.	**Workshop:** *Preparing for a Job Interview in the Private, Academic, and Government Sectors of Plant Pathology*	D135
1:00 – 4:00 p.m.	APS Placement	A103
1:00 – 5:00 p.m.	Office of International Programs (OIP) Board Meeting	D140
1:00 – 5:00 p.m.	**Workshop:** *A Statistical Workshop on Linear Regression*	E146
1:30 – 3:00 p.m.	APS Advisory Committee on Plant Biosecurity Meeting	D134
2:00 – 6:00 p.m.	Registration	Exhibit Hall A Foyer
3:00 – 4:00 p.m.	Committee Chair/Vice Chair Orientation	F150
3:00 – 4:00 p.m.	Scientific Program Board (SPB)/Section Chairs Meeting	C126
3:30 – 6:00 p.m.	Publications Board Meeting	E147
4:00 – 5:00 p.m.	Program Planning Orientation	F150
4:00 – 5:30 p.m.	*PDMR* Editors' Meeting	D138
4:00 – 6:00 p.m.	Microbial Forensics Interest Group	D139
4:30 – 5:30 p.m.	First Timers' Orientation	F151-152
5:30 – 7:00 p.m.	**Committee Meetings**	
	-Awards & Honors Committee, *by invitation*	D131
	-Early Career Professionals Committee	D132
	-Epidemiology Committee	E148
	-Extension Committee	F149
	-Graduate Student Committee	F150
	-Industry Committee	E141-142
	-Mycology Committee	E146
	-Mycotoxicology Committee	E145
	-Nematology Committee	D133
	-Seed Pathology Committee	D136

	-Soil Microbiology and Root Diseases Committee	D135
	-Turfgrass Pathology Committee	D137
	-Virology Committee	E143-144
7:00 – 8:30 p.m.	**Committee Meetings**	
	-Bacteriology Committee	D131
	-Biological Control Committee	D132
	-Chemical Control Committee	E148
	-Crop Loss Assessment & Risk Evaluation Committee (CARE)	F151
	-Emerging Pathogens and Diseases Committee	E147
	-Forest Pathology Committee	F152
	-Genetics Committee	E145
	-Host Resistance Committee	D135
	-Molecular and Cellular Phytopathology Committee	F150
	-*Plant Disease Management Reports* (*PDMR*) Board	F149
	-Plant Pathogen and Disease Detection Committee	E146
	-Teaching Committee	D136
8:30 – 10:00 p.m.	**Committee Meetings**	
	-Biotechnology Committee	E146
	-Collections and Germplasm Committee	E148
	-Diagnostics Committee	E145
	-Diseases of Ornamental Plants Committee	D136
	-Integrated Plant Disease Management Committee	D137
	-Joint Committee of Women in Plant Pathology & Cultural Diversity	F150
	-Pathogen Resistance Committee	E143-144
	-Phyllosphere Microbiology Committee	E141-142
	-Postharvest Pathology Committee	F151
	-Regulatory Plant Pathology Committee	F149
	-Tropical Plant Pathology Committee	F152

SATURDAY HIGHLIGHTS

FIELD TRIPS

Forest Pathology Field Trip
8:00 a.m. – 5:00 p.m.
Sponsoring Committee: Forest Pathology
Organizer: Ellen Goheen, USDA Forest Service, Forest Health Protection, Medford, OR, U.S.A.

This field trip includes stops to observe major tree pathogens of northern Oregon forest ecosystems and discussion on their ecology and management. Features will include the health of whitebark pine in high elevation forests, laminated root rot in Douglas-fir forests, and various diseases, including dwarf mistletoes, root diseases, and stem decays in eastside mixed conifer forests.

Ornamental Plant Disease Field Trip
8:00 a.m. – 5:00 p.m.
Sponsoring Committees: Ornamental Plant Diseases; Regulatory
Organizers: David Norman, University of Florida, Apopka, FL, U.S.A.; Nancy Osterbauer, Oregon Department of Agriculture, Salem, OR, U.S.A.

This year's Ornamental Plant Disease Field Trip highlights nurseries that show the diversity of plant production in Oregon. Representatives from each production facility will speak on disease problems they encounter in the Northwest.

WORKSHOPS

Preparing for a Job Interview in the Private, Academic, and Government Sectors of Plant Pathology
1:00 – 3:00 p.m.; D135
Sponsoring Committee: Early Career Professionals
Organizer: Lyndon Porter, USDA-ARS, Prosser, WA, U.S.A.

This workshop focuses on the following: 1) preparing for an interview, what you should know and do, 2) how to interview, what to do and not to do, 3) application and interview experiences from early career professionals who recently obtained jobs, and 4) discussion panel of people who frequently conduct job interviews from the government, private, and academic sectors. This workshop is appropriate for early career professionals and graduate students.

A Statistical Workshop on Linear Regression
1:00 – 5:00 p.m.; E146
Sponsoring Committee: Epidemiology
Organizer: Larry Madden, Ohio State University, Wooster, OH, U.S.A.

This workshop teaches the basic methods of linear regression analysis. Emphasis is placed on utilization of SAS statistical software to fit models to data, diagnose the appropriateness of the chosen models, and assess the reasonableness of implicit statistical assumptions. Special emphasis is placed on utilization of the Output Delivery System of SAS to prepare graphs of key results. Participants will learn how to use robust regression modeling to deal with data with outliers or when assumptions about normality are not reasonable. Other specialized methods (and corresponding SAS computer code) will be introduced, such as logistic regression for binary data, quantile regression for analysis of heterogeneous data, where the tails of the distributions have a different relationship with a predictor than does the mean of the response variable; and penalized splines and other smoothing models, for when there is no simple or obvious functional relationship between a response variable and a predictor. Participants should bring a laptop with SAS (9.1 or later) installed.

ORIENTATION SESSIONS

APS Committee Chair/Vice-Chair Orientation
3:00 – 4:00 p.m.; F150
This session is a requirement for all current APS committee chairs/vice-chairs. An update on APS initiatives will be provided by APS Past President Ray Martyn, followed by detailed instructions on processes for taking action on committee issues and procedural logistics for chairs and vice-chairs by Senior Councilor-at-Large Gary Moorman and Intermediate Councilor-at-Large Michael Boehm. Packets with committee rosters and the Committee Annual Report Form will be provided for each chair. APS committee chairs not able to attend should have a replacement participate in their absence.

APS Program Planning Orientation
4:00 – 5:00 p.m.; F150
Join the Annual Meeting Program Planning Committee to learn what steps are needed to host a special session in 2010 and beyond. This session will discuss how to submit a session proposal and how the planning process works.

First Timers' Orientation
4:30 – 5:30 p.m.; F151-152
Is this your first APS Annual Meeting? Not sure how to get started? Join other first-time meeting attendees at this interactive orientation, where you'll have the opportunity to meet your colleagues and learn about all aspects of the meeting, as well as APS, in an informational setting. APS leaders will be on hand to provide helpful hints and suggestions on how to make the most of your meeting experience.

SUNDAY, AUGUST 2

7:00 – 8:30 a.m.	APS Auxiliary Meetings Board Meeting	Windsor A, Crown Plaza
7:00 – 9:00 a.m.	APS*net* Education Center Editorial Board Meeting	D137
7:00 – 9:00 a.m.	Vegetable Extension & Research Plant Pathologists Breakfast, *by invitation*	F150
7:00 a.m. – 4:00 p.m.	Concession service available	Exhibit Hall A
7:00 a.m. – 6:30 p.m.	Registration	Exhibit Hall A Foyer
7:30 – 8:30 a.m.	APS *Phytopathology* Senior Editors' Meeting	E143-144

7:30 – 8:30 a.m.	APS *Plant Disease* Senior Editors' Meeting	E145
8:00 – 8:30 a.m.	Moderator Orientation	F151-152
8:00 a.m. – 3:00 p.m.	Exhibitor Set-up	Exhibit Hall A
8:30 – 9:00 a.m.	APS *Phytopathology* Editorial Board Meeting	E143-144
8:30 – 9:00 a.m.	APS *Plant Disease* Editorial Board Meeting	E145
9:00 – 11:45 a.m.	**Plenary Session**: **"Achieving Scientific Excellence in Our New Environment"**	Oregon Ballroom 201-202
9:00 a.m. – 12:00 p.m.	Ornamental Virus Discussion Group	E141-142
9:00 a.m. – 4:00 p.m.	APS Placement	A103
10:00 a.m. – 2:00 p.m.	Poster Set-up	Exhibit Hall A
11:45 a.m. – 1:00 p.m.	Lunch Break *Concession service available*	
11:45 a.m. – 2:30 p.m.	APS PMN Oversight Committee Meeting, *by invitation*	D134
12:00 – 1:00 p.m.	ARS Meeting	F152
12:00 – 1:30 p.m.	Journals Senior Editors Luncheon, *by invitation*	F149
12:00 – 2:00 p.m.	Division Officers Luncheon, *by invitation*	D137
12:00 – 6:00 p.m.	APS-OIP Silent Auction	Exhibit Hall A Foyer
12:30 – 4:00 p.m.	Office of Electronic Communication (OEC) Board Meeting	D140
	Oral Technical Sessions	
1:00 – 3:30 p.m.	● Biological Control	C124
1:00 – 4:00 p.m.	● Host Resistance	A106
1:00 – 4:00 p.m.	● Molecular Biology – Fungi	C123
1:00 – 4:00 p.m.	● Quantitative Epidemiology	C120-122
	Special Sessions	
1:00 – 3:30 p.m.	● Coordinated Regulation of Fungal Development and Secondary Metabolism during Pathogenesis	B110-112
1:00 – 3:30 p.m.	● Methyl Bromide Alternatives Research: Plant Pathology Outcomes	A105
1:00 – 3:30 p.m.	● "New" Nuances in Virus-Vector Biology	B113-114
1:00 – 3:30 p.m.	● Prepare for your Future Career Opportunities After Graduate School: Option 1 – Industry	A107-109
1:00 – 3:30 p.m.	● Quorum Sensing and Biofilm Formation in Plant-Associated Bacteria	B115-116
1:00 – 4:00 p.m.	● Forensic Plant Pathology: Science in the Courtroom	B117-119
2:30 – 4:00 p.m.	*Plant Health Progress* Editorial Board Meeting, *by invitation*	D134
4:30 – 6:30 p.m.	APS PRESS Bookstore	Exhibit Hall A
4:30 – 6:30 p.m.	**Welcome Reception – with Exhibition, Posters and University Alumni Socials** *Cornell University* *Old West Trails* *OSU-Buckeyes, Beavers, & Cowboys* *Penn State* *Purdue, Illinois, & Iowa State* *Texas A&M University* *University of Florida* *University of Georgia* *University of Minnesota* *University of Wisconsin* *Washington State University*	Exhibit Hall A
5:00 – 6:00 p.m.	APS PRESS Book Signing Event for *Diseases of Herbaceous Perennials*	Exhibit Hall A
6:30 – 8:30 p.m.	Joint Committee of Women in Plant Pathology & Cultural Diversity Social	F151
6:30 – 10:30 p.m.	Industry & Extension Social (*buses will begin loading at the side entrance of the Convention Center at 6:30 p.m., with departure at 6:45 p.m.*)	Crystal Springs Rhododendron Garden

SUNDAY HIGHLIGHTS

Vegetable Extension & Research Plant Pathologists Breakfast
7:00 – 9:00 a.m.; F150
Sponsored by the vegetable seed industry, this annual event promotes the sharing of ideas on seed health and expounds on the phytosanitary needs of the vegetable seed industry. *This event is by invitation only.*

5th Annual APS-OIP Silent Auction: Connecting Knowledge with a Growing World
12:00 – 6:00 p.m.; Exhibit Hall A Foyer
Bidding closes at 6 p.m. Help build international relationships and support OIP's new Global Experience program by bidding on unique items from around the world.

Welcome Reception with Exhibition, Posters, and University Alumni Socials
4:30 – 6:30 p.m.; Exhibit Hall A
Kick off your 2009 APS Annual Meeting experience by attending the Welcome Reception and University Alumni Socials. Network, visit the exhibits, and bid on APS-OIP Silent Auction items while enjoying food and drinks. Make sure to look for your fellow alumni at designated areas. *This reception is included in the registration fee. See the daily schedule for a list of participating universities.*

Joint Committee of Women in Plant Pathology and Cultural Diversity Social
6:30 – 8:30 p.m.; F151
Celebrate cultural diversity in plant pathology! Hors d'oeuvres and beverages will be served and raffle prizes will be drawn. *Advanced ticket purchase required.*

Industry & Extension Social
6:30 – 10:30 p.m.; Crystal Springs Rhododendron Garden
6:30 p.m. Buses loading at the side entrance of the Convention Center
6:45 p.m. Departure

Upon arriving at the seven acre Crystal Springs Rhododendron Garden, participants will explore nature and wildlife, including 2,500 rhododendrons, azaleas, and companion plants, along with many species of birds and waterfowl. Take a break and enjoy a gourmet dinner buffet and drinks while networking with industry colleagues and peers. *Advanced ticket purchase required. Buses will return attendees to the Oregon Convention Center at the end of the event.*

SPECIAL SESSIONS – SUNDAY AFTERNOON
Listed in alphabetical order by title.

Coordinated Regulation of Fungal Development and Secondary Metabolism during Pathogenesis
1:00 – 3:30 p.m.; B110-112
Section: Biology of Pathogens
Organizers: Won-Bo Shim, Texas A&M University, College Station, TX, U.S.A.; Burt Bluhm, University of Arkansas, Fayetteville, AR, U.S.A.
Moderator: Won-Bo Shim, Texas A&M University, College Station, TX, U.S.A.
Sponsoring Committees: Mycotoxicology; Molecular & Cellular Phytopathology

Recently, a clearer understanding has begun to emerge regarding fungal development in the context of plant colonization. Specifically, exciting new information on fungal morphogenesis and secondary metabolism during pathogenesis has come to light. Accumulating evidence also suggests that host and environmental factors play important roles in the regulation. This session will highlight the current state of knowledge in this complex area of investigation.

1:00 p.m. S-1. Aspects of habitat important to *Fusarium verticillioides* during pathogenesis of maize kernels. C. WOLOSHUK (1). (1) Purdue University, West Lafayette, IN, U.S.A
1:30 p.m. S-2. Regulation of morphogenesis, secondary metabolism, and pathogenicity by the VeA system in *Aspergillus* and *Fusarium* species. A. CALVO (1). (1) Northern Illinois University, DeKalb, IL, U.S.A.
2:00 p.m. S-3. Elicitors to toxins: Plant interactions with *Trichoderma virens*. C. KENERLEY (1). (1) Texas A&M University, College Station, TX, U.S.A.

2:30 p.m. S-4. Bioprotective secondary metabolites from fungal endophytes of cool season grasses. C. YOUNG (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.
3:00 p.m. S-5. Light and pathogenesis among *Cercospora*: Evidence for coordinated responses to photoperiod? B. BLUHM (1). (1) University of Arkansas, Fayetteville, AR, U.S.A.

Forensic Plant Pathology: Science in the Courtroom
1:00 – 4:00 p.m.; B117-119
Section: Epidemiology/Ecology/Environmental Biology
Organizers: Forrest Nutter, Jr., Iowa State University, Ames, IA, U.S.A.; Jacqueline Fletcher, Oklahoma State University, Stillwater, OK, U.S.A.; Carla Thomas, University of California, Davis, CA, U.S.A.
Moderators: Forrest Nutter, Jr., Iowa State University, Ames, IA, U.S.A.; Jacqueline Fletcher, Oklahoma State University, Stillwater, OK, U.S.A.
Sponsoring Committees: Epidemiology and the Plant Pathogen Forensics Interest Group; Crop Loss and Risk Evaluation

The emerging field of microbial forensics is focused on the tracing and attribution of criminal activities involving microbes. An important component of the field is the new sub-discipline of forensic plant pathology. Speakers will define and address the goals and objectives of this field, describe exciting new technological tools for its practice, discuss the potential roles and contributions of plant pathologists in it, and lead audience members through its application in a plant disease case study.

1:00 p.m. Introduction
1:30 p.m. S-6. Critical issues in determining if disease outbreaks were deliberate attacks on U.S. agriculture. J. FLETCHER (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
2:00 p.m. S-7. Engaging plant pathologists to meet law enforcement needs. B. BUDOWLE (1). (1) FBI, DOJ, Quantico, VA, U.S.A.
2:30 p.m. S-8. Role of imagery, spatial pattern analyses, and sampling in plant pathogen forensics. F. W. NUTTER, JR. (1). (1) Iowa State University, Ames, IA, U.S.A.
3:00 p.m. S-9. New molecular tools for microbial forensics investigations. J. BURANS (1). (1) NBFC, DHS, Frederick, MD, U.S.A.
3:30 p.m. S-10. Forensics in the trenches: Learning through exercises. C. THOMAS (1). (1) University of California-Davis, CA, U.S.A.

Methyl Bromide Alternatives Research: Plant Pathology Outcomes
1:00 – 3:30 p.m; A105
Section: Plant Disease Management
Organizer: Frank Louws, North Carolina State University, Raleigh, NC, U.S.A.
Moderator: Carla Garzon, Oklahoma State University, Stillwater, OK, U.S.A.
Sponsoring Committee: Soil Microbiology and Root Diseases

Methyl bromide has been an important tool to manage soilborne pathogens in high-value specialty crops. Integrated research and extension programs were implemented to enable the industry to transition to alternative chemicals and alternative management practices. This session will provide an overview on the current status of changing trends in atmospheric methyl bromide levels. The session will also educate attendees about the current status of the main chemical alternatives and methods of applications that have emerged and about significant advances in developing and extending discovery research on soil microbial ecology and the biology, etiology, ecology, and management of soilborne pathogens.

1:00 p.m. S-11. The ozone hole: Anthropogenic sources of methyl bromide and recent data on atmospheric methyl bromide levels. J. BUTLER (1), S. Montzka (1). (1) National Oceanic and Atmospheric Administration, Boulder, CO, U.S.A.
1:30 p.m. S-12. Current status of chemical alternative technologies for managing soilborne diseases. J. NOLING (1). (1) University of Florida, Lake Alfred, FL, U.S.A.
2:00 p.m. S-13. Towards reduced dependence on fumigants for management of PruInus replant problems: Opportunities and challenges. G. BROWNE (1). (1) USDA-ARS, University of California-Davis, CA, U.S.A.
2:30 p.m. S-14. Development of a regional transitions program: From discovery research to extension in strawberry production. F. LOUWS (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
3:00 p.m. S-15. Advances in microbial ecology and farming systems as a replacement for methyl bromide to manage soilborne diseases. D. CHELLEMI (1). (1) USDA ARS, Ft. Pierce, FL, U.S.A.

"New" Nuances in Virus-Vector Biology
1:00 – 3:30 p.m.; B113-114
Section: Biology of Pathogens
Organizers/Moderators: Anna Whitfield, Kansas State University, Manhattan, KS, U.S.A.; Judith Brown, University of Arizona, Tucson, AZ, U.S.A.
Sponsoring Committee: Virology

With the development of genomic and proteomic technologies, scientists are beginning to uncover the viral and vector proteins that are required for virus transmission by arthropods. This session will highlight new developments in our understanding of the molecular interactions between plant viruses and their vectors.

1:00 p.m. S-16. Elucidating the functional role of the *Crinivirus* capsid protein(s) in mediating semi-persistent transmission by whitefly vectors. J. NG (1). (1) University of California, Riverside, CA, U.S.A.
1:30 p.m. S-17. -Omics for exploring whitefly-*Begomovirus* interactions. J. BROWN (1). (1) University of Arizona, Tucson, AZ, U.S.A.
2:00 p.m. S-18. Vector and virus proteins contributing to the regulation of *Yellow dwarf virus* (Luteoviridae) transmission by aphids. F. GILDOW (1), S. Gray (2). (1) Penn State, University Park, PA, U.S.A.; (2) USDA-ARS, Cornell University, Ithaca, NY, U.S.A.
2:30 p.m. S-19. Exploiting vector specificity to inhibit *Tospovirus* transmission. T. GERMAN (1). (1) University of Wisconsin, Madison, WI, U.S.A.
3:00 p.m. S-20. Molecular and cellular interactions between rhabdoviruses and their insect hosts. A. WHITFIELD (1). (1) Kansas State University, Manhattan, KS, U.S.A.

Prepare for Your Future: Career Opportunities After Graduate School: Option 1 – Industry
1:00 – 3:30 p.m.; A107-109
Section: Professionalism/Outreach
Organizers: Paul Kuhn, Syngenta Crop Protection, Inc., Vero Beach, FL, U.S.A.; Heather Olson, North Carolina State University, Raleigh, NC, U.S.A.; Lorianne Fought, Bayer CropScience LP, Fresno, CA, U.S.A.; Courtney Gallup, North Carolina State University, Raleigh, NC, U.S.A.
Moderators: Heather Olson, North Carolina State University, Raleigh, NC, U.S.A.; James Frank, Private Consultant, Temecula, CA, U.S.A.
Sponsoring Committees: Graduate Student; Industry

This session will inform graduate students about careers for plant pathologists in the private sector. The session will open by exploring some popular misconceptions about working in industry. Speakers will explore the breadth of opportunities available and discuss the skills needed to obtain your first position and to develop your career. Later symposia in this series will focus on careers in academic and government sectors.

1:00 p.m. S-21. Dispelling the myths of working in industry. P. KUHN (1). (1) Syngenta Crop Protection, Inc., Vero Beach, FL, U.S.A.
1:15 p.m. S-22. Acquiring the skills to get the job you want. B. OLSON (1). (1) Dow AgroSciences LLC, Indianapolis, IN, U.S.A.
1:30 p.m. S-23. Putting it together – Getting the job you want with the right resume. R. KAISER (1). (1) Valent BioSciences Corp., Libertyville, IL, U.S.A.
2:00 p.m. S-24. A year in the life of a field scientist. R. BOUNDS (1). (1) Syngenta Crop Protection, Visalia, CA, U.S.A.
2:15 p.m. S-25. A year in the life of an agricultural consultant. C. BECKER (1). (1) BAAR Scientific LLC, Romulus, NY, U.S.A.
2:30 p.m. S-26. Pathology roles in disease resistance discovery and implementation. P. HIMMEL (1). (1) Seminis Vegetable Seeds, a division of Monsanto, Woodland, CA, U.S.A.
2:45 p.m. S-27. Developing your career in industry. L. FOUGHT (1). (1) Bayer CropScience LP, Fresno, CA, U.S.A.
3:15 p.m. Discussion

Quorum Sensing and Biofilm Formation in Plant-Associated Bacteria
1:00 – 3:30 p.m.; B115-116
Section: Biology of Pathogens
Organizers: Caroline Roper, University of Connecticut, Storrs, CT, U.S.A.; Susanne von Bodman, University of Connecticut, Storrs, CT, U.S.A.

Moderator: Caroline Roper, University of Connecticut, Storrs, CT, U.S.A.
Sponsoring Committee: Bacteriology

The concept of bacterial multicellularity or social behavior is at the forefront of modern microbiology. Bacteria communicate with one another via self-produced small molecules often called autoinducers. Perception of these small molecules allows bacteria to mount a coordinated response in a population density-dependent manner. This phenomenon is known as quorum sensing (QS). Recent advances have shown that QS can occur in organized microbial communities called biofilms. Biofilms are often associated with chronic infections. Understanding the molecular mechanisms that mediate biofilm formation and the bacterial signaling that goes on inside a microbial biofilm is key in developing successful disease management strategies for bacterial plant pathogens.

1:00 p.m. S-28. Quorum sensing in the plant pathogenic bacteria: The *Pantoea stewartii* paradigm. S. VON BODMAN (1). (1) University of Connecticut, Storrs, CT, U.S.A.
1:30 p.m. S-29. Polar attachment, a unipolar polysaccharide adhesin and cellular asymmetry determinants of *Agrobacterium tumefaciens*. C. FUQUA (1). (1) Indiana University, Bloomington, IN, U.S.A.
2:00 p.m. S-30. The role of quorum sensing and phenazine antibiotics in biofilm formation by *Pseudomonas chlororaphis 30-84*. E. PIERSON (1). (1) University of Arizona, Tucson, AZ, U.S.A.
2:30 p.m. S-31. Plant factors and other bacterial residents modulate iron levels on leaves thereby influencing quorum sensing controlled epiphytic fitness and virulence in *Pseudomonas syringae*. S. LINDOW (1). (1) University of California, Berkeley, CA, U.S.A.
3:00 p.m. S-32. DSF signaling and biofilm formation in *Xanthomonas campestris*. M. DOW (1), M. R. Marano (2), A. A. Vojnov (3). (1) University College Cork, Ireland; (2) University of Rosario, Argentina; (3) Fundacion Pablo Cassara, Buenos Aires, Argentina

ORAL TECHNICAL SESSIONS – SUNDAY AFTERNOON
Listed in alphabetical order by title.

Biological Control
1:00 – 3:30 p.m.; C124
Section: Plant Disease Management
Moderators: Kenneth Damann, Louisiana State University, Baton Rouge, LA, U.S.A.; Joe Nunez, University of California Coop Ext, Bakersfield, CA, U.S.A.

1:00 p.m. O-1. Field assessment of non-toxigenic *Aspergillus flavus* strain K49 in competitive displacement of toxigenic isolates. H. K. ABBAS (1), R. M. Zablotowicz (2), H. A. Bruns (3), C. A. Abel (4), M. A. Weaver (2). (1) USDA ARS CG&PRU, Stoneville, MS, U.S.A.; (2) Southern Weed Science Research Unit, USDA-ARS, Stoneville, MS, U.S.A.; (3) Crop Genetic and Production Research Unit, USDA-ARS, Stoneville, MS, U.S.A.; (4) Southern Insect Management Research Unit, USDA-ARS, Stoneville, MS, U.S.A.
1:15 p.m. O-2. Biological control of aflatoxin contamination using non-toxigenic *Aspergillus flavus.* K. E. DAMANN (1), C. Huang (1), A. Jha (1), R. Sweany (1), C. DeRobertis (1). (1) Louisiana State University, Baton Rouge, LA, U.S.A.
1:30 p.m. O-3. Biological control of take-all disease of wheat by *Pseudomonas fluorensce.* M. YANG (1), Y. Fu (2), X. Feng (2), J. Guo (2). (1) Nanjing Agriculture University, Nanjing, PRC Peoples Rep of China; (2) Department of Plant Pathology, College of Plant Protection, Nanjing Agricultural University, Key Laboratory of Monitoring and Management of Crop Diseases and Pest Insects, Ministry of Agriculture, Nanjing, China
1:45 p.m. O-4. Efficacy of natural plant products on the control of aggregate sheath spot of rice. P. CHAIJUCKAM (1), R. M. Davis (1). (1) University of California-Davis, CA, U.S.A.
2:00 p.m. O-5. Biocontrol of Sclerotinia stem rot of canola using *Pseudomonas fluorescens* and *Bacillus subtilis*, S. Mansouripour (1), A. ALIZADEH (1), N. Safaie (1). (1) Tarbiat Modares University, Tehran, Iran
2:15 p.m. O-6. Management of diseases in vegetable crops by using *Trichoderma* and *Pseudomonas*. N. KAUSHIK (1). (1) TERI, New Delhi, India
2:30 p.m. BREAK
2:45 p.m. O-7. Biological control of Ralstonia wilt in tomato. T. Yang (1), Q. XUE (2), W. Zhang (1), H. Liu (1), J. Guo (1). (1) Department of Plant Pathology, College of Plant Protection, Nanjing Agricultural University, Key Laboratory of Monitoring and Management of Crop Diseases and Pest Insects, Ministry of Agriculture, Nanjing, China; (2) Nanjing Agricultural University, Nanjing, PRC Peoples Republic of China

3:00 p.m. O-8. Extracts of *Ascophyllum nodosum* induce systemic disease resistance in *Arabidopsis thaliana* and enhance disease resistance in several vegetable crops. S. Subramanian (1), G. Brust (2), J. Jayaraman (3), R. E. ROSS (4), B. Prithiviraj (1). (1) Nova Scotia Agricultural College, Truro, NS, Canada; (2) University of Maryland, Upper Marlboro, MD, U.S.A.; (3) Simon Fraser University, Burnaby, BC, Canada; (4) Acadian Sea Plants LLC, Dartmouth, NS, Canada

3:15 p.m. O-9. Evaluation of alternative nematicides for the control of root-knot nematodes in a commercial carrot field. J. NUNEZ (1). (1) University of California Coop Ext, Bakersfield, CA, U.S.A.

Host Resistance
1:00 – 4:00 p.m.; A106
Section: Plant Disease Management
Moderators: Gilda Rauscher, USDA ARS, Salinas, CA, U.S.A.; Christopher Ridout, The British Society for Plant Pathology, Reading, United Kingdom

1:00 p.m. O-10. Quantitative trait loci associated with seedling and adult-plant resistance to oat crown rust caused by *Puccinia coronata.* M. ACEVEDO (1), E. W. Jackson (1), J. Chong (2), H. W. Rines (3), A. Bateman (1), J. Bonman (1). (1) USDA-ARS Small Grains and Potato Germplasm Research Unit, Aberdeen, ID, U.S.A.; (2) Cereal Research Centre, Agriculture and Agri-Food Canada, Winnipeg, MB, Canada; (3) USDA-ARS, Department of Agronomy and Plant Genetics, University of Minnesota, St. Paul, MN, U.S.A.

1:15 p.m. O-11. QTL mapping of resistance to powdery mildew in lettuce. G. RAUSCHER (1), R. Hayes (1), I. Simko (1). (1) USDA-ARS, Salinas, CA, U.S.A.

1:30 p.m. O-12. Development of multiplex SNP assays for multiple disease resistance in tomato. A. SHI (1), R. Vierling (2), R. Grazzini (3). (1) Indiana Crop Improvement Association, Lafayette, IN, U.S.A.; (2) Indiana Crop Improvement Association and Department of Agronomy, Purdue University, West Lafayette, IN, U.S.A.; (3) GardenGenetics LLC, Bellefonte, PA, U.S.A.

1:45 p.m. O-13. Resources for fast-forward R gene mapping and isolation in the genus *Solanum.* J. M. Bradeen (1), H. MANN (1), E. A. Quirin (1). (1) University of Minnesota, St. Paul, MN, U.S.A.

2:00 p.m. O-14. Genome wide association mapping of resistance to common root in barley breeding germplasm from the Upper Midwest of U.S.A. S. GYAWALI (1), R. Horsley (1), K. P. Smith (2), B. Cooper (3), S. Chao (4), S. Neate (1). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) University of Minnesota, St. Paul, MN, U.S.A.; (3) Busch Agricultural Resources Inc. (BARI); (4) USDA-ARS Biosciences Research Lab

2:15 p.m. O-15. Evaluation of pattern recognition receptors for durable disease control in crops. C. RIDOUT (1), E. Sherwood (2), A. Rougon (2), S. Lacombe (2), C. Zipfel (2). (1) John Innes Centre, Norwich, United Kingdom; (2) The Sainsbury Laboratory, Norwich Research Park, Norwich, United Kingdom

2:30 p.m. BREAK

2:45 p.m. O-16. Identifying resistance genes for eyespot of wheat in *Aegilops longissima.* H. SHENG (1), T. D. Murray (1). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.

3:00 p.m. O-17. Combining rust resistance genes in snap beans for eastern Africa. M. A. PASTOR-CORRALES (1), C. Wasonga (2), P. Griffiths (2). (1) USDA ARS, Beltsville, MD, U.S.A.; (2) Cornell University, Geneva, NY, U.S.A.

3:15 p.m. O-18. Cisgenic approach to disease resistance in apple. C. GESSLER (1), T. Vanblaere (1), I. Szankowski (1), G. Broggini (1). (1) ETH-Zürich, Zurich, Switzerland

3:30 p.m. O-19. Resistance to *Cronartium ribicola* in whitebark pine – Family variation and effect of inoculum density. R. A. SNIEZKO (1), A. Kegley (1), R. Danchok (1), J. Hamlin (2), S. Long (1). (1) USDA FS/Dorena Genetic Resource Center, Cottage Grove, OR, U.S.A.; (2) USDA FS/Umpqua NF, Roseburg, OR, U.S.A.

3:45 p.m. O-20. Characterization and mapping of a gene component for durable leaf rust resistance in chromosome arm 7BL. S. A. HERRERA-FOESSEL (1), R. P. Singh (1), J. Huerta-Espino (2), E. S. Lagudah (3). (1) CIMMYT, Mexico D.F., Mexico; (2) INIFAP, Mexico D.F., Mexico; (3) CSIRO Industry, Clayton South, Australia

Molecular Biology – Fungi
1:00 – 4:00 p.m.; C123
Section: Molecular/Cellular/Plant-Microbe Interactions
Moderators: Harold Corby Kistler, University of Minnesota, St. Paul, MN, U.S.A.; Steven Klosterman, USDA ARS, Salinas, CA, U.S.A.

1:00 p.m. O-21. Comparison of protein profiles between light- and dark-grown *Cercospora kikuchii.* A. K. CHANDA (1), Z. Chen (1), R. W. Schneider (1). (1) Louisiana State University AgCenter, Baton Rouge, LA, U.S.A.

1:15 p.m. O-22. A soybean leucine-rich repeat receptor-like kinase regulates the response to infection with *Phytophothora sojae.* M. H. EL-HABBAK (1), A. Padmanaban (1), S. Ghabrial (1). (1) University of Kentucky, Lexington, KY, U.S.A.

1:30 p.m. O-23. Targeted lignin modification confers tolerance to fungal pathogens in alfalfa. S. UPPALAPATI (1), W. Li (1), I. Yasuhiro (1), L. W. Sumner (1), R. A. Dixon (1), K. S. Mysore (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

1:45 p.m. O-24. Corresponding metabolic reactions in host and pathogen modulate opposing functions of defense and virulence. B. Chanda (1), P. Dotson (2), S. Kentaro (1), Q. Gao (1), S. Kulshrestha (1), S. Venugopal (1), D. Navarre (2), A. Kachroo (1), L. Vaillancourt (1), P. KACHROO (1). (1) University of Kentucky, Lexington, KY, U.S.A.; (2) USDA-ARS, Prosser, WA, U.S.A.

2:00 p.m. O-25. Regulatory control of the *Fusarium graminearum* transcriptome in wheat and rice. J. Menke (1), Y. Dong (1), H. KISTLER (1). (1) University of Minnesota, St. Paul, MN, U.S.A.

2:15 p.m. O-26. Identification of lettuce genes differentially expressed in a *Verticillium dahliae*-lettuce interaction by suppression subtractive hybridization. S. J. KLOSTERMAN (1), A. Anchieta (1), K. Maruthachalam (2), R. J. Hayes (1), K. V. Subbarao (2). (1) USDA ARS, Salinas, CA, U.S.A.; (2) University of California-Davis, CA, U.S.A.

2:30 p.m. BREAK

2:45 p.m. O-27. *Fusarium* comparative genomics reveals genetic plasticity and pathogenicity development. L. MA (1). (1) Broad Institute, Cambridge, MA, U.S.A.

3:00 p.m. O-28. Root-expressed *Carica papaya* genes regulated by *Phytophthora palmivora*: A promising new system for comparative genomics of *Phytophthora*-plant interaction. B. PORTER (1), J. Zhu (2), D. Christopher (1). (1) University of Hawaii, Honolulu, HI, U.S.A.; (2) Hawaii Agriculture Research Center, Aiea, HI, U.S.A.

3:15 p.m. O-29. Development of a transformation system in the swainsonine-producing fungi, *Undifilum oxytropis.* S. MUKHERJEE (1), R. Creamer (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.

3:30 p.m. O-30. Understanding interactions between phytopathogenic *Phytophthora* effector IpiO and the host resistance protein RB. D. HALTERMAN (1), Y. Chen (2). (1) USDA/ARS, Madison, WI, U.S.A.; (2) University of Wisconsin-Madison, Madison, WI, U.S.A.

3:45 p.m. O-31. Another 'extracellular polysaccharide' functioning in plant defense: Role of structural DNA in border cell-mediated defense of the legume root tip. F. Wen (1), G. White (1), H. D. Van Etten (1), Z. Xiong (1), M. C. HAWES (1). (1) University of Arizona, Tucson, AZ, U.S.A.

Quantitative Epidemiology
1:00 – 4:00 p.m.; C120-122
Section: Epidemiology/Ecology/Environmental Biology
Moderators: Leah Granke, Michigan State University, East Lansing, MI, U.S.A.; Alissa Kriss, Ohio State University, Wooster, OH, U.S.A.

1:00 p.m. O-32. Effects of post-dew period temperature on *Phakopsora pachyrhizi* urediniospore production on soybean. M. R. BONDE (1), S. E. Nester (1), D. K. Berner (1). (1) USDA ARS, Frederick, MD, U.S.A.

1:15 p.m. O-33. Prediction models for potential yield losses caused by wheat stripe rust in the U.S. Pacific Northwest. D. SHARMA-POUDYAL (1), X. Chen (2). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS and Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.

1:30 p.m. O-34. More than 40 years of observations from Ohio confirm the importance of relative humidity and precipitation for Fusarium head blight epidemics. A. B. KRISS (1), L. V. Madden (1), P. A. Paul (1). (1) Ohio State University, OARDC, Wooster, OH, U.S.A.

1:45 p.m. O-35. Association between post-anthesis infection and deoxynivalenol accumulation in grain from spikes without visual symptoms of Fusarium head blight. K. J. ODENBACH (1), M. J. Guttieri (1), C. H. Sneller (1), L. V. Madden (1), P. A. Paul (1). (1) Ohio State University - OARDC, Wooster, OH, U.S.A.

2:00 p.m. O-36. Three-dimensional spatial patterns of brown rot symptoms within sour cherry tree canopies in Hungary. S. E. EVERHART (1), H. Scherm (1), A. Askew (2), L. Seymour (2), I. J. Holb (3). (1) Department of Plant Pathology, University of Georgia, Athens, GA, U.S.A.; (2) Department of

Statistics, University of Georgia, Athens, GA, U.S.A.; (3) Centre of Agricultural Sciences, University of Debrecen, Debrecen, Hungary

2:15 p.m. O-37. Comparative epidemiology of *Phytophthora ramorum* and other *Phytophthora* species. C. R. ELLIOTT (1), V. McDonald (1), K. A. Henslee (2), N. J. Grunwald (2). (1) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.; (2) Horticultural Crops Research Laboratory, USDA ARS, Corvallis, OR, U.S.A.

2:30 p.m. BREAK

2:45 p.m. O-38. Does the Horsfall-Barratt scale for disease severity estimation affect our ability to test for treatment differences? C. H. BOCK (1), T. R. Gottwald (2), P. E. Parker (3), F. J. Ferrandino (4), S. J. Welham (5), F. Van den Bosch (5), S. Parnell (5). (1) University of Florida/USDA-ARS-USHRL, Fort Pierce, FL, U.S.A.; (2) USDA-ARS-USHRL, Fort Pierce, FL, U.S.A.; (3) USDA-APHIS-PPQ, Moore Air Base, Edinburg, TX, U.S.A.; (4) Department of Plant Pathology and Ecology, Connecticut, Agricultural Experiment Station, New Haven, CT, U.S.A.; (5) Rothamsted Research, Harpenden, Herts., England, United Kingdom

3:00 p.m. O-39. Logistic regression modeling of dollar spot epidemics using weather variables as inputs. D. L. SMITH (1), A. F. Payne (1), N. R. Walker (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.

3:15 p.m. O-40. Dispersal and movement mechanisms of *Phytophthora capsici* sporangia. L. GRANKE (1), S. T. Windstam (2), H. C. Hoch (3), C. D. Smart (3), M. K. Hausbeck (2). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) Department of Plant Pathology, Michigan State University, East Lansing, MI, U.S.A.; (3) Department of Plant Pathology and Plant-Microbe Biology, NYSAES, Geneva, NY, U.S.A.

3:30 p.m. O-41. Effect of plant age and leaf maturity on the susceptibility to soybean rust caused by *Phakospora pachyrhizi*.. P. SRIVASTAVA (1), J. Marois (1), L. Leandro (2), D. Wright (3), D. R. Walker (4). (1) Department of Plant Pathology, NFREC, University of Florida, Quincy, FL, U.S.A.; (2) Department of Plant Pathology, Iowa State University, Ames, IA, U.S.A.; (3) Department of Agronomy, NFREC, University of Florida, Quincy, FL, U.S.A.; (4) USDA, 232 National Soybean Research Center, Urbana, IL, U.S.A.

3:45 p.m. O-42. Effect of cultivar on the relationship between Fusarium head blight severity and deoxynivalenol concentration in winter wheat. J. HERNANDEZ NOPSA (1), S. N. Wegulo (1). (1) University of Nebraska, Lincoln, NE, U.S.A.

MONDAY, AUGUST 3

6:30 – 8:00 a.m.	Extension Plant Pathologists Breakfast	F149-150
7:00 – 4:00 a.m.	Breakfast Concessions Available	
7:00 – 10:00 a.m.	Public Policy Board Meeting w/ Breakfast	D137
7:00 a.m. – 4:00 p.m.	Concession service available	Exhibit Hall A
7:00 a.m. – 5:30 p.m.	Registration	Exhibit Hall A Foyer
7:30 a.m. – 5:30 p.m.	Poster Viewing	Exhibit Hall A
8:00 a.m. – 12:00 p.m.	USDA/CSREES Plant Biosecurity Program	D135
	Oral Technical Sessions	
8:30 – 11:15 a.m.	● Host Resistance	A106
8:30 – 11:30 a.m.	● Disease Detection and Diagnosis	A105
8:30 – 11:30 a.m.	● Fungal Biology	C123
	Special Sessions	
8:30 – 10:00 a.m.	● Regulation of Pests and Pathogens – Where Are We?	B110-112
8:30 – 10:45 a.m.	● Current Status of Citrus Huanglongbing Research and Control	B117-119
8:30 – 10:50 a.m.	● New Products and Services	B115-116
8:30 – 11:00 a.m.	● Primum Non Nocere: Risk Assessment for Biological Control	C120-122
8:30 – 11:30 a.m.	● Evolutionary & Functional Genomics of Virus-Plant Interactions	B113-114
8:30 – 11:30 a.m.	● Phytophthoras in Forests: New Paradigms for an Old Genus	A107-109
9:00 a.m. – 4:00 p.m.	APS Placement	A103
9:00 a.m. – 5:30 p.m.	APS PRESS Bookstore	Exhibit Hall A Foyer
9:00 a.m. – 5:30 p.m.	Exhibits Open	Exhibit Hall A
10:00 – 11:00 a.m.	APS News Conference	D132
	Flash-and-Dash Poster Presentation Sessions	Exhibit Hall A
10:00 – 11:00 a.m.	● Diseases of Plants	Room 1

10:00 – 11:00 a.m.	● Molecular Biology of Bacteria & Viruses	Room 2
11:00 – 11:30 a.m.	**Flash-and-Dash Author Time**	Exhibit Hall A
11:00 a.m. – 12:00 p.m.	APS Business Meeting & Governance Forum	D136
11:30 a.m. – 1:00 p.m.	Lunch Break *Lunch concession service available 11:00 – 1:00 p.m.*	
12:00 p.m. – 1:30 p.m.	Past Presidents Luncheon, *by invitation*	A104
12:00 – 1:00 p.m.	Graduate Student & Industry Lunch	F150-152
12:00 – 1:00 p.m.	Storkan Hanes McCaslin Research Foundation Luncheon, *by invitation*	F152
1:00 – 3:00 p.m.	Affiliates Meeting	D134
1:00 – 3:00 p.m.	Turfgrass Pathology Working Group	E146
1:00 – 3:30 p.m.	APS Press *Essential Plant Pathology* Teach-In: A Fresh Approach to Teaching Introductory Plant Pathology	D135
	Oral Technical Sessions	
1:00 – 3:15 p.m.	● IPM	A107-109
1:00 – 3:30 p.m.	● Biology of Bacteria and Viruses	C120-122
1:00 – 3:30 p.m.	● Field Crops	C123
1:00 – 3:30 p.m.	● Fruit and Nuts	A105
1:00 – 3:30 p.m.	● Population Genetics	B117-119
	Special Sessions	
1:00 – 3:00 p.m.	● Carboxoylic Acid Amide Fungicides (CAA) FRAC Group 40	B110-112
1:00 – 3:30 p.m.	● APS-ISF Collaboration to Implement a System to Standardize Naming Plant Pathogen Races and Strains	A106
1:00 – 3:30 p.m.	● Challenges for Managing Insect-Vectored Diseases	B115-116
1:00 – 4:00 p.m.	● Application of Advanced Sequencing and Gene Expression Technologies for Characteristics of Phytopathogens	B113-114
1:00 – 4:00 p.m.	Office of Industry Relations (OIR) Board Meeting	E147
	Flash-and-Dash Poster Presentation Sessions	
2:00 – 3:00 p.m.	● Plant Disease Management	Room 1, Exhibit Hall A
2:00 – 3:00 p.m.	● Molecular Biology of Fungi	Room 2, Exhibit Hall A
3:00 – 3:30 p.m	**Presenting Flash-and Dash Author Time**	Exhibit Hall A
3:30 – 5:00 p.m.	NPDN Town Hall Meeting	D136
3:30 – 5:30 p.m.	Fusarium Wilt of Watermelon Study/IR-4 Project Discussion of Progress	D140
3:30 – 5:30 p.m.	**Poster Authors Present –** *odd-numbered posters*	Exhibit Hall A
6:30 – 8:30 p.m.	Early Career Professional Social	F150
6:30 – 8:30 p.m.	Graduate Student Social	F151-152

MONDAY HIGHLIGHTS

Extension Plant Pathologists Breakfast
6:30 – 8:00 a.m.; F149-150
This is your unique opportunity to visit with colleagues and industry representatives from a variety of companies. *Ticket purchase required.*

APS Business Meeting & Governance Forum
11:00 a.m. – 12:00 p.m.; D136
Members are encouraged to participate in this important update on the latest APS initiatives. President Jim Moyer will provide a brief overview of the past year's highlights, followed by Intermediate Councilor-at-Large Mike Boehm's presentation on a new governance model for APS. This interactive forum will provide ample time for member questions and answers.

Graduate Student/Industry Lunch
12:00 – 1:00 p.m.; F150-152
Considering a position in industry? Learn first hand about the possibilities of a career in industry by joining representatives from a variety of companies at this APS Industry Committee-sponsored luncheon. Network and learn about a wide-range of opportunities that are available. Preregistation and ticket are required for both graduate students and industry members.

Flash-and-Dash Poster Sessions
See program schedule for timing; Exhibit Hall A, Rooms 1 and 2
Flash-and-dash poster authors who submit an abstract for their contributed presentation as a poster will present their individual poster in the form of a five-minute, three-slide talk. New for 2009! Flash-and-dash presentations are conveniently located in the exhibit hall. Poster viewing with these authors follows in the exhibit hall.

Early Career Professionals Social
6:30 – 8:30 p.m.; F150
Connections are critical for the growth of your career. This social provides the unique opportunity for you to meet other plant pathologists at a career stage similar to yours. The APS Early Career Professionals Committee will kick off the social, providing an opportunity for you to learn about the committee initiatives and suggest ideas for future consideration. Then spend time interacting with your colleagues and building connections in an informal setting. Light refreshments and snacks will be served. *Pre-registration is required.*

Graduate Student Social
6:30 – 8:30 p.m.; F151-152
Graduate students will interact with plant pathology colleagues in an informal and relaxed environment. Hors d' oeuvres and beverages will be served. This event is limited to students only. All undergraduates are welcome. *Pre-registration is required.*

SPECIAL SESSIONS – MONDAY MORNING
Listed in alphabetical order by title.

Current Status of Citrus Huanglongbing Research and Control
8:30 – 10:45 a.m.; B117-119
Section: Diseases of Plants
Organizer: Jianchi Chen, USDA-ARS, Parlier, CA, U.S.A.
Moderators: Jianchi Chen, USDA-ARS, Parlier, CA, U.S.A.; Caroline Roper, University of California, Riverside, CA, U.S.A.
Sponsoring Committee: Bacteriology

Huanglongbing (HLB or yellow shoot disease) is a highly destructive disease of citrus worldwide. This disease has been endemic in most of the citrus-growing areas in Asia and Africa. HLB was found in Sao Paolo, Brazil, in 2004. In the United States, HLB was found in Florida in 2005 and in Louisiana in 2008. The recent spread of HLB to the Americas is threatening the citrus industry in United States and Brazil; both are major citrus-growing countries. Extensive efforts have been made to study and control HLB in many citrus-producing countries in the past 50 years. Two major challenges remain: 1) limited information is available about HLB biology, particularly the disease etiology; and 2) effective HLB control strategies are not available. This session will discuss the geographical, historical, biological, and control perspectives of the disease. HLB researchers with working experience from different countries will share their most recent information and first-hand experience in combating the HLB problem.

8:30 a.m.	S-33. Citrus HLB, its pathogens and vectors. R. LEE (1). (1) USDA-ARS, Riverside, CA, U.S.A.
8:45 a.m.	S-34. Historical and current status of HLB in China. X. DENG (1), P. Zhang (1), R. Liu (1). (1) South China Agricultural University, Guangzhou, Guangdong, China
9:00 a.m.	S-35. Current HLB research in Brazil. S. LOPES (1). (1) Fundecitrus, Araraquara, Sao Paulo, Brazil
9:15 a.m.	S-36. Research on HLB in South Africa. J. DA GRACA (1), G. Pietersen (2), S. P. van Vuuren (3). (1) Texas A&M University-Kingsville, Citrus Center, Weslaco, TX, U.S.A.; (2) University of Pretoria, Pretoria, South Africa; (3) Citrus Research International, Nelspruit, South Africa
9:30 a.m.	S-37. Huanglongbing in India. K. L. MANJUNATH (1). (1) USDA-ARS, Riverside, CA, U.S.A.
9:45 a.m.	S-38. HLB diagnosis. J. HARTUNG (1). (1) USDA-ARS, Beltsville, MD, U.S.A.
10:00 a.m.	S-39. Epidemiology of HLB in U.S. T. GOTTWALD (1). (1) USDA-ARS, Fort Pierce, FL, U.S.A.
10:15 a.m.	S-40. Isolation, cultivation, and Koch's postulates of the HLB bacterium. N. SCHAAD (1), A. Sechler (1), E. Schuenzel (1). (1) USDA-ARS, Ft. Detrick, MD, U.S.A.
10:30 a.m.	S-41. Genome sequencing of '*Ca*. Liberibacter asiaticus'. Y. DUAN (1), L. Zhou (1), T. Gottwald (1). (1) USDA-ARS, Fort Pierce, FL, U.S.A.

Evolutionary and Functional Genomics of Virus-Plant Interactions
8:30 – 11:30 a.m.; B113-114
Section: Molecular/Cellular/Plant-Microbe Interactions
Organizers/Moderators: Alexander Karasev, Department of Plant, Soil and Entomological Sciences, Moscow, ID, U.S.A.; Savithramma Dinesh-Kumar, Yale University, New Haven, CT, U.S.A.
Sponsoring Committee: Virology

The life cycle of a plant virus is intimately linked to the normal plant genome expression. To survive and successfully evolve, viruses acquired a host of counter-measures to evade and overcome host plant defenses. Virus replication and underlying virus-host interactions in a plant may become visible through a range of virus-induced symptoms, and sometimes result in plant disease. In recent years, many such virus-induced outcomes were studied in great detail. We want to address modern developments in the studies of virus-plant interactions on the broadest possible scale. These will include mechanisms of plant defense systems, host and virus factors shaping the disease response, and evolutionary aspects of virus-host interactions.

8:30 a.m. S-42. Small RNA-directed silencing pathways in plants. J. C. CARRINGTON (1). (1) Oregon State University, Corvallis, OR, U.S.A.
9:00 a.m. S-43. Mechanisms of plant resistance to viruses. S. P. DINESH-KUMAR (1). (1) Department of Molecular, Cellular and Developmental Biology, Yale University, New Haven, CT, U.S.A.
9:30 a.m. S-44. The diverse routes of plant virus evolution. E. V. KOONIN (1). (1) National Library of Medicine, NIH, Bethesda, MD, U.S.A.
10:00 a.m. S-45. TMV MP gates plasmodesmata via ANK, a tobacco ankyrin-repeat protein which down-regulates callose deposits. V. CITOVSKY (1). S. Ueki (1). (1) Department of Biochemistry and Cell Biology, State University of New York, Stony Brook, NY, U.S.A.
10:30 a.m. S-46. Yeast as a model host to explore plant virus-host interactions. P. D. NAGY (1). (1) Department of Plant Pathology, University of Kentucky, Lexington, KY, U.S.A.
11:00 a.m. S-47. Virus-host "arms race" as a shaping force in virus evolution. V. V. DOLJA (1). (1) Department of Botany & Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.

New Products and Services
8:30 – 10:50 a.m.; B115-116
Section: Plant Disease Management
Organizer: Jennifer Chaky, Pioneer Hi-Bred International, Inc., Johnston, IA, U.S.A.
Sponsoring Committee: Industry

This session provides a forum for highlighting new products and services that are in the pipeline or are now offered to growers and researchers to aid in managing or understanding plant diseases.

8:30 a.m. S-48. Water scout soil moisture sensor. C. TURSKI (1). (1) Spectrum Technologies, Plainfield, IL, U.S.A.
8:40 a.m. S-49. New disease reports. C. RIDOUT (1). (1) British Society for Plant Pathology, Reading, Berkshire, U.K.
8:50 a.m. S-50. BioAPT. D. GREEN (1). (1) American Peat Technology, Aitkin, MN, U.S.A.
9:00 a.m. S-51. ARM germplasm manager. S. GYLLING (1). (1) Gylling Data Management, Inc., Brookings, SD, U.S.A.
9:10 a.m. S-52. Inspire super and quadris top: New premixes for horticultural crops. K. BUXTON (1). (1) Syngenta Crop Protection, Vero Beach, FL, U.S.A.
9:20 a.m. S-53. Metrafenone, a new powdery mildew fungicide for grapes. S. WALKER (1). (1) BASF Corporation, Research Triangle Park, NC, U.S.A.
9:30 a.m. S-54. Update on seed treatments from BASF. H. YPEMA (1). (1) BASF Corporation, Research Triangle Park, NC, U.S.A.
9:40 a.m. S-55. FLUOPYRAM, a new fungicide from Bayer CropScience. L. FOUGHT (1). (1) Bayer CropScience, Fresno, CA, U.S.A.
9:50 a.m. S-56. Quash and presidio fungicides. G. HOLMES (1). (1) Valent USA Corporation, Apex, NC, U.S.A.
10:00 a.m. S-57. Systec media preparators. S. JOHNSON (1). (1) Microbiology International, Frederick, MD, U.S.A.
10:10 a.m. S-58. AgriStrip Ea – The rapid assay for the on-site detection of fire blight. W. BITTERLIN (1). (1) BIOREBA AG, Reinach, Switzerland

10:20 a.m. S-59. Ionic spore trap. R. SCHNEIDER (1). (1) D&S Electrostatic Samplers, LLC, Baton Rouge, LA, U.S.A.
10:30 a.m. S-60. IMS-PCR. K. MCGUIRE (1). (1) EnviroLogix Inc., Portland, ME, U.S.A.
10:40 a.m. S-61. LemnaTec automatic 3D phenotyping platform. J. VANDENHIRTZ (1). (1) LemnaTec, Wuerselen, Germany

Phytophthoras in Forests: New Paradigms for an Old Genus
8:30 – 11:30 a.m.; A107-109
Section: Epidemiology/Ecology/Environmental Biology
Organizer: Everett Hansen, Oregon State University, Corvallis, OR, U.S.A.
Sponsoring Committees: Forest Pathology; Mycology

Exploration of growing knowledge of the diversity and evolution, ecology and pathogenesis of Phytophthoras in forest ecosystems.

8:30 a.m. S-62. *Phytophthora* in forests: New species, new threats, and new questions. E. HANSEN (1). (1) Oregon State University, Corvallis, OR, U.S.A.
9:00 a.m. S-63. Progress in understanding *Phytophthora* evolutionary biology: 1983 revisited. C. BRASIER (1). (1) British Forestry Commission (retired), Alton, Hampshire, England, United Kingdom
9:30 a.m. S-64. Examining the population diversity of *Phytophthora* species in natural and agricultural ecosystems. K. IVORS (1). (1) North Carolina State University, Mills River, NC, U.S.A.
10:00 a.m. S-65. *Phytophthora* in forests: Feedbacks between pathogen and plant communities in forests. D. RIZZO (1). (1) University of California-Davis, CA, U.S.A.
10:30 a.m. S-66. Landscape epidemiology of *Phytophthora ramorum*: Measuring, mapping, and modeling spread. R. MEENTEMEYER (1). (1) University North Carolina, Charlotte, NC, U.S.A.
11:00 a.m. S-67. Pathogenicity of *Phytophthora ramorum*. D. MANTER (1). (1) ARS Fort Collins, Fort Collins, CO, U.S.A.

Primum non Nocere: Risk Assessment for Biological Control
8:30 – 11:00 a.m.; C120-122
Section: Plant Disease Management
Organizer/Moderator: Brantlee Spakes Richter, North Carolina State University, Raleigh, NC, U.S.A.
Sponsoring Committees: Soil Microbiology & Root Disease; Biological Control

Biological control of plant pathogens shows great prospect for suppressing plant diseases where chemical controls are unavailable, ineffective, or cost-prohibitive. As well, they are relied upon by a rapidly growing organic produce industry, a lucrative niche market fed by consumers who have concerns over the health and environmental impacts of agrochemicals. Biocontrol products have the potential to be a sustainable, affordable, environmentally responsible tool in integrated pest management approaches. However, no control method is entirely without its own risks. We have already seen promising biocontrol products drop from the path to development due to concerns over human pathogenicity among immuno-compromised individuals, and recent outbreaks of *E. coli* have raised concerns over the use of undefined products, such as compost or compost-based microbial amendments. In many cases, the same organisms that have demonstrated efficacy in combating plant pathogens or inducing plant resistance have also been implicated in human maladies, postharvest problems, or other plant diseases. In order to foster the development of biocontrol products that are both safe and effective, we need to ensure that we are including unbiased and thorough risk assessment principles throughout the research and development process. As the unifying and guiding entity for phytopathological research and practice within the Western Hemisphere, and perhaps the world, APS has the responsibility to foster discussion of the potential risks associated with new developments in the field of plant pathology. However promising our research may appear, and however optimistic we may be about our own work, as scientists, researchers, and academics, we must openly face the risks associated with each new idea and incorporate risk assessment into the fabric of our development process.

8:30 a.m. S-68. Beyond efficacy: Challenges in the selection of safe bacterial biological control agents. L. THOMASHOW (1), D. M. Weller (1), D. V. Mavrodi (1). (1) Washington State University, Pullman, WA U.S.A.
9:00 a.m. S-69. Minimizing risk associated with applications of microbes for biological control. D. P. ROBERTS (1). (1) USDA ARS, Beltsville, MD, U.S.A.
9:30 a.m. S-70. *Fusarium* spp. as biocontrol agents. D. R. FRAVEL (1), T. Odintsova (2), L. Shcherbakova (3), T. Egorov (4), R. W. Jones (1). (1) USDA ARS, Beltsville, MD, U.S.A.; (2) Vavilov Institute of

General Genetics, Moscow, Russia; (3) Russian Research Institute of Phytopathology, Moscow Region, Russia; (4) Shemyakin & Ovchinnikov Institute of Bioorganic Chemistry, Moscow, Russia

10:00 a.m. S-71. U.S. EPA's approach to risk assessment and regulation of biopesticides. G. TOMIMATSU (1). (1) U.S. EPA, OPP,-BPPD, Microbial Pesticides Branch, Washington, DC, U.S.A.

10:30 a.m. S-72. Improving the risk assessment of beneficial plant pathogens for biological control of weeds: Yellow starthistle and Russian thistle pathogens. W. L. BRUCKART, III (1), K. D. Warner (2). (1) USDA, ARS, FDWSRU, Ft. Detrick, MD, U.S.A.; (2) Santa Clara University, Santa Clara, CA, U.S.A.

Regulation of Pests and Pathogens – Where Are We?
8:30 – 10:00 a.m.; B110-112
Section: Professionalism/Outreach
Organizer: James Steadman, University of Nebraska-Lincoln, Lincoln, NE, U.S.A.
Moderators: James Steadman, University of Nebraska-Lincoln, Lincoln, NE, U.S.A.; Bob Martin, USDA-ARS, Corvallis, OR, U.S.A.
Sponsoring Committee: Public Policy Board

This session will be an update of changes that are in process at PPQ APHIS in 330 Regulations and Permit by Regulation. Interstate movement of pests and pathogens, especially widely prevalent pathogens, will be discussed. A previous session three years ago was instrumental in bringing about positive changes in 526 permitting regulations and ease of obtaining a permit. This session will build on the progress made in the past three years and look to changes being enacted for the future.

8:30 a.m. S-73. Update on APHIS PPQ 7 CRF 330 regulatory changes. S. WAGER-PAGE (1). (1) USDA-APHIS Riverdale, MD, U.S.A.

9:00 a.m. S-74. Update on APHIS PPQ interstate movement permit requirements. J. L. WHITE (1). (1) USDA-APHIS, Riverdale, MD, U.S.A.

9:30 a.m. S-75. Panel discussion on updates, changes and requirements of permits and regulations. J. L. WHITE (1), S. Wager-Page (1). (1) USDA-APHIS, Riverdale, MD, U.S.A.

USDA-CSREES Plant Biosecurity Program
8:00 a.m. - 12:00 p.m.; D135
Section: Professionalism/Outreach
Organizers: Liang-Shiou Lin, USDA-CSREES, Washington, DC, U.S.A.; Gera M. Jochum, USDA-CSREES, Washington, DC, U.S.A.

Project director presentations on projects supported by USDA-CSREES NRI funding.

8:00 a.m. Introduction

8:30 a. m. *Ralstonia solanacearum* Race 3 biovar 2: Detection, exclusion, and analysis of a select agent pathogen. C. ALLEN (1). (1) University of Wisconsin-Madison, WI, U.S.A.

8:50 a.m. Development of a systemic approach for marker selection in *Phytophthora* uisng mitochondrial genomic sequences. F. MARTIN (1). (1) USDA-ARS-PWA, Byron, GA, U.S.A.

9:10 a.m. Combating the threat of the plant pathogenic bacterium *Xyella fastidiosa* using genome-based methods linked to national and international monitoring. L. NUNNEY (1). (1) University of CA – Riverside, CA, U.S.A.

9:30 a.m. BREAK

10:00 a.m. Global Phytophthora Network (GPN): A cyberinfrastructure linking data, e-tools and human capital to support the monitoring and management of *Phytophthora*. S. KANG (1). (1) Pennsylvania State University, University Park, PA, U.S.A.

10:20 a.m. Development of Sentinel Plants for Detection of High Risk Pathogens. J. MEDFORD (1). (1) Colorado State University, Fort Collins, CO, U.S.A.

10:40 a.m. Development of an integrated system to detect, monitor, and forcast the spread of *Phytophthora infestans* in the lower atmosphere. D. SCHMALE (1). (1) Virginia Tech, Blacksburg, VA, U.S.A.

11:00 a.m. Discussion

ORAL TECHNICAL SESSIONS – MONDAY MORNING
Listed in alphabetical order by title.

Disease Detection and Diagnosis
8:30 – 11:30 a.m.; A105
Section: Diseases of Plants
Moderator: Thomas Forge, Agric & Agri-Food Canada, Agassiz, BC, Canada

8:30 a.m. O-43. Real-time PCR detection of *Puccinia pelargonii-zonalis* through greenhouse-grown geraniums. E. A. SCOCCO (1), J. Buck (1), R. Walcott (2). (1) University of Georgia, Griffin, GA, U.S.A.; (2) University of Georgia, Athens, GA, U.S.A.

8:45 a.m. O-44. Resistance evaluation and detection methods of *Leifsonia xyli* subsp. *xyli* in sugarcane cultivars. L. RUARO (1), S. R. de Souza (1), E. Daros (1), E. R. de Souto (2), J. C. Bespalhok Filho (1), J. L. Zambon (1), R. C. de Carvalho (3), V. C. Lima Neto (1). (1) Universidade Federal do Paraná, Curitiba, Paraná, Brazil; (2) Universidade Estadual de Marigá, Maringá, Paraná, Brazil; (3) Centro de Diagnóstico Marcus Enrieti/SEAB-PARANÁ

9:00 a.m. O-45. Validation of a single nucleotide polymorphism genotyping method for *Wheat streak mosaic virus*. S. M. ROGERS (1), J. Carver (2), R. W. Allen (3), U. K. Melcher (1), J. Fletcher (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.; (2) Houston Police Department Crime Lab, Houston, TX, U.S.A.; (3) Oklahoma State University, Tulsa, OK, U.S.A.

9:15 a.m. O-46. Hyperspectral remote sensing for detection of Rhizoctonia crown and root rot in sugar beet. G. J. REYNOLDS (1), C. E. Windels (2), I. V. MacRae (3), S. Laguette (4). (1) University Minnesota, Department Plant Pathology, St. Paul, MN, U.S.A.; (2) University Minnesota, Department Plant Pathology, St. Paul, MN & NW Research & Outreach Center, Crookston, MN, U.S.A.; (3) University Minnesota, Department Entomology, St. Paul, MN & NW Research & Outreach Center, Crookston, MN, U.S.A.; (4) University North Dakota, Department Earth System Sci. & Policy, Grand Forks, ND, U.S.A.

9:30 a.m. O-47. Use of molecular beacons for direct detection of loop-mediated isothermal AMPlification (LAMP) amplicons of the plant pathogen *Ralstonia solanacearum.* R. KUBOTA (1), G. D. Peckham (1), A. M. Alvarez (1), D. M. Jenkins (1). (1) University of Hawaii at Manoa, Honolulu, HI, U.S.A.

9:45 a.m. O-48. Development and evaluation of detection-based air sampling programs for grapevine powdery mildew in eastern Washington. L. COSTADONE (1), G. G. Grove (1), R. C. Larsen (1). (1) Washington State University, Prosser, WA, U.S.A.

10:00 a.m. BREAK

10:15 a.m. O-49. Rapid detection and quantification of *Verticillium dahliae* in soil. G. J. BILODEAU (1), P. Uribe (1), F. N. Martin (1). (1) USDA-ARS, Salinas, CA, U.S.A.

10:30 a.m. O-50. Spread, genetic variation, and methods for the detection of *Puccinia kuehnii*, the causal agent of sugarcane orange rust. N. C. GLYNN (1), L. A. Castlebury (2), L. J. Dixon (2), J. C. Comstock (1). (1) USDA-ARS, Sugarcane Field Station, Canal Point, FL, U.S.A.; (2) USDA ARS Systematic Mycology Laboratory, Beltsville, MD, U.S.A.

10:45 a.m. O-51. Levels of *Aspergillus flavus* and *A. parasiticus* in soils of almond orchards. T. J. MICHAILIDES (1), M. A. Doster (2), D. P. Morgan (2), H. Eveillard (3), T. Charbaut (3). (1) University of California, Parlier, CA, U.S.A.; (2) University of California-Davis, Kearney Agricultural Center, Parlier, CA, U.S.A.; (3) Université de Bretagne Occidentale, Brest, France

11:00 a.m. O-52. First report in North America of *Paratrichodorus renifer*, a nematode parasite of highbush blueberry. T. A. FORGE (1), C. Koch (2), J. N. Pinkerton (3), I. Zasada (3). (1) Agric & Agri-Food Canada, Agassiz, BC, Canada; (2) Agriculture and Agri-Food Canada, Pacific Agri-Food Research Centre, Canada; (3) USDA-ARS, Horticultural Crops Research Laboratory, Corvallis, OR, U.S.A.

11:15 a.m. O-53. Current status of grapevine viruses in Washington State vineyards. T. A. MEKURIA (1), M. J. Soule (1), S. Jarugula (1), R. A. Naidu (1). (1) Washington State University, IAREC, Prosser, WA, U.S.A.

Fungal Biology
8:30 – 11:30 a.m.; C123
Section: Biology of Pathogens
Moderators: Patrik Inderbitzin, University of California, Davis, CA, U.S.A.; Nicole Ward, Louisiana State University, Baton Rouge, LA, U.S.A.

8:30 a.m. O-54. Single sequence repeat diversity of *Mycosphaerella graminicola* populations from California and Kansas. S. GURUNG (1), M. Kabbage (2), W. Bockus (3), T. B. Adhikari (1). (1) North Dakota

State University, Fargo, ND, U.S.A.; (2) Texas A&M University, College Station, TX, U.S.A.; (3) Kansas State University, Manhattan, KS, U.S.A.

8:45 a.m. O-55. Somatic hybridization in *Puccinia striiformis* revealed by virulence patterns and microsatellite markers. P. CHENG (1), X. Chen (2). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Wheat Genetics, Quality, Physiology, and Disease Research Unit and Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.

9:00 a.m. O-56. *Botryosphaeria* species from California tree nut crops: Exploration of species limits using multiple genes and isolates from 29 hosts on five continents. P. INDERBITZIN (1). (1) University of California-Davis, CA, U.S.A.

9:15 a.m. O-57. Common and dwarf bunt of wheat: One or three species? X. BAO (1), L. M. Carris (1). (1) Washington State University, Pullman, WA, U.S.A.

9:30 a.m. O-58. Phylogeography of the cotton root rot fungus *Phymatotrichopsis omnivore.* S. MAREK (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.

9:45 a.m. O-59. WITHDRAWN

10:00 a.m. BREAK

10:15 a.m. O-60. Characterization of a co-inhabitant of uredinia of Asian soybean rust. N. A. WARD (1), R. W. Schneider (1), M. Aime (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.

10:30 a.m. O-61. Viability of *Phytophthora nicotianae* oospores in North Carolina tobacco populations. C. A. GALLUP (1), K. R. Lannon (1), K. L. Ivors (1), H. Shew (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

10:45 a.m. O-62. Soil and stem populations of *Phialophora gregata* f. sp. *sojae* following the monoculture of brown stem rot-resistant and susceptible soybean cultivars. T. J. HUGHES (1), N. C. Koval (1), P. D. Esker (1), C. R. Grau (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

11:00 a.m. O-63. *Pythium apinafurcum* sp. nov.: Its morphology, molecular phylogeny, and infectivity for plants. S. Uzuhashi (1), M. TOJO (2), S. Kobayashi (2), M. Kakishima (1). (1) Graduate School of Life and Environmental Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan; (2) Graduate School of Life and Environmental Sciences, Osaka Prefecture University, Osaka, Japan

11:15 a.m. O-64. Systemic infection of sugarcane plants in the Rio Grande Valley of Texas by non-native B and G aflatoxin-producing *Aspergillus* section *Flavi* fungi. N. P. GARBER (1), P. J. Cotty (2). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) USDA-ARS, The University of Arizona, Tucson, AZ, U.S.A.

Host Resistance

8:30 – 11:15 a.m.; A106

Section: Plant Disease Management

Moderators: Stephen Jordan, University of Florida, Department of Plant Pathology, Gainesville, FL, U.S.A.; Richard Smiley, Oregon State University, Pendleton, OR, U.S.A.

8:30 a.m. O-65. A method to assess infection of soybean roots by soybean cyst nematode with quantitative polymerase chain reaction. H. D. LOPEZ NICORA (1), J. P. Craig (1), T. L. Niblack (1). (1) University of Illinois, Urbana, IL, U.S.A.

8:45 a.m. O-66. Screening wheat landraces for resistance to new races of *Puccinia graminis* f. sp. *tritici.* J. BONMAN (1), M. Acevedo (1), E. W. Jackson (1), A. M. Bateman (1), Y. Jin (2), P. Njau (3), R. Wanyera (3), H. Bockelman (1), B. Goates (1). (1) USDA ARS, Aberdeen, ID, U.S.A.; (2) CDL, USDA-ARS, St. Paul, MN, U.S.A.; (3) KARI, Njoro, Kenya

9:00 a.m. O-67. Characterization of kudzu (*Pueraria* spp.) resistance to *Phakopsora pachyrhizi*, the causal agent of soybean rust. S. A. JORDAN (1), P. F. Harmon (1), J. J. Marois (2), D. L. Wright (3), C. L. Harmon (4), A. J. Gevens (1). (1) University of Florida, Department of Plant Pathology, Gainesville, FL, U.S.A.; (2) University of Florida, Department of Plant Pathology, North Florida Research and Education Center, Quincy, FL, U.S.A.; (3) University of Florida, Department of Agronomy, North Florida Research and Education Center, Quincy, FL, U.S.A.; (4) Southern Plant Diagnostic Network, University of Florida, Gainesville, FL, U.S.A.

9:15 a.m. O-68. Root-lesion nematode tolerance reactions among wheat and barley genotypes. R. W. SMILEY (1), H. Yan (1). (1) Oregon State University, Pendleton, OR, U.S.A.

9:30 a.m. O-69. Resistance in tomato and wild relatives to *Phytophthora capsici.* L. M. QUESADA-OCAMPO (1), M. K. Hausbeck (1). (1) Michigan State University, East Lansing, MI, U.S.A.

9:45 a.m. O-70. Large-scale field screening of transgenic anthuriums for bacterial blight resistance. L. KEITH (1), L. Sugiyama (1), T. Matsumoto (1), M. Fitch (2), T. Leong (2), H. Aldwinckle (3), H. McCafferty (2), J. Zhu (2), D. Gonsalves (1). (1) USDA-ARS, Hilo, HI, U.S.A.; (2) HARC, Aiea, HI, U.S.A.; (3) Cornell University, Geneva, NY, U.S.A.

10:00 a.m. BREAK

10:15 a.m. O-71. Crop management strategies and disease resistance control the severity of false smut and kernel smut of rice. S. BROOKS (1), M. Anders (2), K. Yeater (3). (1) USDA ARS Dale Bumpers National Rice Research Center, Stuttgart, AR, U.S.A.; (2) University of Arkansas, Rice Research and Extension Center, Stuttgart, AR, U.S.A.; (3) USDA ARS, College Station, TX, U.S.A.

10:30 a.m. O-72. Evaluation of *Mentha longifolia* for resistance to *Verticillium dahliae* isolates from various hosts. J. K. DUNG (1), D. A. Johnson (1). (1) Washington State University, Pullman, WA, U.S.A.

10:45 a.m. O-73. Resistance of onion varieties to foliar blight disease. E. SHAHNAZ (1), V. K. Razdan (2). (1) Sher-e-Kashmir University of Agricultural Sciences & Technology, Srinagar, India; (2) Sher-e-Kashmir University of Agricultural Sciences & Technology, Jammu, India

11:00 a.m. O-74. Cultivar-specific interactions between switchgrass and *Puccinia emaculata.* Y. LI (1), M. Windham (1), R. Trigiano (1), A. Windham (2), B. Ownley (1), K. Gwinn (1), J. Zale (1), J. Spiers (3). (1) University of Tennessee, Knoxville, TN, U.S.A.; (2) University of Tennessee, Nashville, TN, U.S.A.; (3) USDA/ARS, Poplarville, MS, U.S.A.

FLASH-AND-DASH SESSIONS – MONDAY MORNING
Listed in alphabetical order by title.

Diseases of Plants
10:00 – 11:00 a.m.; Exhibit Hall A, Room 1
Section: Diseases of Plants
Moderator: Janna Beckerman, Purdue University, West Lafayette, IN, U.S.A.

10:00 a.m. P-372. Training and implementation of distance diagnostics in regulatory agriculture to increase efficiency and reduce costs. E. S. SERRANO (1), D. Robl (1), T. Riley (1), H. Gomez (1). (1) USDA/APHIS/PPQ/CHRP, Plantation, FL, U.S.A.

10:05 a.m. P-382. Detection and distribution of mating-type of *Setosphaeria turcica* causing northern corn leaf blight in China. G. ZHANG (1), Y. Wang (1), J. Dong (2). (1) Department of Plant Pathology, China Agricultural University, Beijing, PRC Peoples Republic of China; (2) College of Life Sciences, Agricultural University of Hebei, Baoding, People's Republic of China

10:10 a.m. P-433. Relative susceptibility of quince, pear, and apple cultivars to fire blight following greenhouse inoculation. J. D. POSTMAN (1), V. O. Stockwell (2). (1) USDA ARS, Corvallis, OR, U.S.A.; (2) Oregon State University, Corvallis, OR, U.S.A.

10:15 a.m. P-356. Distribution, morphological description and molecular characterization of *Pratylenchus* spp. associated with biofuel crops. T. M. MENGISTU (1), T. Niblack (2). (1) Energy Bioscience Inst., Urbana, IL, U.S.A.; (2) University of Illinois, Urbana-Champaign, IL, U.S.A.

10:20 a.m. P-471. The occurrence of at least four haplotypes of *Phytophthora capsici* in Texas from isolates recovered and characterized in 2006–2008. R. D. FRENCH-MONAR (1), T. Isakeit (2), Z. Abad (3), A. F. Patton (1). (1) Department of Plant Pathology, AgriLife Extension-Texas A&M System, Amarillo, TX, U.S.A.; (2) Department of Plant Pathology, Texas AgriLife Extension, TAMU, College Station, TX, U.S.A.; (3) USDA-APHIS-PPQ-PHP-PSPI-MDL, Beltsville, MD, U.S.A.

10:25 a.m. P-485. Development of species-specific primers for the detection of the butternut canker pathogen *Sirococcus clavigignenti-juglandacearum*. K. D. BRODERS (1), G. J. Boland (1). (1) University of Guelph, Guelph, ON, Canada

10:30 a.m. P-488. Long-term impacts of de-icing salts on roadside trees in the Lake Tahoe Basin. I. A. MUNCK (1), R. S. Nowak (1), K. Camilli (1), C. Bennett (1). (1) University of Nevada-Reno, Reno, NV, U.S.A.

10:35 a.m. P-490. In vitro evaluation of western white pine partial resistance against rust pathogen *Cronartium ribicola* in Canada. D. NOSHAD (1), J. King (2), A. Ekramoddoullah (3). (1) Canadian Forest Service, Victoria, BC, Canada; (2) British Columbia Ministry of Forest, Vernon, BC, Canada; (3) Natural Resources Canada, Victoria, BC, Canada

10:40 a.m. P-493. The infection and diversity of *Diplodia pinea* in asymptomatic *Pinus patula* trees. W. Bihon (1), B. SLIPPERS (2), T. Burgess (3), M. J. Wingfield (4), B. D. Wingfield (5). (1) Department of Microbiology and Plant Pathology, Forestry and Agricultural Biotechnology Institute, University of Pretoria, Pretoria, South Africa; (2) Department of Genetics, Forestry and Agricultural Biotechnology Institute (FABI), Pretoria, South Africa; (3) School of Biological Sciences and Biotechnology, Murdoch University, Perth, Australia; (4) Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, Pretoria, South Africa; (5) Department of Genetics, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, Pretoria, South Africa

10:45 a.m. P-348. Development of a real-time PCR diagnostic protocol for *Fusarium* wilt of palm. A. M. VITORELI (1), C. L. Harmon (2), P. F. Harmon (1). (1) University of Florida, Gainesville, FL, U.S.A.; (2) Southern Plant Diagnostic Network, University of Florida, Gainesville, FL, U.S.A.

Molecular Biology – Bacteria and Viruses
10:00 – 11:00 a.m.; Exhibit Hall A, Room 2
Section: Molecular/Cellular/Plant-Microbe Interactions
Moderator: Amy Charkowski, University of Wisconsin, Madison, WI, U.S.A.

10:00 a.m. P-600. Comparative gene expression profile analysis of temperate and tropical strains of *Ralstonia solanacearum*. J. M. JACOBS (1), F. Meng (1), L. Babujee (1), C. Allen (1). (1) University of Wisconsin-Madison, WI, U.S.A.
10:05 a.m. P-614. Investigating the roles of siderophores in the *Pseudomonas syringae* pv. *syringae* B728a lifecycle. J. L. WILLIAMS (1), D. C. Gross (1). (1) Texas A&M University, College Station, TX, U.S.A.
10:10 a.m. P-615. Mutation in tctD reduces virulence of *Xanthomonas oryzae* pv. *oryzae* KACC10859. S. YANG (1), J. Cho (1), K. Jeong (1), W. Kim (2), J. Cha (1). (1) Department of Plant Medicine, Chungbuk National University, Cheongju, Chungbuk, Republic of Korea; (2) Honam Agricultural Research Institute, Rural Development Administration, Iksan, Republic of Korea
10:15 a.m. P-680. Construction of a DNA-based virus induced gene silencing (VIGS) system for functional genomics of soybean seed development using *Tobacco streak virus*. S. JOSSEY (1), L. L. Domier (2). (1) Department of Crop Sciences, University of Illinois, Urbana-Champaign, IL, U.S.A.; (2) USDA ARS, Department of Crop Sciences, University of Illinois, Urbana-Champaign, IL, U.S.A.
10:20 a.m. P-690. A detection method for endornaviruses from various plant species. S. SABANADZOVIC (1), R. A. Valverde (2). (1) Department of Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS, U.S.A.; (2) Department of Plant Pathology and Crop Physiology, Louisiana State University AgCenter, Baton Rouge, LA, U.S.A.
10:25 a.m. P-692. Encapsidation of *Soybean dwarf virus* RNAs. T. THEKKE VEETIL (1), L. L. Domier (2). (1) University of Illinois, Urbana, IL, U.S.A.; (2) USDA-ARS, University of Illinois, Urbana, IL, U.S.A.
10:30 a.m. P-695. Systemic spread of *Beet yellows virus* following aphid inoculation. A. R. POPLAWSKY (1), B. S. Blades (1), V. V. Dolja (2), A. V. Karasev (1). (1) University of Idaho, Moscow, ID, U.S.A.; (2) Oregon State University, Corvallis, OR, U.S.A.
10:35 a.m. P-407. Complete nucleotide sequence and taxonomy of *Sugarcane streak mosaic virus*, member of a novel genus in the family *Potyviridae*. D. XU (1), G. Zhou (2), Y. Xie (2), R. Mock (1), R. Li (1). (1) USDA-ARS, National Germplasm Resources Laboratory, Beltsville, MD, U.S.A.; (2) Laboratory of Plant Virology, South China Agricultural University, Guangzhou, China
10:40 a.m. P-448. In vitro transcripts of a full-length cDNA clone of *Hosta virus X* are infectious to *Hosta* and *Nicotiana benthamiana* plants. C. DE LA TORRE (1), D. J. Lewandowski (1). (1) Ohio State University, Columbus, OH, U.S.A.
10:45 a.m. P-424. Insect transmission and genotypic variation of pecan pathogenic *Xylella fastidiosa* strains in Louisiana. R. A. MELANSON (1), S. Gil (1), J. Ham (1), R. S. Sanderlin (2). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.; (2) LSU AgCenter Pecan Research-Extension Station, Shreveport, LA, U.S.A.

SPECIAL SESSIONS – MONDAY AFTERNOON

Listed in alphabetical order by title.

Application of Advanced Sequencing and Gene Expression Technologies for Characterization of Phytopathogens
1:00 – 4:00 p.m.; B113-114
Section: Molecular/Cellular/Plant-Microbe Interactions
Organizers: Jonathan Jacobs, University of Wisconsin-Madison, Madison, WI, U.S.A.; Daniel Kluepfel, USDA-ARS, Davis, CA, U.S.A.
Sponsoring Committees: Bacteriology Committee; Biotechnology

The advent of genomics unveiled complete sequences of pathogenic phytobacteria, such as *Xyllela fastidiosa*, *Ralstonia solanacearum*, and *Agrobacterium tumefaciens*. These whole genome sequences demanded extensive labor, time, and money investment. Since then, the technology of high throughput sequencing has permitted scientists to quickly and easily sequence phytopathogen genomes from all domains of life. Our tool box of new and cost-effective pyrosequencing and microarray technologies remains a largely untapped resource for the examination

of plant pathogens and soilborne microbial communities. Furthermore, molecular phytopathologists have uncovered the biology that underlies pathogenesis through gene expression analysis using these sequencing technologies and DNA microarrays. This session highlights the technologies and research supporting pyro- and high throughput sequencing, DNA microarrays, and gene expression analysis to communicate the impact of this knowledge.

1:00 p.m. S-76. Integrating molecular and computational methods to evaluate the *Pseudomonas syringae* transcriptome I. M. FILIATRAULT (1), P. Stodghill (1). (1) USDA-ARS Plant-Microbe Interactions Research Unit, Ithaca, NY, U.S.A.
1:30 p.m. S-77. Integrating molecular and computational methods to evaluate the *Pseudomonas syringae* transcriptome II. P. STODGHILL (1), M. Filiatrault (1). (1) USDA-ARS Plant-Microbe Interactions Research Unit, Ithaca, NY, U.S.A
2:00 p.m. S-78. Genomic perspectives on plant-associate enterobacteria. J. D. GLANSER (1). (1) Genome Center of Wisconsin, University of Wisconsin-Madison, Madison, WI, U.S.A.
2:30 p.m. S-79. GeoChip: A high throughput genomics technology for characterizing microbial functional community structure. J. ZHOU (1). (1) Institute for Environmental Genomics and Department of Botany and Microbiology, University of Oklahoma, Norman, OK, U.S.A.
3:00 p.m. S-80. Comparative and functional genomics of oomycete infection. B. M. TYLER (1). (1) Virginia Bioinformatics Institute, Virginia Tech, Blacksburg, VA, U.S.A.
3:30 p.m. S-81. Comparative genomics, sequence mining and transcript profiling of cyst nematodes during plant parasitism. A. A. ELLING (1). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.

APS-ISF Collaboration to Implement a System to Standardize Naming of Plant Pathogen Races and Strains
1:00 – 3:30 p.m.; A106
Section: Diseases of Plants
Organizer: Phyllis Himmel, Monsanto Vegetable Seeds, Woodland, CA, U.S.A.
Moderator: Lindsey du Toit, Washington State University, Mount Vernon, WA, U.S.A.
Sponsoring Committees: Seed Pathology; Ad Hoc Committee on Culture Collections; APS-ISF Ad Hoc Committee on Naming Pathogen Races/Strains

Inconsistency in protocols used to name plant pathogen races and strains can undermine the value of disease resistance claims made for specific cultivars, particularly in specialty crops such as vegetables. A broader understanding of the impact of naming pathogen races and strains on the vegetable industry is needed. For example, inconsistencies in naming of races, pathotypes, and/or strains of the downy mildew pathogens of spinach and lettuce, as well as the Fusarium wilt pathogens of tomato, melon, and watermelon, cause continuing confusion for growers, the vegetable seed industry and academia. There is no internationally recognized authority on nomenclature for new races and strains. Readily available sets of differential host cultivars and reference cultures of pathogen races and strains are needed to help standardize the nomenclatural system and provide clarity for claims of disease resistance. Members of APS, the American Seed Trade Association, and the International Seed Federation are collaborating to implement a network of private and public research laboratories and seed companies in the United States for the maintenance, storage, multiplication, and distribution of reference pathogen cultures and seed of differential host cultivars, to facilitate standardizing the naming of plant pathogen races and strains. The proposed system should complement existing systems in Europe (i.e., Naktuinbouw in the Netherlands and Group for Control and Testing Varieties and Seeds - GEVES in France) and comply with U.S. regulatory requirements. The complexity and challenges of implementing this system, demand for such a system, and proposed protocols will be discussed in the session. Feedback from the APS community is critical to development of a system of reference pathogen cultures and differential host sets for naming of pathogen races and strains with guidelines that are accepted globally by the scientific community.

1:00 p.m. S-82. Overview of proposed system. P. HIMMEL (1). (1) Monsanto, Woodland, CA, U.S.A.
1:30 p.m. S-83. Current European systems. C. VAN ETTEKOVEN (1). (1) Naktuinbouw, Roelofarendsveen, The Netherlands
2:00 p.m. S-84. Proposed U.S. permitting strategy for pathogen race and strain distribution. R. DUNKLE (1). (1) American Seed Trade Association, Alexandria, VA, U.S.A.
2:30 p.m. S-85. Naming of spinach downy mildew races, a case study. J. C. CORRELL (1), S. T. Koike (2), S. Smilde (3). (1) Department of Plant Pathology, University of Arkansas, Fayetteville, AR, U.S.A.; (2) University of California Cooperative Extension, Salinas, CA, U.S.A.; (1) University of Arkansas, Fayetteville, AK, U.S.A.
3:00 p.m. Discussion

Carboxoylic Acid Amide Fungicides (CAA) FRAC Group 40
1:00 – 3:00 p.m.; B110-112
Section: Plant Disease Management
Organizers: Gilberto Olaya, Syngenta Crop Protection, Vero Beach, FL, U.S.A.; Alex Cochran, Syngenta, Roseville, CA, U.S.A.
Moderator: Gilberto Olaya, Syngenta Crop Protection, Vero Beach, FL, U.S.A.
Sponsoring Committees: Chemical Control; Pathogen Resistance
Financial Sponsor: FRAC

Carboxylic acid amide is a class of fungicides that are very active against *Phytophthora* and downy mildews. Six compounds belong to this group: benthiavalicarb, dimethomorph, flumorph, iprovalicarb, mandipropamid, and valifenalate. The session will focus on the mode of action, biological performance, mechanism of resistance, sensitivity monitoring, and resistance management recommendations.

1:00 p.m. S-86. Molecular and genetic aspects of CAA mode of action and resistance. U. GISI (1), M. Blum (1), F. Moulin (1), R. Fonné (1), H. Sierotzki (1). (1) Syngenta, Stein, Switzerland
1:30 p.m. S-87. Activity of CAA fungicides against *Phytophthora infestans* and *Bremia lactucae*. Y. COHEN (1), A. Rubin (1), U. Gisi (2), H. Sierotzki (2), D. Hermann (2). (1) Faculty of Life Sciences, Bar-Ilan University, Israel; (2) Syngenta Crop Protection, Stein, Switzerland
2:00 p.m. S-88. Mandipropamid and dimethomorph baseline sensitivity distribution and resistance monitoring. G. OLAYA (1), U. Gisi (2), H. Sierotzki (2), A. Tally (3). (1) Syngenta Crop Protection, Vero Beach, FL, U.S.A.; (2) Syngenta Crop Protection, Stein, Switzerland; (3) Syngenta Crop Protection, Greensboro, NC, U.S.A.
2:15 p.m. S-89. Biological effect of some carboxylic acid amide fungicides on growth and sporulation of three species of *Phytophthora* and the diseases they cause. M. MATHERON (1), M. Porchas (1). (1) University of Arizona, Yuma, AZ, U.S.A.
2:30 p.m. S-90. Dimethomorph efficacy studies and resistance management. W. KIRK (1), J. Stein (1,2). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) South Dakota State University, Brookings, SD, U.S.A.

Challenges for Managing Insect-Vectored Diseases
1:00 – 3:30 p.m.; B115-116
Section: Plant Disease Management
Organizers: Phillip Brannen, University of Georgia, Athens, GA, U.S.A.; Soumaila Sanogo, New Mexico State University, Las Cruces, NM, U.S.A.
Moderator: Phillip Brannen, University of Georgia, Athens, GA, U.S.A.
Sponsoring Committees: Integrated Plant Disease Management; Bacteriology/Virology

Among many new or expanding diseases of significant importance are those vectored by insects. These include phytoplasmal, viral, and bacterial diseases. Examples include introduction of diseases and/or vectors, such as *Plum pox virus* in the Northeast (vectored by aphids) or the introduction of the glassy-winged sharpshooter in California, which has increased losses from Pierce's disease (*Xylella fastidiosa*). In addition, warming environments have often resulted either in increased insect survival or introduction to regions where previously excluded; Pierce's disease is once more an example, as it is becoming more problematic in higher elevations in Georgia, North Carolina, and Virginia, and warmer winter temperatures may increase the disease in other regions as well. In addition, many new diseases have been observed in the last few years, and in some cases, the vector relationship is not well understood, though propagation is certainly involved. These include examples such as *Blackberry yellow vein virus*, *Blueberry red ringspot virus*, and bacterial leaf scorch of blueberry. There are many classical and some new methods of controlling vectored or propagated diseases. Speakers will address new and expanding diseases and their management.

1:00 p.m. S-91. Changes in the epidemiology of Pierce's disease in California due to the introduction of the glassy-winged sharpshooter. M. SISTERSON (1). (1) USDA-ARS, Parlier, CA, U.S.A.
1:30 p.m. S-92. Expansion of *Xylella fastidiosa* into blueberries in Georgia and Florida. P. BRANNEN (1), H. Scherm (1), C. J. Chang (2). (1) University of Georgia, Athens, GA, U.S.A.; (2) University of Georgia, Griffin, GA, U.S.A.
2:00 p.m. S-93. Transmission and management of cucurbit yellow vine, caused by the bacterial pathogen *Serratia marcescens*. A. WAYADANDE (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.
2:30 p.m. S-94. Management of *Curly top virus* in vegetables. R. CREAMER (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.

3:00 p.m. S-95. Managing whitefly vectors of three cucurbit viruses new to Florida. S. WEBB (1), P. D. Roberts (1), P. A. Stansly (1), S. Adkins (2), W. W. Turechek (2), C. S. Kousik (3). (1) University of Florida, Immokalee, FL, U.S.A.; (2) USDA-ARS U.S. Horticultural Research Laboratory, Fort Pierce, FL, U.S.A.; (3) USDA-ARS U.S. Vegetable Laboratory, Charleston, SC, U.S.A.

ORAL TECHNICAL SESSIONS – MONDAY AFTERNOON
Listed in alphabetical order by title.

Biology of Bacteria & Viruses
1:00 – 3:30 p.m.; C120-122
Section: Biology of Pathogens
Moderators: Leonard Nunney, University of California Riverside, Riverside, CA, U.S.A.; Chung-Jan Chang, University of Georgia, Griffin, GA, U.S.A.

1:00 p.m. O-75. Molecular diversity and recombination in a *Foveavirus* infecting grapevine. O. J. ALABI (1), R. R. Martin (2), R. A. Naidu (1). (1) Department of Plant Pathology, Washington State University, Irrigated Agriculture Research and Extension Center, Prosser, WA, U.S.A.; (2) USDA-ARS Horticultural Crops Research Laboratory, Corvallis, OR, U.S.A.

1:15 p.m. O-76. *Grapevine virus Q*: The first phytovirus with inverted RdRp motifs. S. SABANADZOVIC (1), N. Abou Ghanem-Sabanadzovic (1). (1) Department of Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS, U.S.A.

1:30 p.m. O-77. Symptoms and distribution of *Squash vein yellowing virus* in vining cucurbits. C. G. WEBSTER (1), C. S. Kousik (2), W. W. Turechek (1), S. E. Webb (3), S. Adkins (1). (1) USDA ARS, U.S. Horticultural Research Lab, Fort Pierce, FL, U.S.A.; (2) USDA ARS, U.S. Vegetable Lab, Charleston, SC, U.S.A.; (3) University of Florida, Gainesville, FL, U.S.A.

1:45 p.m. O-78. Simultaneous detection and differentiation of *Citrus tristeza virus* genotypes using a hexaplex reverse transcriptase polymerase chain reaction assay. A. ROY (1), A. Govindarajulu (1), R. Brlansky (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

2:00 p.m. O-79. Draft genome sequence of potato 'Zebra Chip' associated bacterium '*Candidatus* Liberibacter solanacearum'. H. LIN (1), H. Doddapaneni (2), C. Chen (3), Y. Duan (4), L. Zhou (5), D. C. Stenger (6), E. L. Civerolo (6). (1) USDA ARS PWA, Parlier, CA, U.S.A.; (2) University of Iowa, Iowa City, IA, U.S.A.; (3) Visitor from Guangxi Citrus Research Center, Guangxi, China; (4) USDA-ARS, Fort Pierce, FL, U.S.A.; (5) University of Florida, Gainesville, FL, U.S.A.; (6) USDA, ARS, Parlier, CA, U.S.A.

2:15 p.m. O-80. Aurantioideae: Phylogeny and susceptibility to Citrus huanglongbing. C. RAMADUGU (1), K. L. Manjunath (2), S. Halbert (3), M. L. Roose (1), R. F. Lee (2). (1) University of California, Riverside, CA, U.S.A.; (2) USDA-ARS, National Clonal Germplasm Repository for Citrus and Dates, Riverside, CA, U.S.A.; (3) Division of Plant Industry, Gainesville, FL, U.S.A.

2:30 p.m. O-81. Central American origin of the bacterial pathogen causing Pierce's disease of grape. L. NUNNEY (1), X. Yuan (1), R. Bromley (1), J. Hartung (2), M. Montero-Astua (3), R. Stouthamer (1). (1) University of California Riverside, Riverside, CA, U.S.A.; (2) USDA ARS MPPL, Beltsville, MD, U.S.A.; (3) Universidad de Costa Rica, San Pedro, Costa Rica

2:45 p.m. O-82. Regulation of c-di-GMP intracellular levels in *X. fastidiosa.* V. ANCONA (1), P. de Figueiredo (1). (1) Texas A&M University, College Station, TX, U.S.A.

3:00 p.m. O-83. *Xylella fastidiosa* strains causing bacterial leaf scorch of blueberry in Georgia are genetically distinct from those causing Pierce's disease of grape. L. NISSEN (1), T. Denny (2), P. Brannen (2), C. Chang (1). (1) University of Georgia, Griffin, GA, U.S.A.; (2) University of Georgia, Athens, GA, U.S.A.

3:15 p.m. O-84. Effect of minerals on biofilm formation by *Xylella fastidiosa.* L. DE LA FUENTE (1), P. Cobine (1). (1) Auburn University, Auburn University, AL, U.S.A.

Field Crops
1:00 – 3:30 p.m.; C123
Section: Diseases of Plants
Moderators: Emmanuel Byamukama, Iowa State University, Ames, IA, U.S.A.; Joe Connell, University of California, Davis, CA, U.S.A.

1:00 p.m. O-85. Identification and evaluation of *Fusarium* species associated with root disease of soybean and corn in Minnesota. J. C. BIENAPFL (1), J. A. Percich (1), D. K. Malvick (1). (1) University of Minnesota, St. Paul, MN, U.S.A.

1:15 p.m. O-86. Influence of temporal separation on the interaction of *Meloidogyne incognita* and *Thielaviopsis basicola* on cotton. J. JARABA (1), C. S. Rothrock (1), T. L. Kirkpatrick (2). (1) University of Arkansas, Fayetteville, AR, U.S.A.; (2) Southwest Research & Extension Center (SWREC) University of Arkansas, Hope, AR, U.S.A.

1:30 p.m. O-87. Correlation between anthracnose leaf blight and anthracnose stalk rot as affected by corn residue level. J. C. JIRAK (1), P. D. Esker (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

1:45 p.m. O-88. Maize land races from Mexico harbor resistance to diverse aflatoxin-producing fungi. A. ORTEGA-BELTRAN (1), A. Ortega-Corona (2), M. D. Guerrero-Herrera (2), V. A. Vidal-Martinez (3), P. J. Cotty (4). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) SAGARPA-INIFAP-CIANO, Cd. Obregon, Sonora, Mexico; (3) SAGARPA-INIFAP-CIRNO, Santiago Ixcuintla, Nayarit, Mexico; (4) USDA-ARS, Department of Plant Sciences, University of Arizona, Tucson, AZ, U.S.A.

2:00 p.m. O-89. Evaluation of inoculation methods to assay wheat for resistance to Fusarium crown rot. G. POOLE (1), T. Paulitz (2), J. Nicol (3), G. Erginbas (3), K. Campbell (4), R. R. Smiley (5). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA/ARS Root Disease Research Unit, U.S.A.; (3) CIMMYT, Ankara, Turkey; (4) USDA-ARS, U.S.A.; (5) Oregon State University, Pendleton OR, U.S.A.

2:15 p.m. O-90. The effects of water on virus titer growth of *Wheat streak mosaic virus* in hard red winter wheat. J. A. PRICE (1), F. Workneh (2), C. M. Rush (2). (1) Texas AgriLife Research, Amarillo, TX, U.S.A.; (2) Texas AgriLife Research, Bushland, TX, U.S.A.

2:30 p.m. O-91. *Triticum mosaic virus*: A distinct member of the family *Potyviridae* with an unusually long leader sequence. S. TATINENI (1), A. D. Ziems (2), S. W. Wegulo (2), R. C. French (1). (1) USDA-ARS, Lincoln, NE, U.S.A.; (2) University of Nebraska, Lincoln, NE, U.S.A.

2:45 p.m. O-92. Abiotic and biotic risk factors associated with *Bean pod mottle virus* in Iowa. E. BYAMUKAMA (1), A. Robertson (1), F. W. Nutter (1). 1) Iowa State University, Ames, IA, U.S.A.

3:00 p.m. O-93. Determining distribution and prevalence of Fusarium crown rot and common root rot in Montana wheat using real-time qPCR. E. A. MOYA (1), A. Dyer (1), A. Hogg (1), B. J. Jacobsen (1). (1) Montana State University, Bozeman, MT, U.S.A.

3:15 p.m. O-94. Pre-emergence damping off of *Beta vulgaris* by *Rhizopus stolonifer*. R. P. NAEGELE (1), L. E. Hanson (2), J. M. McGrath (2). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) USDA-ARS Sugarbeet and Bean Research, Michigan State University, East Lansing, MI, U.S.A.

Fruit & Nuts
1:00 – 3:30 p.m.; A105
Section: Diseases of Plants
Moderator: Michelle Moyer, Cornell University NYSAES, Geneva, NY, U.S.A.

1:00 p.m. O-95. Simultaneous occurence of bacterial pathogens, *Agrobacterium vitis*, *A. tumefaciens* and *Xylophilus ampelinus*, on the same grapevine and various cultivars. K. BASTAS (1), S. Altinparmak (1). (1) Selcuk University Faculty of Agriculture, Konya, Turkey

1:15 p.m. O-96. Pathogen of apple ring rot and its relation to the pathogen of Botryospharia canker of apple and pear. L. GUO (1), W. Tang (2). (1) China Agricultural University, Beijing, Peoples Republic of China; (2) Plant Pathology Dept., China Agricultural University, Peoples Republic of China

1:30 p.m. O-97. A new member of the family *Reoviridae* isolated from crumbly fruited 'Meeker' red raspberry. D. QUITO (1), W. Jelkmann (2), R. R. Martin (3). (1) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.; (2) Julius Kuhn Institut, Dossenheim, Germany; (3) USDA-ARS Horticultural Crops Research Laboratory, Corvallis, OR, U.S.A.

1:45 p.m. O-98. Effects of low temperature events on host susceptibility and on infection, colony development and survival of *Erysiphe necator*. M. M. MOYER (1), D. M. Gadoury (1), I. B. Dry (2), L. Cadle-Davidson (3), R. C. Seem (1). (1) Cornell University NYSAES, Geneva, NY, U.S.A.; (2) CSIRO Plant Industry, Glen Osmond, SA, Australia; (3) USDA ARS Grape Genetics Research Unit, Geneva, NY, U.S.A.

2:00 p.m. O-99. Fairy ring disease of cranberry: New developments and characterization of the causal agent. J. J. POLASHOCK (1), J. Vaiciunas (2), P. V. Oudemans (2). (1) USDA ARS, Chatsworth, NJ, U.S.A.; (2) Rutgers University, U.S.A.

2:15 p.m. O-100. Identification and pathogenicity of *Botryosphaeria* species associated with avocado branch dieback and trunk canker in California. V. T. McDonald (1), S. C. Lynch (1), A. ESKALEN (1). (1) University of California, Riverside, CA, U.S.A.

2:30 p.m. O-101. Biology and sources of inoculum of *Geotrichum candidum* causing sour rot of peaches and nectarines in California. M. A. YAGHMOUR (1), R. M. Bostock (1), J. E. Adaskaveg (2), T. J. Michailides (1). (1) University of California, Davis, CA, U.S.A.; (2) University of California, Riverside, CA, U.S.A.

2:45 p.m. O-102. Appressorium formation and growth of *Colletotrichum acutatum* at different temperatures and stages of blueberry fruit development. T. D. MILES (1), A. C. Schilder (1). (1) Department of Plant Pathology, Michigan State University, East Lansing, MI, U.S.A.

3:00 p.m. O-103. Seed-borne and systemic populations of *Agrobacterium tumefaciens* as sources of inoculum for crown gall development on PARADOX walnut rootstock. L. E. YAKABE (1), S. R. Parker (2), A. E. McClean (2), M. M. Maccree (2), D. A. Kluepfel (2). (1) USDA, Agricultural Research Service, Davis, CA, U.S.A.; (2) USDA, Agricultural Research Service, Crops Pathology/Genetics Research Unit, U.S.A.

3:15 p.m. O104. Etiology and management of sour rot in vineyards in Ontario, Canada. W. MCFADDEN-SMITH (1), D. Inglis (2). (1) Ontario Ministry of Agriculture, Vineland Station, ON, Canada; (2) Brock University, St. Catharines, ON, Canada, dinglis@brocku.ca

IPM

1:00 – 3:15 p.m.; A107-109

Section: Plant Disease Management

Moderators: Craig Austin, Cornell University NYSAES, Geneva, NY, U.S.A.; Shanna Mazurek, North Dakota State University, Fargo, ND, U.S.A.

1:00 p.m. O-105. Influence of climatic conditions on the efficacy of early season fungicide applications to manage dollar spot. J. KOENIG (1), T. E. Hicks (1), J. W. Rimelspach (1), L. V. Madden (2), M. Boehm (1). (1) Ohio State University, Columbus, OH, U.S.A.; (2) Ohio State University, OARDC, Wooster, OH, U.S.A.

1:15 p.m. O-106. Effects of foot traffic and sand topdressing on anthracnose severity of annual bluegrass putting green turf. J. A. ROBERTS (1), J. C. Inguagiato (2), B. B. Clarke (1), J. A. Murphy (1). (1) Rutgers University, New Brunswick, NJ, U.S.A.; (2) University of Connecticut, Storrs, CT, U.S.A.

1:30 p.m. O-107. Effects of soil pH on Rhizoctonia damping-off of sugar beet and disease suppressiveness caused by antagonistic soil microorganisms. K. Watanabe (1), J. O. Becker (2), M. Kasuya (1), H. Honjo (1), R. FUKUI (1). (1) Utsunomiya University, Utsunomiya, Tochigi, Japan; (2) University of California at Riverside, Riverside, CA, U.S.A.

1:45 p.m. O-108. Inhibition of grapevine powdery mildew by improved vineyard sunlight exposure. C. N. AUSTIN (1), A. N. Lakso (2), R. C. Seem (1), D. G. Riegel (1), G. G. Grove (3), W. F. Wilcox (1). (1) Department of Plant Pathology, Cornell University NYSAES, Geneva, NY, U.S.A.; (2) Department of Horticultural Science, Cornell University NYSAES, Geneva, NY, U.S.A.; (3) Washington State University-Irrigated Agriculture Research and Extension Center, Prosser, WA, U.S.A.

2:00 p.m. O-109. Integrated management of strawberry gray mold. L. V. Cota (1), L. A. MAFFIA (2), E. S. Mizubuti (2), P. E. Macedo (2). (1) Embrapa Milho e Sorgo/EMBRAPA/Sete Lagoas, MG, Brazil; (2) Department Fitopatologia/UFV, Viçosa, MG, Brazil

2:15 p.m. O-110. Cyberinfrastructure challenges to multi-regional, multi-scale weather forecasting for crop disease early warning systems. K. BAKER (1), J. Stein (2), P. Wharton (3), J. Paz (4), W. W. Kirk (5), B. Plale (6). (1) Department of Geography, Western Michigan University, Kalamazoo, MI, U.S.A.; (2) South Dakota State University, Brookings, SD, U.S.A.; (3) Aberdeen Research & Extension Center, University of Idaho, Aberdeen, ID, U.S.A.; (4) Department of Biological and Agricultural Engineering, The University of Georgia, Griffin, GA, U.S.A.; (5) Department of Plant Pathology, Michigan State University, East Lansing, MI, U.S.A.; (6) Department of Computer Science, Indiana University, Bloomington, IN, U.S.A.

2:30 p.m. O-111. Yield effect and control of yellow leaf disease under tropical conditions of Ecuador. F. F. GARCES (1), J. R. Mendoza (1), F. Fiallos (1), C. Valladares (1), C. Burbano (1). (1) Centro de Investigación de la Caña de azúcar del Ecuador (CINCAE), Av. Constitución y Joaquín Orrantia Ed, Executive Center, Mezzanine, Empresa FIADE, Guayaquil-Ecuador

2:45 p.m. O-112. Impact of rotation and fungicide application on blackleg and Sclerotinia stem rot of canola. B. M. Jenks (1), S. A. MAZUREK (2), G. P. Willoughby (1), S. G. Markell (2), L. E. del Rio (2). (1) North Dakota State University, Minot, ND, U.S.A.; (2) North Dakota State University, Fargo, ND, U.S.A.

3:00 p.m. O-113. Radish cover crops as a means for *Rotylenchulus reniformis* management in cotton. N. SEKORA (1), K. S. Lawrence (1), E. vas Santen (1). (1) Auburn University, Auburn, AL, U.S.A.

Population Genetics

1:00 – 3:30 p.m.; B117-119

Section: Epidemiology/Ecology/Environmental Biology

Moderators: Matthew Rouse, University of Minnesota, St. Paul, MN, U.S.A.; Kendra Baumgartner, USDA ARS, Davis, CA, U.S.A.

1:00 p.m. O-114. Pathogenic and genetic diversity of *Alternaria alternata* isolates from tangerine hybrids of Iran, based on RAPD-PCR technique. N. KAKVAN (1), H. Zamanizadeh (1), S. Hajmansoor (1), H. Taheri (2), B. Morid (1). (1) Science and Research Branch, Islamic Azad University, Tehran, Iran; (2) Citrus Research Institute, Ramsar, Iran

1:15 p.m. O-115. Genetic diversity of *Sclerotinia trifoliorum* infecting chickpea based on mycelial compatibility grouping, rDNA introns and multi-locus haplotypes. E. N. NJAMBERE (1), G. Vandemark (2), W. Chen (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA ARS, Washington State University, Pullman, WA, U.S.A.

1:30 p.m. O-116. Diverse stem rust races found in a single field in Washington, U.S.A. M. N. ROUSE (1), S. Stoxen (1), X. Chen (2), L. J. Szabo (3), Y. Jin (3). (1) University of Minnesota, St. Paul, MN, U.S.A.; (2) USDA-ARS Wheat Genetics, Quality, Physiology, and Disease Research Unit, Pullman, WA, U.S.A.; (3) USDA-ARS Cereal Disease Laboratory, St. Paul, MN, U.S.A.

1:45 p.m. O-117. DNA barcoding of *Septoria* species from leaf spots and stem cankers of poplar in British Columbia, Canada to assess risk of spread. R. C. HAMELIN (1), N. Feau (2), C. K. Tsui (3), H. Kope (4), S. Zeglen (4). (1) NRC Canada Forest Service, Ste-Foy, QC, Canada; (2) Department of Forest Science, University of British Columbia, Vancouver, BC, Canada; (3) Department of Forest Science, University of British Columbia, Vancouver, BC, Canada, clementsui@gmail.com; (4) BC Ministry of Forest and Range, Canada

2:00 p.m. O-118. Limited population structure of *Armillaria mellea* throughout coastal California suggests gene flow through basidiospore dispersal. K. BAUMGARTNER (1), P. Fujiyoshi (1), S. Bergemann (2), R. Travadon (3). (1) USDA ARS, Davis, CA, U.S.A.; (2) Middle Tennessee State University, Biology Department, Murfreesboro, TN, U.S.A.; (3) Department of Plant Pathology, University of California, Davis, CA, U.S.A.

2:15 p.m. O-119. Population structure and diversity of *Eutypa lata* from Mediterranean grape-growing regions. T. RENAUD (1), K. Baumgartner (2), P. Rolshausen (3), M. R. Sosnowski (4), F. Trouillas (1), D. Gubler (1). (1) Department of Plant Pathology, University of California, Davis, CA, U.S.A.; (2) USDA ARS, Davis, CA, U.S.A.; (3) University of California, Riverside, CA, U.S.A.; (4) South Australian Research and Development Institute, Adelaide, SA, Australia

2:30 p.m. O-120. Genetic variability of RNA1 and RNA2 within *Grapevine fanleaf virus* isolates in three naturally infected California vineyards. J. E. OLIVER (1), M. Fuchs (1). (1) Cornell University NYSAES, Geneva, NY, U.S.A.

2:45 p.m. O-121. Variation within the NA1 clonal lineage of *Phytophthora ramorum* from U.S. nurseries reveals migration pathways. E. M. GOSS (1), M. Larsen (1), G. A. Chastagner (2), D. R. Givens (3), N. J. Grunwald (1). (1) USDA ARS, Corvallis, OR, U.S.A.; (2) Washington State University, Puyallup, WA, U.S.A.; (3) USDA APHIS PPQ, Fort Collins, CO, U.S.A.

3:00 p.m. O-122. Evolutionary epidemiology of *Beet necrotic yellow vein virus* (BNYVV) in North America. R. ACOSTA-LEAL (1), C. M. Rush (1). (1) AgriLife Research, Amarillo, TX, U.S.A.

3:15 p.m. O-123. Phenotypic plasticity, fitness and multilocus genotypes of *Phytophthora ramorum* populations in southern Oregon tanoak forests. J. BRITT (1), E. Hansen (1). (1) Oregon State University, Corvallis, OR, U.S.A.

FLASH-AND-DASH SESSIONS – MONDAY AFTERNOON
Listed in alphabetical order by title.

Molecular Biology – Fungi
2:00 – 3:00 p.m.; Exhibit Hall A, Room 2
Section: Molecular/Cellular/Plant-Microbe Interactions
Moderator: Lynda Ciuffetti, Oregon State University, Corvallis, OR, U.S.A.

2:00 p.m. P-662. Towards identification of genes controlling nonhost resistance of *Nicotiana benthamiana* and *Medicago truncatula* to switchgrass rust. S. UPPALAPATI (1), I. Yasuhiro (1), K. S. Mysore (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

2:05 p.m. P-665. Functional characterization of SREA in *Cochliobolus heterostrophus.* N. ZHANG (1), B. Condon (2), B. A. Horwitz (3), J. Liu (2), B. G. Turgeon (2). (1) Rutgers University, New Brunswick, NJ, U.S.A.; (2) Cornell University, Ithaca, NY, U.S.A.; (3) Technion, Haifa, Israel

2:10 p.m. P-276. Transposable elements in *Verticillium dahliae* and *V. albo-atrum*. S. G. AMYOTTE (1), K. F. Dobinson (2), P. Veronese (3), S. J. Klosterman (4), K. V. Subbarao (5), S. E. Gold (6), S. Kang (7), L. Ma (8). (1) Department of Biology, University of Western Ontario, London, ON, Canada; (2) Agriculture & Agri-Food Canada, London, ON, Canada; (3) Center for Integrated Fungal Research, North Carolina State University, Raleigh, NC, U.S.A.; (4) USDA-ARS, Salinas, CA, U.S.A.; (5) Department of Plant Pathology, University of California, Davis, CA, U.S.A.; (6) University of Georgia, Athens, GA, U.S.A.; (7) Department of Plant Pathology, Pennsylvania State University, University Park, PA, U.S.A.; (8) Broad Institute of MIT and Harvard, Cambridge, MA, U.S.A.

2:15 p.m. P-263. Multilocus sequence analysis of *Monilinia fructigena* from China. X. Zhu (1), L. GUO (2). (1) China Agricultural University, Beijing, Peoples Republic of China; (2) Plant Pathology Department, China Agricultural University, Peoples Republic of China

2:20 p.m. P-628. Application of complementation tests in identifying pathogenicity determinants of the chickpea pathogen *Ascochyta rabiei.* D. White (1), W. CHEN (2). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA ARS, Washington State University, Pullman, WA, U.S.A.

2:25 p.m. P-635. Summarization and assembly of functional attributes of known genes in the non-host resistance and susceptible reaction of pea to *Fusarium solani* sp. L. A. HADWIGER (1). (1) Washington State University, Pullman, WA, U.S.A.

2:30 p.m. P-637. Isolation and sequencing of conditionally dispensable chromosomes from *Alternaia* spp. J. HU (1), T. Mitchell (1), T. Peever (2), C. Lawrence (3). (1) Ohio State University, Columbus, OH, U.S.A.; (2) Washington State University, Prosser, WA, U.S.A.; (3) Virginia Bioinformatics Institute, Blacksburg, VA, U.S.A.

2:35 p.m. P-649. Profiling of secreted proteins involved in the white pine blister rust pathosystem: A case study of the *Pinus monticola* thaumatin-like protein family. J. LIU (1), A. Zamani (1), A. K. Ekramoddoullah (1). (1) Natural Resources Canada, Victoria, BC, Canada

2:40 p.m. P-651. The NLP1 and NLP2 genes of *Sclerotinia sclerotiorum* (Lib.) de Bary exhibit different expression patterns in axenic cultures and infected soybean plants. J. MARELLI (1), D. Liberti (1), M. Gijzen (1), S. J. Grant (1), K. F. Dobinson (1). (1) Agriculture and Agri-Food Canada, London, ON, Canada

2:45 p.m. P-653. Colonization of maize seedlings under drought conditions by two ochratoxin A producers species within the *A.* section *Nigri.* E. R. PALENCIA (1), A. E. Glenn (2), C. W. Bacon (2). (1) USDA, Athens, GA, U.S.A.; (2) USDA ARS, Russell Research Center, Athens, GA, U.S.A.

Plant Disease Management
2:00 – 3:00 p.m.; Exhibit Hall A, Room 1
Section: Plant Disease Management
Moderator: Amy Charkowski, University of Wisconsin, Madison, WI, U.S.A.

2:00 p.m. P-720. Characterization of potential biological control bacterial strains. P. S. HOSKINS (1), E. N. Rosskopf (2). (1) Lincoln Park Academy, Fort Pierce, FL, U.S.A.; (2) USDA, ARS, Fort Pierce, FL, U.S.A.

2:05 p.m. P-738. Application of abscisic acid increases curing of Pierce's disease-affected potted grapevines. M. MEYER (1), B. C. Kirkpatrick (1). (1) University of California-Davis, Davis, CA, U.S.A.

2:10 p.m. P-769. Efficacy of phosphorous acid in managing Aphanomyces root rot on processing peas. L. D. PORTER (1), B. Gundersen (2), D. A. Inglis (2). (1) USDA ARS, Prosser, WA, U.S.A.; (2) Northwestern Washington Research and Extension Center, Washington State University, U.S.A.

2:15 p.m. P-771. Impact of fungicide and insecticide application on infection of soybeans by *Phomopsis longicolla*, BPMV and SMV. J. P. SOTO-ARIAS (1), G. P. Munkvold (1). (1) Iowa State University, Ames, IA, U.S.A.

2:20 p.m. P-777. Basipetal movement of fungicides in peanut plants in the greenhouse. T. BRENNEMAN (1), J. Augusto (1). (1) University of Georgia, Tifton, GA, U.S.A.

2:25 p.m. P-779. Fungicide sensitivity of *Phakopsora pachyrhizi* (soybean rust) isolates. S. CHANG (1), G. L. Hartman (1). (1) University of Illinois, Urbana, IL, U.S.A.

2:30 p.m. P-780. Effect of low doses of disinfectants on the growth of *Pythium aphanidermatum* and *Rhizoctonia solani* in vitro. F. FLORES (1), C. D. Garzon (1). (1) Oklahoma State University, Stillwater, OK, U.S.A.

2:35 p.m. P-792. Practical implications of fungicide resistance in northeastern U.S. populations of the apple scab pathogen *Venturia inaequalis*. K. M. COX (1), S. M. Villani (1), W. Köller (1). (1) Cornell University, Geneva, NY, U.S.A.

2:40 p.m. P-798. First report from South Carolina of boscalid-insensitive isolates of *Didymella bryoniae* on field-grown watermelon treated with boscalid-pyraclostrobin. A. P. KEINATH (1), V. DuBose (1), E. Walters (1). (1) Clemson University, Coastal REC, Charleston, SC, U.S.A.

2:45 p.m. P-796. Sensitivity of *Phytophthora capsici* isolates from bell pepper and cucurbits in Georgia to mefenoxam, fluopicolide, and mandipropamid. K. L. JACKSON (1), J. Yin (1), A. S. Csinos (1), H. Scherm (2), P. Ji (1). (1) University of Georgia, Tifton, GA, U.S.A.; (2) University of Georgia, Athens, GA, U.S.A.

TUESDAY, AUGUST 4

7:00 – 8:30 a.m.	Sustaining Associates Breakfast, *by invitation*	E148
7:00 – 9:00 a.m.	Department Heads Breakfast	F149
7:00 – 9:00 a.m.	Scientific Programs Board (SPB) Meeting	C126
7:00 – 9:00 a.m.	Small Fruit Disease Workers Breakfast	F151
7:00 a.m. – 12:00 p.m.	Foundation Board Meeting, *by invitation*	A104
7:00 a.m. – 4:00 p.m.	Breakfast concession service available	Exhibit Hall A
7:00 a.m. – 5:30 p.m.	Registration	Exhibit Hall A Foyer
7:30 a.m. – 5:30 p.m.	Poster Viewing	Exhibit Hall A
8:00 a.m. – 5:30 p.m.	APS PRESS Bookstore	Exhibit Hall A
8:00 a.m. – 5:30 p.m.	Exhibits Open	Exhibit Hall A
	Oral Technical Sessions	
8:30 – 11:30 a.m.	● Biology of Viruses	A106
8:30 – 11:30 a.m.	● Chemical Control	C123
8:30 – 11:30 a.m.	● Phyllosphere/Rhizosphere Ecology	C124
8:30 – 11:30 a.m.	● Vegetable Diseases	A105
	Special Sessions	
8:30 – 11:30 a.m.	● 9th I. E. Melhus Graduate Student Symposium: Integrating Pre-and Postharvest Views of Yield and Quality Loss	A107-109
8:30 – 11:00 a.m.	● Broad-Based Education in Plant Pathology	B110-112
8:30 – 11:30 a.m.	● Can You Hear Me Now? Expanding Plant Pathology Coverage with Diverse Delivery Tools	C120-122
8:30 – 11:30 a.m.	● Finding an Exotic Pest – What Do I Do Now?	B117-119
8:30 – 11:30 a.m.	● Molecular Mechanisms of Host Susceptibility	B113-114
8:30 – 10:00 a.m.	● Working with Genetically Engineered Plant Pathogens in the Modern Regulatory Environment	B115-116
9:00 a.m. – 4:00 p.m.	APS Placement	A103
	Flash-and-Dash Poster Presentation Sessions	Exhibit Hall A
10:00 – 11:00 a.m.	● Biology of Fungi	Room 2
10:00 – 11:00 a.m.	● Plant Disease Management	Room 1
11:00 – 11:30 a.m.	**Flash-and-Dash Author Time**	Exhibit Hall A
11:30 a.m. – 1:00 p.m.	Pacific Division Business Meeting Luncheon	E146
11:30 a.m. – 1:00 p.m.	*Phytopathology News* Advisory Committee Meeting	D140
11:30 a.m. – 1:00 p.m.	Lunch Break *Concession service available 11:00 a.m. – 1:00 p.m.*	
12:00 – 1:00 p.m.	Sugarcane Orange Rust Discussion	E143-144
1:00 – 3:00 p.m.	2010 Annual Meeting Program Planning Meeting	D136
	Oral Technical Sessions	

1:00 – 3:30 p.m.	● Chemical Control	A106
1:00 – 3:30 p.m.	● Disease Detection	C124
1:00 – 3:30 p.m.	● Forest Pathology	A105
1:00 – 3:30 p.m.	● Molecular Biology – Fungi	C123
	Special Sessions	
1:00 – 3:00 p.m.	● Mechanisms of Post Transcriptional Control of Gene Functions in Plant-Microbe Interactions	B117-119
1:00 – 3:00 p.m.	● Schroth Faces of the Future Symposium in Bacteriology	A107-109
1:00 – 3:30 p.m.	● The Balance Is Tilting: Finding Resistance to Vascular Wilting	B110-112
1:00 – 3:30 p.m.	● Cucurbit Downy Mildew: Re-emergence of a Historical Disease	C120-122
1:00 – 3:30 p.m.	● Meta-Analysis for Evidence Synthesis in Plant Disease Epidemiology and Management	B115-116
1:30 – 3:30 p.m.	Office of Public Relations & Outreach (OPRO) Board Meeting	D137
1:00 – 4:00 p.m.	● Globetrotting Plant Pathogens and Factors Making a Difference in Management Outcomes	B113-114
	Flash-and-Dash Poster Presentation Sessions	Exhibit Hall A
2:00 – 3:00 p.m.	● Biology of Bacteria & Viruses	Room 2
2:00 – 3:00 p.m.	● Epidemiology	Room 1
3:00 – 3:30 p.m.	**Flash-and-Dash Author Time**	Exhibit Hall A
3:30 – 5:00 p.m.	Publish with APS PRESS – Open House for Prospective Authors	Exhibit Hall A
3:30 – 5:30 p.m.	**Posters Authors Present –** *even-numbered posters*	Exhibit Hall A
5:30 – 6:45 p.m.	**Awards & Honors Ceremony**	Oregon Ballroom 202
5:30 – 10:00 p.m.	Exhibit Take-down	Exhibit Hall A
7:00 – 11:00 p.m.	**Final Night Celebration**	Portland Ballroom

TUESDAY HIGHLIGHTS

Department Heads Breakfast
7:00 – 9:00 a.m.; F149
Heads of plant pathology or related departments discuss issues affecting universities around the country. *Ticket purchase required.*

Pacific Division Business Meeting Lunch
11:30 a.m. – 1:00 p.m.; E146
During the Pacific Division Business Meeting the Division Awards, the winner of the Graduate Student Competition will be announced.

Final Night Celebration
7:00 – 10:00 p.m.; Portland Ballroom
Wrap up the 2009 APS Annual Meeting at the Final Night Celebration! Mingle with new contacts and old colleagues while enjoying food, beverages, and live music from The Groove! Don't forget your dancing shoes to boogie to classics, oldies and today's top 40 hits! Don't miss this must-attend event. *Ticket is included with full registration.*

SPECIAL SESSIONS – TUESDAY MORNING
Listed in alphabetical order by title.

9th I. E. Melhus Graduate Student Symposium: Integrating Pre- and Postharvest Views of Yield and Quality Loss
8:30 – 11:30 a.m.; A107-109
Section: Epidemiology/Ecology/Environmental Biology
Organizers: John Rupe, University of Arkansas, Fayetteville, AR, U.S.A.; David Gent, USDA-ARS, Corvallis, OR, U.S.A.; Serge Savary, International Rice Research Institute, Metro Manila, Philippines; Neil McRoberts, Scottish Agricultural College, Edinburgh, United Kingdom; Ahmed Fakhoury, Southern Illinois University, Carbondale, IL, U.S.A.

Sponsoring Committees: APS Crop Loss Assessment and Risk Evaluation; Postharvest Plant Pathology and Mycotoxicology

This session features six presentations on graduate thesis work highlighting research aimed at providing a better understanding of the links between pre- and postharvest losses in yield and quality. Postharvest losses resulting from infections initiated in the field can be particularly high in perishable produce crops, which are key to healthy diets and help reduce public health service costs. Globally, the availability of affordable, high quality produce to consumers depends on nonrenewable resources. Are these supply chains sustainable into the future? What can plant pathologists contribute to the development of more sustainable alternatives? Mycotoxin contamination continues to threaten human and livestock health, increase production costs, and reduce production efficiency across the globe. How are plant pathologists combining their skills with other disciplines to solve these problems? The graudate student presenters have been selected on the basis of the significance of the contribution to new understanding in the area of plant disease management in supply chains.

8:30 a.m. S-96. Aflatoxins in Kenyan maize: Etiology holds clues to recurrent human aflatoxin poisonings. C. PROBST (1), P. J. Cotty (2). (1) Department of Plant Sciences, The University of Arizona, Tucson, AZ, U.S.A.; (2) USDA-ARS, Department of Plant Sciences, The University of Arizona, Tucson, AZ, U.S.A.

9:00 a.m. S-97. Distinct roles of VeA and LaeA in *Aspergillus flavus*. S. AMAIKE (1), N. P. Keller (2). (1) Department of Plant Pathology, University of Wisconsin, Madison, WI, U.S.A.; (2) Department of Plant Pathology, Medical Microbiology and Immunology, Bacteriology University of Wisconsin-Madison, WI, U.S.A.

9:30 a.m. S-98. Development of biological control strategies for management of pre- and postharvest diseases of apple in Pennsylvania. A. M. POLEATEWICH (1), P. A. Backman (1), J. W. Travis (2). (1) Department of Plant Pathology, The Pennsylvania State University, University Park, PA, U.S.A.; (2) The Pennsylvania State University Fruit Research and Extension Center, Biglerville, PA, U.S.A.

10:00 a.m. S-99. Trichothecene dynamics and *Fusarium graminearum* infection patterns in wheat heads. K. T. WILLYERD (1), G. A. Kuldau (1). (1) Department of Plant Pathology, The Pennsylvania State University, University Park, PA, U.S.A.

10:30 a.m. S-100. Pre-harvest moisture impacts wheat quality through Fusarium head blight (FHB) development and deoxynivalenol (DON) accumulation. P. GAUTAM, (1) and R. Dill-Macky (1). (1) Department of Plant Pathology, University of Minnesota, St. Paul MN, U.S.A.

11:00 a.m. S-101. Resistance in winter wheat to Fusarium head blight. P. HOREVAJ (1), E. A. Milus (1). (1) Department of Plant Pathology, University of Arkansas, AR, U.S.A.

Broad-Based Education in Plant Pathology
8:30 – 11:00 a.m.; B110-112
Section: Professionalism/Outreach
Organizers: James MacDonald, University of California, Davis, CA, U.S.A.; Jim Moyer, North Carolina State University, Raleigh, NC, U.S.A.
Sponsoring Committee: Teaching

Following a 2007 survey of graduate students and post-doctoral fellows, the heads of graduate programs, and the employers of plant pathologists, APS hosted a national workshop on "The future of education in plant pathology and related disciplines." The workshop was held March 19–20, 2009, in Washington, DC with major financial support from NSF, USDA-CSREES, and USDA-ARS. The workshop brought together a diverse group of people to discuss educational issues in the plant sciences. This special session provides an overview of the topics discussed at the national workshop and action items derived from it. Speakers describe perceived educational vulnerabilities in plant pathology, what constitute core competencies in plant pathologists, how to attract students into the plant sciences, and the proper roles of professional societies like APS in the education arena. The goal of the session is to determine how plant pathology is being affected by the changes taking place in educational institutions, and how APS might engage at a national level to shape the future.

8:30 a.m. S-102. What happened at the "National Workshop on the Future of Education in Plant Pathology and Related Disciplines." J. MACDONALD (1). (1) University of California, Davis, CA, U.S.A.

9:00 a.m. S-103. Adaptive evolution: Society collaborations enhancing science education. B. DAHL (1). (1) Botanical Society of America, St. Louis, MO, U.S.A.

9:20 a.m. S-104. The future educational needs of industry employers. B. DOLEZAL (1). (1) Pioneer Hi-Bred Intl. Inc., Johnston, IA, U.S.A.

9:40 a.m. S-105. Plant pathology at the crossroads: Attracting the millennial generation. O. ALABI (1). (1) Washington State University, Prosser, WA, U.S.A.
9:50 a.m. S-106. Peace Corps and plant pathology: Pathways to success! K. OWENS (1). (1) USDA APHIS PPQ CPHST, Beltsville, MD, U.S.A.
10:00 a.m. S-107. Graduate education and training: What does it mean to be a graduate student? M. MOYER (1). (1) Cornell University, Geneva, NY, U.S.A.
10:10 a.m. S-108. Opening doors to opportunity and encouraging students to step through. K. WEBB (1). (1) USDA ARS NPA SBRU, Fort Collins, CO, U.S.A.
10:20 a.m. S-109. Educating plant pathologists: Are we making more problems than we're solving? One department chair's perspective. G. HUDLER (1). (1) Cornell University, Ithaca, NY, U.S.A.
10:50 a.m. Group discussion: What should be the next steps for APS? J. MOYER (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

Can You Hear Me Now? Expanding Plant Pathology Coverage with Diverse Delivery Tools
8:30 – 11:30 a.m.; C120-122
Section: Professionalism/Outreach
Organizers/Moderators: Kevin Ong, Texas AgriLife Extension Service, College Station, TX, U.S.A.; Beth Gugino, Pennsylvania State University, University Park, PA, U.S.A.
Sponsoring Committees: Extension Committee; Diagnostics Committee; Teaching Committee; Diseases of Ornamental Plants Committee

This session will explore the use of new (and not so new) tools such as wikis, Adobe Connect, podcasting, RSS feeds and online courses to deliver plant pathology information to a wide range of audiences as well as strategies of audience engagement in cyberspace and beyond.

8:30 a.m. S-110. Entering the digital world: How to go from being a newbie to an internet maven. J. LAFOREST (1), C. Bargeron (1), D. Moorhead (1), G. K. Douce (1). (1) Center for Invasive Species and Ecosystem Health, University of Georgia, Tifton, GA, U.S.A.
9:00 a.m. S-111. Online outreach: *Phytophthora* training for nursery growers. J. PARKE (1), J. Pscheidt (1), R. Regan (1), J. Hedberg (2), N. Grunwald (3). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) Oregon Department of Agriculture, Salem, OR, U.S.A.; (3) USDA-ARS Horticultural Crops Research Lab, Corvallis, OR, U.S.A.
9:30 a.m. S-112. Adobe Connect: What can it do for you? G. SNYDER (1). (1) Department of Communications, Kansas State University, Manhattan, KS, U.S.A.
10:00 a.m. S-113. ipmPIPE: Legume PIPE – New option for generating, summarizing, and disseminating real-time pest data to stakeholders. H. SCHWARTZ (1), M. Langham (2), S. A. Tolin (3), J. Golod (4), J. LaForest (5), K. F. Cardwell (6). (1) Colorado State University, Fort Collins, CO, U.S.A.; (2) South Dakota State University, Brookings, SD, U.S.A.; (3) Virginia Tech, Blacksburg, VA, U.S.A.; (4) Pennsylvania State University, University Park, PA, U.S.A.; (5) University of Georgia, Tifton, GA, U.S.A.; (6) USDA-CSREES, Washington, DC, U.S.A.
10:30 a.m. S-114. eXtension.org – How to use it to deliver your information. T. MEISENBACH (1). (1) eXtension Initiative, Cathedral City, CA, U.S.A.
11:00 a.m. Panel Q&A

Finding an Exotic Pest – What Do I Do Now?
8:30 – 11:30 a.m.; B117-119
Section: Plant Disease Management
Organizer/Moderator: Russ Bulluck, USDA APHIS PPQ CPHST, Raleigh, NC, U.S.A.
Sponsoring Committees: Regulatory Committee; Emerging Diseases and Pathogens

Every year, USDA and state departments of agriculture respond to plant health emergencies. Most of these emergencies are detected through the routine surveillance provided by the departments of agriculture in cooperation with USDA, but what happens if you as a research scientist find what appears to be an exotic pest or pathogen. What is the next step? How can you help? This session will guide you through the steps that are necessary.

8:30 a.m. S-115. A national perspective of the detection of and response to exotic pests. O. EL-LISSY (1), R. Bulluck (2). (1) USDA APHIS, Riverdale, MD, U.S.A.; (2) USDA APHIS PPQ CPHST, Raleigh, NC, U.S.A.
9:00 a.m. S-116. The role of the technical working group in new pest detections. R. BULLUCK (1), P. Berger (1). (1) USDA APHIS PPQ CPHST, Raleigh, NC, U.S.A.

9:30 a.m. S-117. The role of the NPDN in the detection of and response to exotic pests. K. CARDWELL (1), M. Draper (1), C. S. Thomas (2), R. M. Bostock (2), J. Stack (3), R. Hammerschmidt (4), G. Hudler (5), R. Charudattan (6). (1) USDA CSREES, Washington, DC, U.S.A.; (2) University of California, Davis, CA, U.S.A.; (3) Kansas State University, Manhattan, KS, U.S.A.; (4) Michigan State University, East Lansing, MI, U.S.A.; (5) Cornell University, Ithaca, NY, U.S.A.; (6) University of Florida, Gainesville, FL, U.S.A.

10:00 a.m. S-118. The detection of and response to exotic pests in Florida. W. DIXON (1). (1) Florida Department of Agriculture and Consumer Products, Gainesville, FL, U.S.A.

10:30 a.m. S-119. The detection of and response to exotic pests in California. K. KOSTA (1). (1) California Department of Food and Agriculture, Sacramento, CA, U.S.A.

11:00 a.m. S-120. Finding an exotic pathogen: An industry perspective. L. SCHMALE (1). (1) Society of American Florists, Alexandria, VA, U.S.A.

Molecular Mechanisms of Host Susceptibility
8:30 – 11:30 a.m.; B113-114
Section: Molecular/Cellular/Plant-Microbe Interactions
Organizers/Moderators: S. Rao Uppalapati, Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; Guo-Liang Wang, Ohio State University, Columbus, OH, U.S.A.
Sponsoring Committees: Molecular and Cellular Phytopathology; Host Resistance; Pathogen Resistance; Mycology

Host factors associated with disease resistance and the pathogen effectors that trigger host defenses have been extensively investigated in the last decade. Recently, increasing attention has been focused on host and pathogen factors that promote compatible interactions and disease development. This session will focus on emerging paradigms, beyond classic Type III secretion delivery systems, in host susceptibility to fungal, oomycete, and bacterial pathogens in diverse crop and model pathosystems.

8:30 a.m. S-121. Victoria blight: A convergence of plant disease susceptibility and resistance? T. WOLPERT (1), J. M. Lorang (1), B. M. Gilbert (1), C. S. Bradford II (1). (1) Department of Botany and Plant Pathology and Center for Genome Research and Biocomputing, Oregon State University, Corvallis, OR, U.S.A.

9:00 a.m. S-122. The biotrophic interfacial complex and effector translocation during rice blast disease. B. VALENT (1), C. H. Khang (1), M. C. Giraldo (1), G. Mosquera (1,4), R. Berruyer (1,5), P. Kankanala (1,6), M. Yi (1), K. Czymmek (2), S.-Y. Park (3,7), S. Kang (3). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) University of Delaware, Newark, DE, U.S.A.; (3) Pennsylvania State University, University Park, PA, U.S.A.; (4) International Center for Tropical Agriculture, Cali, Colombia; (5) Université d'Angers, Angers, France; (6) Edenspace Systems Corporation, Manhattan, KS, U.S.A.; (7) Seoul National University, Seoul, Korea

9:30 a.m. S-123. Negative regulators of basal defense in cereal-fungal interactions. R. WISE (1,2,3), Y. Meng (2), M. J. Moscou (2,3), G. S. Fuerst (1,2), W. Xu (2). (1) Corn Insects and Crop Genetics Research, USDA-ARS, Iowa State University, Ames, IA, U.S.A.; (2) Department of Plant Pathology and Center for Plant Responses to Environmental Stresses, Iowa State University, Ames, IA, U.S.A.; (3) Bioinformatics and Computational Biology, Iowa State University, Ames, IA, U.S.A.

10:00 a.m. S-124. How oomycete effectors condition susceptibility to *Phytophthora sojae*. B. M. TYLER (1), S. D. Kale (1), D. Dou (1,2), D. Capelluto (1), W. Qunqing (2), H. Changzhi (2), S. Li (3), B. Gu (1,4), R. Anderson (1), A. Ferreira (1), S. Tripathy (1), F. Arredondo (1), R. Hanlon (1), H. Brar (3), S. Grosic (3), W. Xiaoli (2), Y. Xiaoli (2), L. Tiuli (2), Y. Yao (2), W. Xinle (2), D. Suomeng (2), Z. Zhengguang (2), Z. Xiaobo (2), C. Lawrence (1), W. Shan (4), J. McDowell (1), M. K. Bhattacharyya (3), Y. Wang (2). (1) Virginia Polytechnic Institute and State University, Blacksburg, VA, U.S.A.; (2) Nanjing Agricultural University, China; (3) Iowa State University, Ames, IA, U.S.A.; (4) Northwest Agricultural and Forestry University, China

10:30 a.m. S-125. Mechanisms of bacterial speck disease development in tomato: Functional role of a ubiquitin ligase and the chloroplast targeting virulence factor, coronatine. S. RAO UPPALAPATI (1), Y. Ishiga (1), T. Wangdi (2), C. M. Ryu (1), K. S. Mysore (1), C. L. Bender (2). (1) Plant Biology Division, Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.; (2) Department of Entomology and Plant Pathology, Oklahoma State University, Stillwater, OK, U.S.A.

11:00 a.m. S-126. Breakdown of basal resistance in *Nicotiana benthamiana* and Arabidopsis against host and nonhost pathogens. K. S. MYSORE (1), K. Wang (1), S. K. Muthappa (1), C. M. Ryu (1), L. Kang (1). (1) Samuel Roberts Noble Research Foundation, Ardmore, OK, U.S.A.

Working with Genetically Engineered Plant Pathogens in the Modern Regulatory Environment
8:30 – 10:00 a.m.; B115-116
Section: Professionalism/Outreach
Organizers: Aric Wiest, University of Missouri-Kansas City, FGSC, Kansas City, MO, U.S.A.; Kevin McCluskey, University of Missouri-Kansas City, FGSC, Kansas City, MO, U.S.A.
Moderator: Shuxian Li, USDA-ARS, Stoneville, MS, U.S.A.
Sponsoring Committee: Collections and Germplasm

Speakers from culture collections, industry, and regulatory agencies will present their perspectives on how to navigate the regulations governing work with GMO plant pathogens.

8:30 a.m. S-127. USDA-APHIS. D. HERON (1). (1) USDA-APHIS, Riverdale, MD, U.S.A.
9:00 a.m. S-128. Shipping genetically engineered pathogens. D. STIGER (1). (1) Federal Aviation Administration, Portland, OR, U.S.A.
9:30 a.m. S-129. Culture collections: an important partner in establishing and enforcing regulations on research with genetically engineered plant pathogenic micro-organisms. K. MCCLUSKEY (1). (1) University of Missouri-Kansas City, Kansas City, MO, U.S.A.

ORAL TECHNICAL SESSIONS – TUESDAY MORNING
Listed in alphabetical order by title.

Biology of Viruses
8:30 – 11:30 a.m.; A106
Section: Molecular/Cellular/Plant-Microbe Interactions
Moderators: Carlos Angel, University of Missouri, Columbia, MO, U.S.A.; Rosemarie Hammond, USDA ARS, Beltsville, MD, U.S.A.

8:30 a.m. O-124. Self-assembly of *Maize rayado fino virus* particles in bacteria and in plants: Towards an understanding of *Marafivirus* gene expression and biology. R. W. HAMMOND (1). (1) USDA ARS, Beltsville, MD, U.S.A.
8:45 a.m. O-125. GFP expression from a biologically active minireplicon of *Sonchus yellow net virus*. U. GANESAN (1), J. N. Bragg (2), M. Deng (1), S. Marr (1), A. O. Jackson (1). (1) UC Berkeley, Berkeley, CA, U.S.A.; (2) USDA, ARS, Western Regional Research Center, Albany, CA, U.S.A.
9:00 a.m. O-126. Experimental evolution of an avirulent *Soybean mosaic virus* toward virulence on *Rsv1*-soybeans imitates mutations selected through natural evolution. M. R. HAJIMORAD (1), R. Wen (1), A. L. Eggenberger (2), J. H. Hill (2), M. A. Saghai Maroof (3). (1) University of Tennessee, Knoxville, TN, U.S.A.; (2) Iowa State University, Ames, IA, U.S.A.; (3) Virginia Tech, Blacksburg, VA, U.S.A.
9:15 a.m. O-127. Behavior of the triple gene block proteins of *Alternanthera mosaic virus* differs from those of *Potato virus X*. H. Lim (1), A. Vaira (2), H. Bae (3), J. N. Bragg (4), S. E. Ruzin (5), J. HAMMOND (6). (1) USDA-ARS, USNA, FNPRU, Beltsville, MD, U.S.A.; (2) CNR, IVV, Torino 10135, Italy; (3) USDA-ARS, PSI, SPCL, Beltsville, MD, U.S.A.; (4) USDA-ARS, WRRC, Albany, CA, U.S.A.; (5) University of California, CNR, Berkeley, CA, U.S.A.; (6) USDA ARS FNPRU, Beltsville, MD, U.S.A.
9:30 a.m. O-128. Oleic acid levels modulate defense signaling by regulating expression of resistance genes. M. MANDAL (1), S. Zhu (1), Q. Gao (1), Y. Xia (1), R. Jeong (1), K. Yu (1), S. Venugopal (1), L. Lapchyk (1), A. Kachroo (1), P. Kachroo (1). (1) University of Kentucky, Lexington, KY, U.S.A.
9:45 a.m. O-129. GmRAR1 and GmSGT1-2 participate in various modes of soybean immunity against microbial pathogens. D. FU (1), S. Ghabrial (1), A. Kachroo (1). (1) University of Kentucky, Lexington, KY, U.S.A.
10:00 a.m. BREAK
10:15 a.m. O-130. Investigation of tissue tropism of curtoviruses in the plant and the beet leafhopper vector. L. CHEN (1), R. L. Gilbertson (1). , (1) University of California, Davis, CA, U.S.A.
10:30 a.m. O-131. *Nicotiana benthamiana* as a model plant to study aphid transmission of plant viruses. A. V. KARASEV (1), A. R. Poplawsky (1), B. S. Blades (1), M. Dibble (1), H. Ding (1), V. V. Dolja (2), S. D. Eigenbrode (1). (1) University of Idaho, Moscow, ID, U.S.A.; (2) Oregon State University, U.S.A.
10:45 a.m. O-132. A hypersensitive response in *Nicotiana* species within the *Alatae* section is elicited by the *Tomato bushy stunt virus* coat protein p41 gene. C. A. ANGEL (1), J. E. Schoelz (1). (1) Division of Plant Sciences, University of Missouri, Columbia, MO, U.S.A.
11:00 a.m. O-133. Characterization of *Tomato spotted wilt virus* NSm protein domains involved in tubule formation, movement, and symptoms. W. Li (1), D. J. Lewandowski (2), M. E. Hilf (3), S. ADKINS

(3). (1) University of Florida, CREC, Lake Alfred, FL, U.S.A.; (2) Ohio State University, Columbus, OH, U.S.A.; (3) USDA-ARS, Fort Pierce, FL, U.S.A.

11:15 a.m. O-134. *Tomato bushy stunt virus* inoculation of roots versus leaves reveals differential effects by the coat protein and the P19 silencing suppressor. S. A. MANABAYEVA (1), M. Shamekova (1), Y. Hsieh (1), R. T. Omarov (1), H. B. Scholthof (1). (1) Texas A&M University, College Station, TX, U.S.A.

Chemical Control
8:30 – 11:30 a.m.; C123
Section: Plant Disease Management
Moderators: Gerald Miller, North Carolina State University, Raleigh, NC, U.S.A.; Lorianne Fought, Bayer CropScience, Fresno, CA, U.S.A.

8:30 a.m. O-135. Propiconazole and fludioxonil for managing postharvest fungal decays of fresh market tomato. A. COCHRAN (1), J. Adaskaveg (2), H. Förster (2). (1) Syngenta Crop Protection, Granite Bay, CA, U.S.A.; (2) University of California, Riverside, CA, U.S.A.

8:45 a.m. O-136. Difenoconazole – A new fungicide for controlling postharvest decays of pome fruit and a mix partner for fungicide resistance management. H. FÖRSTER (1), A. Cochran (2), R. Spotts (3), J. E. Adaskaveg (4). (1) University of California, Davis, CA, U.S.A.; (2) Syngenta Crop Protection, Roseville, CA, U.S.A.; (3) Oregon State University, Hood River, OR, U.S.A.; (4) University of California, Riverside, CA, U.S.A.

9:00 a.m. O-137. Fluopyram – A new active ingredient from Bayer CropScience. L. FOUGHT (1), G. H. Musson (2), J. R. Bloomberg (2), H. Young (2). (1) Bayer CropScience, Fresno, CA, U.S.A.; (2) Bayer CropScience, Research Triangle Park, NC, U.S.A.

9:15 a.m. O-138. Fluopyram for the control of diseases of horticultural crops. G. H. MUSSON (1), L. Fought (2), J. R. Bloomberg (1), H. Young (1). (1) Bayer CropScience, Res Triangle Park, NC, U.S.A.; (2) Bayer CropScience, Fresno, CA, U.S.A.

9:30 a.m. O-139. IR-4 Project – Fungicide registration update. D. C. THOMPSON (1), D. L. Kunkel (2), D. Carpenter (2), W. Barney (2), J. Corley (2). (1) Rutgers University, Princeton, NJ, U.S.A.; (2) IR-4 Project, Rutgers University

9:45 a.m. O-140. The impact of strobilurin fungicides on disease development and yield in corn and cotton. G. PADGETT (1), T. W. Allen (2), C. M. Coker (3), A. Greer (3), M. A. Purvis (1). (1) Louisiana State University, Winnsboro, LA, U.S.A.; (2) Mississippi State University, Stoneville, MS, U.S.A.; (3) University of Arkansas, Monticello, AR, U.S.A.

10:00 a.m. BREAK

10:15 a.m. O-141. Impact of application method on the efficacy of preventive DMI fungicide applications for fairy ring control on golf putting greens. G. L. MILLER (1), L. P. Tredway (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

10:30 a.m. O-142. Fungicide concentration analysis on creeping bentgrass leaf blades using commercially available ELISA kits for the control of *Microdochium nivale.* P. L. KOCH (1), J. P. Kerns (2), J. C. Stier (2). (1) University of Wisconsin, Verona, WI, U.S.A.; (2) University of Wisconsin, Madison, WI, U.S.A.

10:45 a.m. O-143. Effects of copper-based fungicides on leaf bronzing, foliar gas exchange, and fruit quality of tart cherry. B. R. GRUBER (1), L. R. Davies (1), E. L. Kruger (1), P. S. McManus (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

11:00 a.m. O-144. Performance assessments of methyl bromide alternative fumigants in sting nematode infested strawberry fields in Florida. J. W. NOLING (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

11:15 a.m. O-145. Chemical control of Phytophthora blight (*Phytophthora capsici*) of pumpkin in Illinois. M. BABADOOST (1). (1) University of Illinois, Urbana, IL, U.S.A.

Phyllosphere/Rhizosphere Ecology
8:30 – 11:30 a.m.; C124
Section: Epidemiology/Ecology/Environmental Biology
Moderators: Rachel Melnick, Pennsylvania State University, University Park, PA, U.S.A.; Leslie Wanner, USDA ARS, Beltsville, MD, U.S.A.

8:30 a.m. O-146. Characterization of a naturally occurred suppressive soil to potato common scab in Michigan. Q. MENG (1), J. Yin (2), R. Hammerschmidt (1), W. Kirk (1), J. Hao (1). (1) Michigan State University, East Lansing, MI, U.S.A.; (2) University of Georgia, U.S.A.

8:45 a.m. O-147. Effect of soil temperature and plant age on root rot and foliar symptoms of soybean sudden death syndrome. C. GONGORA (1), L. Leandro (1). (1) Iowa State University, Ames, IA, U.S.A.

9:00 a.m. O-148. Impact of application of endophytic *Bacillus* spp. for biocontrol of cacao diseases on native microbial communities. R. L. MELNICK (1), C. Suárez-Capello (2), B. A. Bailey (3), K. Solis (2), P. A. Backman (1). (1) Pennsylvania State University, University Park, PA, U.S.A.; (2) Instituto Nacional de Investigaciones Agropecuarias, Estación Experimental Tropical Pichilingue, Quevedo, Los Rios, Ecuador; (3) Sustainable Perennial Crop Lab, USDA-ARS, Beltsville, MD, U.S.A.

9:15 a.m. O-149. Comparison of aflatoxigenicity of corn kernel and soil populations of *Aspergillus flavus.* R. R. SWEANY (1), K. E. Damann (1). (1) Louisiana State University Agricultural Center, Baton Rouge, LA, U.S.A.

9:30 a.m. O-150. Induced resistance in flowers and its effectiveness in suppressing flower-infecting fungi. S. THOMAS (1), H. Scherm (1). (1) University of Georgia, Athens, GA, U.S.A.

9:45 a.m. O-151. Effect of type III and type II secretion on *Acidovorax avenae* subsp. *citrulli* colonization of watermelon seed and seedling tissue. K. L. JOHNSON (1), G. V. Minsavage (2), R. R. Walcott (1). (1) University of Georgia, Athens, GA, U.S.A.; (2) University of Florida, Gainesville, FL, U.S.A.

10:00 a.m. BREAK

10:15 a.m. O-152. Effect of rootstock genotype on functional and taxonomic diversity of rhizosphere communities and endophyte communities of grapevine in California. S. R. PARKER (1), D. A. Kluepfel (2). (1) USDA, Agricultural Research Service, Davis, CA, U.S.A.; (2) USDA, Agricultural Research Service, Crops Pathology/Genetics Research Unit, U.S.A.

10:30 a.m. O-153. Culture-independent association of fungal and oomycete populations with damping-off disease incidence in soils. M. BENITEZ (1), B. B. McSpadden Gardener (2). (1) Biotecnologia, Departamento de Ciencias de la Vida, Escuela Politécnica del Ejercito, Quito, Ecuador; (2) Department of Plant Pathology, The Ohio State University, OARDC, Wooster, OH, U.S.A.

10:45 a.m. O-154. Caught in the act: A field gone suppressive for common scab? L. A. WANNER (1), K. G. Haynes (1). (1) USDA ARS, Beltsville, MD, U.S.A.

11:00 a.m. O-155. A root rot of soybean (*Glycine max*) caused by *Phytophthora sansomeana* sp nov. P. REESER (1), E. Hansen (1). (1) Oregon State University, Corvallis, OR, U.S.A.

11:15 a.m. O-156. Effect of soil texture and fluctuating soil moisture in carpogenic germination of *Sclerotinia sclerotiorum* sclerotia. A. NEPAL (1), L. E. del Rio Mendoza (1). (1) North Dakota State University, Fargo, ND, U.S.A.

Vegetable Diseases
8:30 – 11:30 a.m.; A105
Section: Diseases of Plants
Moderators: William Wintermantel, USDA ARS, Salinas, CA, U.S.A.; Ken Frost, University of Wisconsin, Madison, WI, U.S.A.

8:30 a.m. O-157. Available nitrogen levels influence *Colletotrichum coccodes* infection severity of Russet Burbank potato roots. B. BLAISDELL (1), B. Geary (1), J. Morton (1), M. Kearns (1), D. A. Johnson (2), B. G. Hopkins (1), V. D. Jolley (1). (1) Brigham Young University, Provo, UT, U.S.A.; (2) Washington State University, U.S.A.

8:45 a.m. O-158. Infection severity of *Colletotrichum coccodes* in Russet Burbank potatoes with respect to environmental potassium. B. Geary (1), M. J. KEARNS (1), E. Song (1), B. Blaisedell (1), D. A. Johnson (1), B. G. Hopkins (1), V. D. Jolley (1). (1) Brigham Young University, Provo, UT, U.S.A.

9:00 a.m. O-159. Biological and molecular properties of *Potato virus S* from late blight resistant potato. Y. LIN (1), K. Druffel (1), J. L. Whitworth (2), M. J. Pavek (1), H. Pappu (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) USDA-ARS, Aberdeen, ID, U.S.A.

9:15 a.m. O-160. Study of *Cucurbit yellow stunting disorder virus* in southern California reveals an expanded host range including non-cucurbit weed and crop species. W. M. WINTERMANTEL (1), R. L. Gilbertson (2), E. T. Natwick (3), L. L. Hladky (1), A. A. Cortez (1). (1) USDA ARS, Salinas, CA, U.S.A.; (2) Department of Plant Pathology, University of California, Davis, CA, U.S.A.; (3) University of California Desert Research and Extension Center, Holtville, CA, U.S.A.

9:30 a.m. O-161. A new plant picorna-like virus related to torrado viruses causes chocolate spot disease of tomato in Guatemala. Y. KUO (1), O. Batuman (1), M. L. Palmieri (2), M. R. Rojas (1), R. L. Gilbertson (1). (1) UC Davis, Davis, CA, U.S.A.; (2) University del Valle de, Guatemala

9:45 a.m. O-162. Refining the aster yellows index in Wisconsin: Developing sustainable control tactics for susceptible vegetable crops. K. E. FROST (1), C. L. Groves (2), R. L. Groves (2). (1) Department of Plant Pathology, University of Wisconsin, Madison, WI, U.S.A.; (2) Department of Entomology, University of Wisconsin, Madison, WI, U.S.A.

10:00 a.m. BREAK

10:15 a.m. O-163. Investigation of thrips population and *Tomato spotted wilt virus* incidence in processing tomatoes in the Central Valley of California. O. BATUMAN (1), T. A. Turini (2), M. LeStrange (3), S. Stoddard (4), G. Miyao (5), D. E. Ullman (6), R. L. Gilbertson (7). (1) University of California-Davis, CA, U.S.A.; (2) University of California Cooperative Extension (UCCE), Fresno County, U.S.A.; (3) University of California Cooperative Extension (UCCE), Kings County, U.S.A.; (4) University of California Cooperative Extension (UCCE), Merced County; U.S.A. (5) University of California Cooperative Extension (UCCE), Yolo County, U.S.A.; (6) Department of Entomology, University of California-Davis, CA, U.S.A.; (7) Department of Plant Pathology, University of California-Davis, CA, U.S.A.

10:30 a.m. O-164. Assessing vegetable producers beliefs regarding food safety issues. M. L. LEWIS IVEY (1), S. A. Miller (2), J. T. LeJeune (2). (1) Ohio State University, Wooster, OH, U.S.A.; (2) Ohio State University/OARDC, Wooster, OH, U.S.A.

10:45 a.m. O-165. Flower infections with *Xanthomonas campestris* pv. *campestris* can result in internal seed infection. J. M. VAN DER WOLF (1), P. S. van der Zouwen (1). (1) Plant Research International, Wageningen, The Netherlands

11:00 a.m. O-166. Determination of prevalence of *Potato yellow vein virus* (PYVV) in crops of *Solanum phureja* in three states of Colombia by symptom detection and RT-PCR. L. FRANCO-LARA (1), D. Rodriguez (1), M. Guzman (2). (1) Universidad Militar Nueva Granada, Bogota, Colombia; (2) Instituto de Biotecnología, Universidad Nacional de Colombia, Bogotá-Colombia

11:15 a.m. O-167. New biovar 3 *Dickeya* spp. strain (syn. *Erwinia chrysanthemi*) as a causative agent of blackleg in seed potato in Europe. R. CZAJKOWSKI (1), J. A. van Veen (2), J. M. van der Wolf (1). (1) Plant Research International, Wageningen, The Netherlands; (2) Netherlands Instituut voor Ecologie, Heteren, The Netherlands/Institute of Biology, Leiden University, Leiden, The Netherlands

FLASH-AND-DASH SESSIONS – TUESDAY MORNING
Listed in alphabetical order by title.

Biology of Fungi
10:00 – 11:00 a.m.; Exhibit Hall A; Room 2
Section: Biology of Pathogens
Moderator: Lynda Ciuffetti, Oregon State University, Corvallis, OR, U.S.A.

10:00 a.m. P-269. Deciphering the interaction between SCN and *Fusarium virguliforme*. C. FROHNING (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.

10:05 a.m. P-283. Identification of networks and pathways in the *Magnaporthe oryzae* transcriptome during stress conditions. S. M. MATHIONI (1), C. Rizzo (2), J. A. Sweigard (3), A. M. Carroll (3), N. M. Donofrio (1). (1) University of Delaware, Newark, DE, U.S.A.; (2) WuXi AppTech, Inc., Philadelphia, PA, U.S.A.; (3) Dupont Stine Haskell Research Center, Newark, DE, U.S.A.

10:10 a.m. P-287. *Dactylaria pseudomanifesta* a new species of a Dematiaceous fungus from the Atlantic rain forest of Bahia, Brazil. J. BEZERRA (1), D. A. Magalhães (1), E. M. Luz (1). (1) Ceplac Cepec Sefit, Itabuna, BA, Brazil

10:15 a.m. P-296. Multi-gene phylogeny and genetic diversity within *Phytophthora capsici* in New Mexico. S. F. Hanson (1), M. PEIMAN WILLIAMS (1). (1) New Mexico State University, Las Cruces, NM, U.S.A.

10:20 a.m. P-288. Evidence that *Phoma sclerotioides*, causal agent of brown root rot of alfalfa, is composed of a species complex. M. J. WUNSCH (1), G. C. Bergstrom (1). (1) Cornell University, Ithaca, NY, U.S.A.

10:25 a.m. P-462. First report of a new *Exserohilum* disease on bermudagrass in Texas. S. CHANDRASEKAR (1), Y. Jo (1), M. Tomaso-Peterson (2). (1) Texas A&M University, College Station, TX, U.S.A.; (2) Mississippi State University, Mississippi State, MS, U.S.A.

10:30 a.m. P-271. Isolation and characterization of *Fusarium oxysporum* causing potato dry rot in *Solanum tuberosum* in Colombia. L. GARCIA (1), A. Grajales (1), R. Sierra (1), M. E. Cardenas (1), L. Avila (1), M. C. Cepero de Garcia (1), S. Restrepo (1), A. Bernal (1). (1) Universidad de Los Andes, Bogota, Colombia

10:35 a.m. P-278. Analysis of molecular variability and PCR amplification of race 1-specific fragment in *Verticillium dahliae* isolates. K. MARUTHACHALAM (1), S. J. Klosterman (2), Z. K. Atallah (1), M. R. Davis (3), K. V. Subbarao (1). (1) University of California, Salinas, CA, U.S.A.; (2) USDA ARS, Salinas, CA, U.S.A.; (3) University of California, Davis, CA, U.S.A.

10:40 a.m. P-318. Temporal shifts in trichothecene profiles of *Gibberella zeae* isolates from barley in North Dakota and Minnesota. R. R. BURLAKOTI (1), S. M. Neate (1), T. B. Adhikari (1), S. Gyawali (1), B.

Salas (2), B. J. Steffenson (3). (1) North Dakota State University, Fargo, ND, U.S.A.; (2) Pest Detection, Diagnostics, and Management Laboratory, USDA, Edinburg, TX, U.S.A.; (3) University of Minnesota, St. Paul, MN, U.S.A.

10:45 a.m. P-336. An RNA virus from *Phytophthora infestans* with no apparent similarity to known viruses. G. CAI (1), W. E. Fry (2), B. I. Hillman (1), K. Myers (2). (1) Rutgers The State University of New Jersey, New Brunswick, NJ, U.S.A.; (2) Cornell University, Ithaca, NY, U.S.A.

Plant Disease Management
10:00 – 11:00 a.m.; Exhibit Hall A, Room 1
Section: Plant Disease Management
Moderator: Aaron Hert, Syngenta Crop Protection, Vero Beach, FL, U.S.A.

10:00 a.m. P-800. Baseline sensitivity of *Phytophthora capsici* isolates from the southeast U.S. to mandipropamid. C. S. KOUSIK (1), R. S. Donahoo (1), A. P. Keinath (2). (1) US Vegetable Laboratory, USDA ARS, Charleston, SC, U.S.A.; (2) CREC, Clemson University, Charleston, SC, U.S.A.

10:05 a.m. P-885. An objective process for selecting regulatory responses to exotic pest detections. L. G. BROWN (1). (1) USDA APHIS, Raleigh, NC, U.S.A.

10:10 a.m. P-867. Cropping system effects on soilborne potato diseases and soil microbial communities. R. LARKIN (1), W. Honeycutt (1), T. Griffin (1), J. Halloran (1), M. Olanya (1), Z. He (1). (1) USDA ARS, Orono, ME, U.S.A.

10:15 a.m. P-881. Influence of weed species and time of glyphosate application on Rhizoctonia root rot of barley. E. M. BABIKER (1), S. Hulbert (1), I. C. Burke (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.

10:20 a.m. P-726. Trichothecene production and sporulation by *Myrothecium verrucaria* in response to substrate composition. M. A. WEAVER (1), R. M. Zablotowicz (1), R. E. Hoagland (1), C. D. Boyette (1). (1) USDA ARS, Stoneville, MS, U.S.A.

10:25 a.m. P-816. Resistance to wheat stem rust in spelt wheat, wild emmer, and triticale. P. D. OLIVERA FIRPO (1), M. Rouse (1), Y. Jin (2). (1) Department of Plant Pathology, University of Minnesota, St. Paul, MN, U.S.A.; (2) Department of Plant Pathology, University of Minnesota and USDA-ARS, Cereal Disease Laboratory, St. Paul, MN, U.S.A.

10:30 a.m. P-836. Potential use of qPCR for evaluating resistance to leaf scald in sugarcane. F. F. GARCES (1), J. Hoy (2). (1) Louisiana State University, Baton Rouge, LA, U.S.A.; (2) Plant Pathology and Crop Physiology, Agcenter, Louisiana State University, Baton Rouge, LA, U.S.A.

10:35 a.m. P-838. High-throughput genetic analysis and association mapping to identify novel genes for resistance to stripe rust in spring wheat germplasm. M. WANG (1), Q. Li (2), L. Xu (3), J. Zhao (2), J. Ma (2), X. Chen (4). (1) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.; (2) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A., and Northwest A&F University, Yangling, Shaanxi, China; (3) Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A., and College of Plant Protection, Northwest A&F University, Yangling, Shaanxi, China; (4) USDA-ARS and Department of Plant Pathology, Washington State University, Pullman, WA, U.S.A.

10:40 a.m. P-832. Family variation in *Phytophthora lateralis* resistance in Port-Orford-cedar: Greenhouse and raised bed testing. R. A. SNIEZKO (1), P. Reeser (2), A. Kegley (1), S. Kolpak (1), E. Hansen (2). (1) USDA FS/Dorena Genetic Resource Center, Cottage Grove, OR, U.S.A.; (2) Oregon State University/Botany & Plant Pathology, Corvallis, OR, U.S.A.

10:45 a.m. P-841. Selection of plant-defense peptides from phage-display libraries directed towards *Gibberella zeae* for control of head blight of wheat. N. W. GROSS (1), Z. D. Fang (1), F. J. Schmidt (1), J. T. English (1). (1) University of Missouri, Columbia, MO, U.S.A.

SPECIAL SESSIONS – TUESDAY AFTERNOON
Listed in alphabetical order by title.

The Balance Is Tilting: Finding Resistance to Vascular Wilting
1:00 – 3:30 p.m.; B110-112
Section: Molecular/Cellular/Plant-Microbe Interactions
Organizers: Dennis Halterman, USDA/ARS University of Wisconsin-Madison, Madison, WI, U.S.A.; Gary Vallad, University of Florida, Wimauma, FL, U.S.A.
Sponsoring Committees: Host Resistance; Cellular and Molecular Phytopathology

Financial Sponsors: Seminis, USDA/NRI
Moderator: Dennis Halterman, USDA/ARS University of Wisconsin-Madison, Madison, WI, U.S.A.

Pathogens that infect the vascular systems of plants and cause wilting, such as some species of *Verticillium*, *Ralstonia*, and *Fusarium*, are as diverse as the plants they infect. However, difficulty in quantitating disease symptoms, developing rapid screening methods for resistance, separating immunity and tolerance, and incorporating resistance into breeding lines, all present challenges regardless of the pathogen or host being studied. By bringing together scientists studying resistance to these diseases, we hope to foster discussion of challenges and successes that might not normally be presented in a session that is specific to the pathogen type.

1:00 p.m. S-130. Breeding for resistance – New approaches and challenges. R. HAYES (1), G. E. Vallad (2), L. K. McHale (3), M. J. Truco (3), O. E. Ochoa (3), R. W. Michelmore (3), S. J. Klosterman (1), K. Maruthachalam (4), K. V. Subbarao (4). (1) USDA/ARS, Salinas, CA, U.S.A.; (2) University of Florida, Gulf Coast Research and Education Center, Wimauma, FL, U.S.A.; (3) University of California, The Genome Center and Department of Plant Sciences, Davis, CA, U.S.A.; (4) University of California, Department of Plant Pathology, Salinas, CA, U.S.A.
1:30 p.m. S-131. Molecular mechanisms of resistance – Functions of major R genes. D. HALTERMAN (1). (1) USDA/ARS, Madison, WI, U.S.A.
2:00 p.m. S-132. Secondary metabolites and toxins – What is causing disease symptoms? A. BELL (1), J. Liu (1), R. D. Stipanovic (1). (1) USDA/ARS, College Station, TX, U.S.A.
2:30 p.m. S-133. Molecular interactions between *Fusarium oxysporum* and *Arabidopsis*. A. DIENER (1). (1) University of California Los Angeles, Los Angeles, CA, U.S.A.
3:00 p.m. S-134. Molecular responses to quantitative bacterial wilt resistance in tomato. A. MILLING (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

Cucurbit Downy Mildew: Re-emergence of a Historical Disease
1:00 – 3:30 p.m.; C120-122
Section: Plant Disease Management
Organizers: Gerald Holmes, Valent U.S.A. Corporation, Cary, NC, U.S.A.; David Gent, USDA ARS, Corvallis, OR, U.S.A.
Sponsoring Committees: Epidemiology; Crop Loss Assessment and Risk Evaluation
Financial Sponsors: Syngenta Crop Protection, Inc., Valent U.S.A. Corporation

After more than four decades of successful control using resistant cultivars, downy mildew (caused by *Pseudoperonospora cubensis*) reemerged as the single most important problem facing cucumber production in the eastern United States. The problem was first detected in North Carolina in 2004 and has since expanded its geographic range to include the Upper Midwest, parts of Canada, west Texas, and most states in between. Yield losses have been catastrophic, in some cases forcing growers to abandon fields within one to two weeks after disease detection. How did this happen and what has been the response from producers, extension, industry, and research? Answers to these questions and the lessons learned along the way are germane to many pathosystems and to phytopathology in the broadest sense. This session will feature the programs that have been on the front lines and will highlight the latest research and extension efforts on this important pathosystem.

1:00 p.m. S-135. The history and reemergence of cucurbit downy mildew. G. HOLMES (1), C. Thomas (2). (1) Valent U.S.A. Corporation, Cary, NC, U.S.A.; (2) USDA ARS (retired), Charleston, SC, U.S.A.
1:30 p.m. S-136. Chemical control of cucurbit downy mildew: A summary of field experiments in the U.S. G. HOLMES (1), P. Ojiambo (2). (1) Valent U.S.A. Corporation, Cary, NC, U.S.A.; (2) North Carolina State University, Raleigh, NC, U.S.A.
1:45 p.m. S-137. Fungicide resistance and management of cucurbit downy mildew. G. OLAYA (1), P. Kuhn (1), A. Hert (1), G. Holmes (2), S. Colucci (3). (1) Syngenta Crop Protection, Vero Beach, FL, U.S.A.; (2) Valent U.S.A. Corporation, Cary, NC, U.S.A.; (3) North Carolina State University, Hendersonville, NC, U.S.A.
2:00 p.m. S-138. Forecasting long distance movement of *Pseudoperonospora cubensis* and the cucurbit ipmPIPE. P. OJIAMBO (1), L. Kanetis (1), G. Holmes (2). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) Valent U.S.A. Corporation, Cary, NC, U.S.A.
2:30 p.m. S-139. Genetic and pathogenic relatedness of *Pseudoperonospora cubensis* and *P. humuli*. D. GENT (1), M. N. Mitchell (2), G. Holmes (3). (1) USDA ARS, Corvallis, OR, U.S.A.; (2) Oregon State University, Corvallis, OR, U.S.A.; (3) Valent U.S.A. Corporation, Cary, NC, U.S.A.
3:00 p.m. S-140. Epidemiology of downy mildew: A regional and molecular approach. B. DAY (1), M. Hausbeck (1). (1) Michigan State University, East Lansing, MI, U.S.A.

Globetrotting Plant Pathogens and Factors Making a Difference in Management Outcomes
1:00 – 4:00 p.m.; B113-114
Section: Epidemiology/Ecology/Environmental Biology
Organizers: Jenifer Huang McBeath, University of Alaska, Fairbanks, AK, U.S.A.; Judith K. Brown, University of Arizona, Tucson, AZ, U.S.A.; Karen A. Garrett, Kansas State University, Manhattan, KS, U.S.A.; Richard Lee, USDA ARS National Clonal Germplasm Repository for Citrus & Dates, Riverside CA, U.S.A.
Moderators: Jenifer Huang McBeath, University of Alaska, Fairbanks, AK, U.S.A.; Karen A. Garrett, Kansas State University, Manhattan, KS, U.S.A.
Sponsoring Committees: OIP; Tropical Plant Pathology; Epidemiology & Forest Pathology

This session examines plant pathogens whose long distance introductions to new regions have resulted in endangerment of local and national agriculture and ecosystems, extraordinary economic damage or threats to trade. We also present synthesis of key factors and strategies attributable to their successful management.

1:00 p.m. S-141. Globalization and new waves of immigration of plant pathogens. J. H. MCBEATH (1). (1) University of Alaska, Fairbanks, AK, U.S.A.
1:30 p.m. S-142. Invasive bacterial pathogens with vectors: Management success and failure. S. MILLER (1), R. Lee (2). (1) Ohio State University, Columbus, OH, U.S.A.; (2) USDA ARS National Clonal Germplasm Repository for Citrus & Dates, Riverside, CA, U.S.A.
2:00 p.m. S-143. Advance of the fungi in a world without borders. D. HUBER (1). (1) Purdue University, Lafayette, IN, U.S.A.
2:30 p.m. S-144. Capsids with wings. J. BROWN (1), C. Herron (2). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) IITA-Tanzania, Dar es Salaam, Tanzania
3:00 p.m. S-145. Stealth invaders: Lessons on nematode dissemination. J. OLE BECKER (1). (1) University of California, Riverside, CA, U.S.A.
3:30 p.m. S-146. Lessons learned for successful management of invasive pathogens. K. A. GARRETT (1), M. M. Roca (2). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) KS & Zamorano University, Tegucigalpa, Honduras

Mechanisms of Post-Transcriptional Control of Gene Functions in Plant-Microbe Interactions (AS, PTGS, Sumoylation and More…)
1:00 – 3:00 p.m.; B117-119
Section: Molecular/Cellular/Plant-Microbe Interactions
Organizers: Paola Veronese, North Carolina State University, Raleigh, NC, U.S.A.; Steffen Heber, North Carolina State University, Raleigh, NC, U.S.A.
Sponsoring Committee: Genetics

Plants acquire resistance to environmental stress by reprogramming gene expression and metabolism, gaining a new equilibrium between growth, development, and survival. Important advances have been made in the understanding of transcriptional changes induced by environmental constraints and in the identification of signaling proteins and transcription factors which regulate the stress-induced gene expression. Although stress-responsive genes still represent an important aspect of stress adaptation, the simple observation of the transcriptome provides only a rough and largely incomplete picture of plant response to stress. The amount of mRNA available for translation can be affected at different steps of the process of RNA maturation, ranging from RNA transcription to splicing, from transport to translation initiation, and degradation by RNAi. Evidence is accumulating about reciprocal actions among different kinds of transcriptional, post-transcriptional, and post-translational regulations. The characterization of this regulatory network is crucial for the deeper understanding of the molecular mechanisms governing plant adaptation to the environment as well as for the practical purpose of improving crop disease resistance.

1:00 p.m. S-147. Alternative splicing in plant-microbe interactions. P. VERONESE (1), S. Heber (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
1:30 p.m. S-148. Regulation of plant disease resistance gene function by alternative splicing. W. GASSMANN (1), X. C. Zhang (1), S. H. Kim (1). (1) Department of Plant Sciences, University of Missouri, Columbia, MO, U.S.A.
2:00 p.m. S-149. A novel role for protein farnesylation in plant innate immunity. S. GORITSCHNIG (1), X. Li (1). (1) Laboratories and Departmentof Botany, University of British Columbia, Vancouver, BC, Canada
2:30 p.m. S-150. Endogenous small RNAs and host RNAi machinery added a fundamental layer of regulation in plant immunity. H. JIN (1). (1) University of California, Riverside, CA, U.S.A.

Meta-Analysis for Evidence Synthesis in Plant Disease Epidemiology and Management
1:00 – 3:30 p.m.; B115-116
Section: Epidemiology/Ecology/Environmental Biology
Organizers: Larry Madden, Ohio State University, Wooster, OH, U.S.A.; Harald Scherm, University of Georgia, Athens, GA, U.S.A.
Moderator: Harald Scherm, University of Georgia, Athens, GA, U.S.A.
Sponsoring Committees: Epidemiology; Crop Loss Assessment and Risk Evaluation

Meta-analysis has been a fundamental method for data analysis in the medical, sociological, behavioral, and ecological sciences for many years, but is only now being used in plant pathology. This session will address the use of meta-analysis as a quantitative approach for evidence synthesis in plant pathology. Speakers will address 1) justifications for combining results from multiple studies as opposed to relying solely on the results from individual studies to make conclusions regarding treatment effects and relationships among variables; 2) different methods for quantifying treatment effects across studies, obtaining treatment effect-size information from published and unpublished studies, and interpretation of the results for different types of chosen effect sizes; 3) use of Bayesian and likelihood-based approaches for synthesizing evidence from simple and complex studies (consisting of one-to-several effect sizes); and 4) case studies on the use of meta-analysis in plant protection and epidemiology.

1:00 p.m. S-151. Introduction: What is meta-analysis and how is it used for evidence synthesis? L. MADDEN (1). (1) Ohio State University, Wooster, OH, U.S.A.
1:30 p.m. S-152. How should one measure the effect of a treatment (effect size) and obtain this information from published and unpublished studies? P. PAUL (1), L. Madden (1). (1) Ohio State University, Wooster, OH, U.S.A.
2:00 p.m. S-153. Effect of foliar fungicides used to control soybean rust. P. ESKER (1), H. Scherm (2). (1) University of Wisconsin, Madison, WI, U.S.A.; (2) University of Georgia, Athens, GA, U.S.A.
2:30 p.m. S-154. What is the best treatment for biocontrol of fire blight? H. NGUGI (1). (1) Penn State University, Biglerville, PA, U.S.A.
3:00 p.m. S-155. A Bayesian approach to meta-analysis. A. MILA (1), H. Ngugi (2). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) Penn State University, Biglerville, PA, U.S.A.

Schroth Faces of the Future Symposium in Bacteriology
1:00 – 3:00 p.m.; A107-109
Section: Biology of Pathogens
Organizer/Moderator: Lyndon Porter, USDA-ARS, Prosser, WA, U.S.A.
Sponsoring Committee: Early Career Professionals

This session, organized by the Early Career Professionals Committee, is designed to acknowledge the "up-and-comers" in the bacteriology discipline of plant pathology. The speakers will present their current research and speculate on the future direction of their discipline in this special session.

1:00 p.m. S-156. *Erwinia amylovora* IQ and gene regulatory network (GRN). Y. ZHAO (1). (1) University of Illinois at Urbana-Champaign, Urbana, IL, U.S.A.
1:30 p.m. S-157. *Xylella fastidiosa* transmission by vectors – from molecules to models. R. P. P. ALMEIDA (1). (1) University of California, Berkeley, CA, U.S.A.
2:00 p.m. S-158. Individual-based ecology of plant-associated bacteria. J. H. J. LEVEAU (1). (1) University of California, Davis, CA, U.S.A.
2:30 p.m. S-159. Biology of *Enterobacter cloacae* and its association with onions. B. K. SCHROEDER (1). (1) Washington State University, Pullman, WA, U.S.A.

ORAL TECHNICAL SESSIONS – TUESDAY AFTERNOON
Listed in alphabetical order by title.

Chemical Control
1:00 – 3:30 p.m.; A106
Section: Plant Disease Management
Moderators: James Adaskaveg, University of California, Riverside, CA, U.S.A.; Megan Dewdney, University of Florida, CREC, Lake Alfred, FL, U.S.A.

1:00 p.m. O-168. QoI resistance in *Fusicladosporium carpophilum* populations from almond in California. H. Förster (1), J. H. Connell (2), J. E. ADASKAVEG (3). (1) University of California, Davis, CA, U.S.A.; (2) University of California Cooperative Extension, Butte Co., CA, U.S.A.; (3) University of California, Riverside, CA, U.S.A.

1:15 p.m. O-169. Resistance to strobilurin fungicides in a population of *Alternaria alternata* causing Alternaria brown spot of citrus. S. N. Mondal (1), A. Godoy da Silva (1), M. M. DEWDNEY (1). (1) University of Florida, CREC, Lake Alfred, FL, U.S.A.

1:30 p.m. O-170. Comparison of molecular and mycelium assay for determining benzimidazole resistance in field populations of *Venturia inaequalis* in Indiana. K. QUELLO (1), K. Chapman (1), J. Beckerman (1). (1) Purdue University, West Lafayette, IN, U.S.A.

1:45 p.m. O-171. Resistance to pyraclostrobin and boscalid in *Botrytis cinerea* populations from apple in Washington State. Y. K. KIM (1), C. L. Xiao (1). (1) Washington State University, TFREC, Wenatchee, WA, U.S.A.

2:00 p.m. O-172. Mutations in the target of DMI fungicides (CYP51) in *Mycosphaerella graminicola* and their impact on DMI sensitivity. M. FRANK (1), D. Strobel (1), M. Semar (1), G. Stammler (1). (1) BASF S.E., Limburgerhof, Germany

2:15 p.m. O-173. Fungicide sensitivity and resistance of the cucurbit powdery mildew pathogen in New York, Pennsylvania, Ohio, and Indiana in 2008. M. T. MCGRATH (1), D. S. Egel (2), J. Jasinski (3), S. A. Miller (4), L. H. Rhodes (5), R. Precheur (6). (1) Department of Plant Pathology & Plant-Microbe Biology, Cornell University, Riverhead, NY, U.S.A.; (2) Southwest Purdue Agricultural Center, Vincennes, IN, U.S.A.; (3) Ohio State University Extension, Urbana, OH, U.S.A.; (4) Department of Plant Pathology, Ohio State University – OARDC, Wooster, OH, U.S.A.; (5) Department of Plant Pathology, Ohio State University, Columbus, OH, U.S.A.; (6) Department of Horticulture & Crop Science, Ohio State University, Columbus, OH, U.S.A.

2:30 p.m. O-174. Resistance to respiration inhibitor fungicides in *Monilinia fructicola* field isolates from South Carolina and Georgia. A. AMIRI (1), P. M. Brannen (2), G. Schnabel (1). (1) Clemson University, Clemson, SC, U.S.A.; (2) University of Georgia, Athens, GA, U.S.A.

2:45 p.m. O-175. A survey of *Venturia inaequalis* fungicide resistance in Indiana and Michigan apple orchards. K. CHAPMAN (1), K. Quello (1), J. Beckerman (1). (1) Purdue University, West Lafayette, IN, U.S.A.

3:00 p.m. O-176. Systemic movement of fungicides in peanut plants in the field. J. AUGUSTO (1), T. Brenneman (1). (1) University of Georgia, Tifton, GA, U.S.A.

3:15 p.m. O-177. Organic apple disease management in Vermont with alternative fungicides. M. L. CROMWELL (1), L. P. Berkett (1), H. M. Darby (1), T. Ashikaga (1). (1) University of Vermont, Burlington, VT, U.S.A.

Disease Detection
1:00 – 3:30 p.m.; C124
Section: Plant Disease Management
Moderators: Mani Skaria, Texas A&M University-Kingsville, Weslaco, TX, U.S.A.; Russell Groves, University of Wisconsin, Madison, WI, U.S.A.

1:00 p.m. O-178. Data trends and results from an HLB testing laboratory that has processed over 64,000 commercial and research samples over a two-year period in Florida. M. S. Irey (1), P. Mai (1), J. Johnson (1), J. H. GRAHAM (2). (1) United States Sugar Corporation/Southern Gardens Citrus, Clewiston, FL, U.S.A.; (2) University of Florida, Lake Alfred, FL, U.S.A.

1:15 p.m. O-179. Micro-budded citrus: A new production system for huanglongbing management. M. SKARIA (1), R. Hanagriff (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.

1:30 p.m. O-180. Identification of Xanthomonas leaf blight from umbelliferous seed crops grown in Oregon. X. MENG (1), R. Ludy (1), C. Fraley (1), N. Osterbauer (1). (1) Oregon Department of Agriculture, Salem, OR, U.S.A.

1:45 p.m. O-181. Detection of mycotoxigenic fungi and indirect competitive ELISA for fumonisin B_1 in sorghum. B. REDDY (1). (1) Osmania University, Hyderabad, Andhra Pradesh, India

2:00 p.m. O-182. Early detection and eradication of *Phytophthora ramorum* (sudden oak death) in Oregon forests. A. KANASKIE (1), E. Goheen (2), E. Hansen (3), N. Osterbauer (4), M. McWilliams (5), R. Schultz (6), S. Savona (7), W. Sutton (3), P. Reeser (3). (1) Oregon Department of Forestry, Salem, OR, U.S.A.; (2) USDA-Forest Service, Medford, OR, U.S.A.; (3) Oregon State University, Corvallis, OR, U.S.A.; (4) Oregon Department of Agriculture, Salem, OR, U.S.A.; (5) Oregon Department of

Forestry, Salem, OR, U.S.A.; (6) USDI-Bureau of Land Management, Coos Bay, OR, U.S.A.; (7) Oregon Department of Forestry, Brookings, OR, U.S.A.

2:15 p.m. O-183. Monitoring the effectiveness of *Phytophthora ramorum* eradication treatments in southwest Oregon tanoak forests. A. Kanaskie (1), E. M. GOHEEN (2), E. M. Hansen (3), W. Sutton (3), P. Reeser (3), N. Osterbauer (4). (1) Oregon Department of Forestry, Salem, OR, U.S.A.; (2) USDA Forest Service, Central Point, OR, U.S.A.; (3) Oregon State University, Corvallis, OR, U.S.A.; (4) Oregon Department of Agriculture, Salem, OR, U.S.A.

2:30 p.m. O-184. Integrated pest and disease management: Reducing current season spread of *Potato virus Y* in potato. R. GROVES (1), A. Charkowski (1), A. Crockford (1), R. Coltman (1), R. Hafner (1), K. Bula (1). (1) University of Wisconsin, Madison, WI, U.S.A.

2:45 p.m. O-185. TurfFiles decision aids for diagnosis and management of turfgrass diseases. L. P. TREDWAY (1), G. G. Wilkerson (1), M. C. Sturgill (1), B. R. Lassiter (1), V. J. Chungath (1), G. S. Buol (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

3:00 p.m. O-186. Comparison of products and application methods for control of Sclerotinia drop of lettuce. M. E. MATHERON (1), M. Porchas (1). (1) Yuma Agricultural Center, University of Arizona, Yuma, AZ, U.S.A.

3:15 p.m. O-187. Effect of fungi-toxicants on spore germination of *Puccinia graminis* f. sp. *tritici.* V. GUPTA (1), J. M. Stein (1). (1) South Dakota State University, Brookings, SD, U.S.A.

Forest Pathology
1:00 – 3:30 p.m.; A105
Section: Diseases of Plants
Moderators: Jean Berube, Canadian Forest Service, Quebec City, QC, Canada; Brent Oblinger, University of Wisconsin-Madison, Madison, WI, U.S.A.

1:00 p.m. O-188. Early warning system against forest invasive alien fungal species on live plant material. J. A. BERUBE (1). (1) Canadian Forest Service, Quebec City, QC, Canada

1:15 p.m. O-189. *Phyllachora* "tar spots" on *Bauhinia* species from the Brazilian Cerrado. J. A. Osorio (1), C. A. Inácio (1), J. C. DIANESE (1). (1) Universidade de Brasília, Brasília, Brazil

1:30 p.m. O-190. White pine blister rust on new telial hosts (*Castilleja* and *Pedicularis*) in whitebark pine ecosystems at Mt. Rainier and Crater Lake National Parks. R. MULVEY (1), E. Hansen (1). (1) Oregon State University, Corvallis, OR, U.S.A.

1:45 p.m. O-191. Attempts to naturally regenerate red pine can be threatened by Diplodia shoot blight damage to understory seedlings. B. W. OBLINGER (1), D. R. Smith (1), G. R. Stanosz (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

2:00 p.m. O-192. Diverse and overlapping communities of the Botryosphaeriaceae on native and non-native trees in southern Africa. B. SLIPPERS (1), J. Roux (2), G. Marais (3), B. D. Wingfield (1), D. Pavlic (2), F. Van der Walt (2), H. M. Maleme (2), B. Hinze (2), M. J. Wingfield (4). (1) Department of Genetics, Forestry and Agricultural Biotechnology Institute (FABI), Pretoria, South Africa; (2) Department of Microbiology and Plant Pathology, Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, South Africa; (3) CSIR Biosciences and Forestry and Agricultural Biotechnology Institute, Pretoria, South Africa; (4) Forestry and Agricultural Biotechnology Institute (FABI), University of Pretoria, Pretoria, South Africa

2:15 p.m. O-193. Black walnut mortality in Colorado caused by the walnut twig beetle and thousand cankers disease. N. TISSERAT (1), W. Cranshaw (1), D. Leatherman (2), C. Utley (1), K. Alexander (3). (1) Colorado State University, Fort Collins, CO, U.S.A.; (2) Colorado State Forestry (retired), Ft. Collins, CO, U.S.A.; (3) Boulder County, Boulder, CO, U.S.A.

2:30 p.m. O-194. Ground-level circumference of loblolly pine saplings is not a significant factor in fusiform rust infection. C. H. WALKINSHAW (1). (1) USDA Forest Service, Pineville, LA, U.S.A.

2:45 p.m. O-195. Evolution of lodgepole pine phytochemical defenses to combat diseases. C. WALLIS (1), R. Reich (2), K. Lewis (1), D. Huber (1). (1) University of Northern British Columbia, Prince George, BC, Canada; (2) BC Ministry of Forests and Range, Prince George, BC, Canada

3:00 p.m. O-196. Loblolly pine decline on Ft. Benning: An analysis of potential underlying causes. H. E. Balbach (1), W. J. OTROSINA (2), P. C. Spaine (2), S. S. Sung (3). , (1) US Army ERDC, Champaign, IL, U.S.A.; (2) USDA Forest Service, Athens, GA, U.S.A.; (3) USDA Forest Service, Pineville, LA, U.S.A.

3:15 p.m. O-197. Assessment of longleaf pine on high-risk and low-risk loblolly pine decline sites at Fort Benning, Georgia. J. W. ZANZOT (1), L. G. Eckhardt (1). (1) Auburn University, Auburn, AL, U.S.A.

Molecular Biology – Fungi
1:00 – 3:30 p.m.; C123
Section: Molecular/Cellular/Plant-Microbe Interactions
Moderators: Lee Hadwiger, Washington State University, Pullman, WA, U.S.A.; Osman Radwan, University of Illinois, Urbana, IL, U.S.A.

1:00 p.m. O-198. Victoriocin, a novel broad-spectrum antifungal protein secreted by virus-infected *Helminthosporium victoriae* isolates. P. B. DE SÁ (1), W. M. Havens (1), H. Li (1), S. A. Ghabrial (1). (1) University of Kentucky, Lexington, KY, U.S.A.

1:15 p.m. O-199. Non-host disease resistance: Signals and nuclear protein changes associated with the activation of pea PR genes. L. A. HADWIGER (1), K. Druffel (1). (1) Washington State University, Pullman, WA, U.S.A.

1:30 p.m. O-200. Soybean root defense responses to *Fusarium virguliforme* infection reveals a role of defense related genes during resistance. O. RADWAN (1), S. J. Clough (2). (1) University of Illinois, Urbana, IL, U.S.A.; (2) University of Illinois, Department of Crop Science, Urbana, IL, U.S.A. and USDA, Urbana, IL, U.S.A.

1:45 p.m. O-201. The role of necrosis and infection inducing compounds by germinating spores of *Botrytis cinerea* in pathogenesis. N. KHANAM (1), Y. Narusaka (2), H. Yoshioka (3), K. Toyoda (1), T. Shiraishi (1). (1) Okayama University, Okayama, Japan; (2) RIBS Okayama, Okayama, Japan; (3) Nagoya University, Nagoya, Japan

2:00 p.m. O-202. Dynamics of rice blast resistance genes in the *Pik* cluster and molecular dissection of the *Pik-p* gene. B. Yuan (1), X. Xu (1), X. Zeng (1), H. Hu (1), C. Zhai (1), F. Lin (1), L. Wang (1), Q. PAN (2). (1) Laboratory of Plant Resistance and Genetics, College of Natural Resources & Environment, South China Agricultural University, Guangzhou, China; (2) South China Agricultural University, Guangzhou, Guangdong, Peoples Republic of China

2:15 p.m. O-203. Epichloë endophytes from cool season grass germplasm. C. YOUNG (1), S. Mittal (1), L. Trammell (1), A. Hopkins (1). (1) The Samuel Roberts Noble Foundation, Ardmore, OK, U.S.A.

2:30 p.m. O-204. RAPD marker as a criterion to study differentiation of isolates of *Rhizoctonia solani* and *Rhizoctonia bataticola* (*Macrophomina phaseolina*). M. SAFFARIAN ABBAS ZADE (1), N. Allaghehband Zadeh (2), R. Farrokhi Nejad (1), S. Rezaee (2), B. Mahmoudi (3). (1) Department of Plant Protection, College of Agriculture, Shahid Chamran University, Ahvaz, Khoozestan, Iran; (2) Department of Plant Pathology, College of Agriculture and Natural Resources, Science and Research Branch, Islamic Azad University, Tehran, Iran; (3) Sugar Beet Seed Institute, Karaj, Tehran, Iran

2:45 p.m. O-205. Evaluation of gibberellin production by the basidiomycete *Moniliophthora perniciosa*, the causal agent of witches'-broom disease in cacao. O. GARCÍA (1), A. B. Ambrósio (1), R. A. Tiburcio (1), H. M. Milagre (2), L. W. Meinhardt (3), G. A. Pereira (1). (1) Institute of Biology - UNICAMP, Campinas, SP, Brazil; (2) Thomson Mass Spectrometry Laboratory-IQ/UNICAMP, Campinas, SP, Brazil; (3) Sustainable Perennial Crops Laboratory / USDA-ARS, Beltsville, MD, U.S.A.

3:00 p.m. O-206. High-resolution mapping of the wheat *Lr46* pleiotropic rust resistance locus. T. CORAM (1), Q. Song (2), J. Fellers (3), M. Mateos-Hernandez (4), L. Perugini (5), R. Singh (6), P. Cregan (2), G. Brown-Guedira (7). (1) USDA ARS, Raleigh, NC, U.S.A.; (2) USDA-ARS, Beltsville, MD, U.S.A.; (3) USDA-ARS, Manhattan, KS, U.S.A.; (4) Pioneer Hi-Bred International, Mexico; (5) Pioneer Hi-Bred International, Champaign, IL, U.S.A.; (6) CIMMYT Wheat Program, Mexico; (7) USDA-ARS, Raleigh, NC, U.S.A.

3:15 p.m. O-207. Identification and activity of silicon transporters from horsetail (*Equisetum arvense*). C. GREGOIRE (1), W. Rémus-Borel (1), F. Lefebvre (1), R. R. Bélanger (1). (1) Université Laval, Quebec, Canada

FLASH-AND-DASH SESSIONS – TUESDAY AFTERNOON
Listed in alphabetical order by title.

Biology of Bacteria and Viruses
2:00 – 3:00 p.m.; Exhibit Hall A; Room 2
Section: Biology of Pathogens
Moderator: Janna Beckerman, Purdue University, West Lafayette, IN, U.S.A.

2:00 p.m. P-311. Genomic characterization of a phage in *Xylella fastidiosa* almond leaf scorch strain. J. CHEN (1). (1) USDA ARS PWA, Parlier, CA, U.S.A.

2:05 p.m. P-358. Prevalence of *Prune dwarf virus*, *Prunus necrotic ringspot virus* and *Tomato ringspot virus* in commercial orchards and nurseries in Pennsylvania. W. MSIKITA (1), F. Fofanah (2), A. Jacob (2).

(1) Pennsylvania Department of Agriculture, Harrisburg, PA, U.S.A.; (2) Harrisburg University of Science and Technology, Harrisburg, PA, U.S.A.

2:10 p.m. P-321. Molecular characterization of two novel soybean-infecting begomoviruses from Nigeria. O. J. ALABI (1), P. L. Kumar (2), J. U. Mgbechi-Ezeri (2), R. A. Naidu (1). (1) Department of Plant Pathology, Washington State University, Irrigated Agriculture Research and Extension Center, Prosser, WA, U.S.A.; (2) International Institute of Tropical Agriculture, PMB, Ibadan, Nigeria

2:15 p.m. P-323. Relative gene expression of *Citrus tristeza virus* isolate FS627 and its aphid-transmitted subisolates by multiplex real-time PCR. A. GOVINDARAJULU (1), T. Venkataprasanna (1), A. Roy (1), R. H. Brlansky (1). (1) University of Florida, Lake Alfred, FL, U.S.A.

2:20 p.m. P-324. Evidence of latency of PYVV in tubers and plants of *Solanum phureja*. L. FRANCO-LARA (1), A. Villamil (1), A. Guateque (1), M. Guzman (2). (1) Universidad Militar Nueva Granada, Bogota, Colombia; (2) Instituto de Biotecnología, Universidad Nacional de Colombia, Bogotá-Colombia

2:25 p.m. P-475. Accounting for host resistance in Stevens' forecast of Stewart's wilt caused by *Pantoea stewartii*. M. D. MEYER (1), J. K. Pataky (1), R. W. Esgar (1), D. K. Joos (1), B. R. Henry (1). (1) Department of Crop Sciences, University of Illinois, Urbana, IL, U.S.A.

2:30 p.m. P-331. Wild cucurbit species as reservoirs for Potyviridae in Puerto Rico. J. RODRIGUES (1), L. Wessel-Beaver (2), C. Estevez de Jensen (2). (1) University of Puerto Rico, San Juan, Puerto Rico; (2) University of Puerto Rico, Mayaguez, Puerto Rico

2:35 p.m. P-480. Detection of different PVY strains from potato in Iran. L. MOSAVI (1), J. Mozafari (2), F. Rakhshandehroo (3), S. Ghadamyari (4), N. Sokhandan Bashir (4). (1) Department of Genetics and National Plant Gene-Bank, Seed and Plant Improvement Institute, Karaj, Iran, Tehran, Iran; (2) Department of Genetics and National Plant Gene-Bank, Seed and Plant Improvement Institute, Karaj, Iran; (3) Department of Plant Pathology, Islamic Azad University, Science and Research Branch, Tehran, Iran; (4) Department of Plant Pathology, Tabriz University, Tabriz, Iran

2:40 p.m. P-335. The 5' sequence of the *Tobacco necrosis virus* AC coat protein gene is involved in local lesion symptoms in *Chenopodium amaranticolor*. J. Li (1), D. Li (1), C. Han (1), J. YU (1). (1) China Agricultural University, Beijing, Peoples Republic of China

2:45 p.m. P-337. The RdRp gene of *Velvet tobacco mottle virus*. K. ARTHUR (1), S. Dogra (1), J. W. Randles (1). (1) The University of Adelaide, Adelaide, Australia

Epidemiology
2:00 – 3:00 p.m.; Exhibit Hall A, Room 1
Section: Epidemiology/Ecology/Environmental Biology
Moderator: Bill Turechek, USDA-ARS, Fort Pierce, FL, U.S.A.

2:00 p.m. P-581. *Phytophthora ramorum* – Pathogenic fitness of the three clonal lineages. C. R. ELLIOTT (1), V. McDonald (1), N. J. Grunwald (2). (1) Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR, U.S.A.; (2) Horticultural Crops Research Laboratory, USDA ARS, Corvallis, OR, U.S.A.

2:05 p.m. P-526. Interaction effects of two biological control organisms on resistant and susceptible weed biotypes of *Chondrilla juncea*. D. M. CAMPANELLA (1), P. B. McEvoy (1), C. C. Mundt (1). (1) Oregon State University, Corvallis, OR, U.S.A.

2:10 p.m. P-530. Epidemiology of soybean rust (*Phakopsora pachyrhizi*) in soybean (*Glycine max*) sentinel plots in Florida. H. M. YOUNG (1), J. J. Marois (1), D. L. Wright (1), D. F. Narvaez (2), G. K. O'Brien (1). (1) University of Florida/NFREC, Quincy, FL, U.S.A.; (2) Monsanto, St. Louis, MO, U.S.A.

2:15 p.m. P-512. Multi-state assessment using window pane analysis confirming weather variables related to Fusarium head blight epidemics. A. B. KRISS (1), L. V. Madden (1), P. A. Paul (1). (1) Ohio State University, OARDC, Wooster, OH, U.S.A.

2:20 p.m. P-531. A PCR-based approach to characterizing resistance responses of soft red winter wheat cultivars to *Fusarium graminearum* infection. C. LI (1), P. Paul (2), M. Guttieri (2), L. Madden (2), C. Sneller (2). (1) Ohio State University, Columbus, OH, U.S.A.; (2) OARDC, Wooster, OH, U.S.A.

2:25 p.m. P-532. Optimization of real-time quantitative PCR (Q-PCR) for *Fusarium pseudograminearum* and *F. culmorum* on wheat. G. J. POOLE (1), F. Ozdemir (2), S. D. Nydam (1), K. L. Schroeder (3), T. C. Paulitz (3), J. M. Nicol (4), K. G. Campbell (5). (1) Washington State University, Pullman, WA, U.S.A.; (2) Bahri Dagdas International Agricultural Research Institute, Konya, Turkey; (3) USDA-ARS Root Disease and Biological Control Research Unit; (4) CIMMYT (International Maize and Wheat Improvement Centre) ,Emek, 06511 Ankara, Turkey; (5) USDA-ARS Wheat Genetics, Quality, Physiology and Disease Research Unit

2:30 p.m. P-541. Synergistic biofilm formation between *S. enterica* and *X. vesicatoria*. L. HAO (1), J. Barak (1). (1) University of Wisconsin - Madison, Madison, WI, U.S.A.

2:35 p.m. P-570. Is there a balance in disease severity development within the SDS-*Heterodera glycines* complex? A. WESTPHAL (1), L. Xing (2), H. Mehl (3). (1) Julius Kühn-Institut, Federal Research Centre for Cultivated Plants, Münster, Germany; (2) Syngenta Crop Protection Inc., Leland, MS, U.S.A.; (3) USDA-ARS, Department of Plant Sciences, University of Arizona, Tucson, AZ, U.S.A.

2:40 p.m. P-583. Diversity of *Fusarium oxysporum* isolates infecting cortical tissues of chickpea roots. J. DEMERS (1), D. Jimenez-Fernandez (2), S. Velarde-Felix (3), B. B. Landa (4), R. M. Jimenez-Diaz (5), M. Jimenez-Gasco (1). (1) Pennsylvania State University, University Park, PA, U.S.A.; (2) University of Cordoba, Cordoba, Spain; (3) INIFAP, Culiacan, Sinaloa, Mexico; (4) Instituto de Agricultura Sostenible, CSIC, Cordoba, Spain; (5) University of Cordoba and Instituto de Agricultura Sostenible, CSIC, Cordoba, Spain

2:45 p.m. P-515. Adapting disease forecasting models to coarser scales: Global potato late blight prediction. A. H. SPARKS (1), G. Forbes (2), K. A. Garrett (1). (1) Kansas State University, Manhattan, KS, U.S.A.; (2) Centro Internacional de la Papa (CIP), Uppsala, Sweden

WEDNESDAY, AUGUST 5

7:00 – 9:00 a.m.	Exhibitor Take-down	Exhibit Hall A
7:00 – 10:00 a.m.	APS Council Meeting	Bellmont A, Crowne Plaza
7:00 – 11:00 a.m.	Registration	Exhibit Hall A Foyer
7:00 – 11:00 a.m.	Concession service available	Exhibit Hall A
8:00 – 10:00 a.m.	Office of International Programs Board Meeting	A104
8:00 – 11:00 a.m.	APS PRESS Bookstore	Exhibit Hall A
	Oral Technical Sessions	
8:30 – 11:00 a.m.	● Biological Control	A106
8:30 – 11:15 a.m.	● Pathogen-Vector Interactions	A105
8:30 – 11:30 a.m.	● Molecular Biology of Bacteria & Nematodes	C120-122
8:30 – 11:30 a.m.	● Turf, Ornamental, & Fruit Diseases	C123
	Special Sessions	
8:30 – 10:45 a.m.	● The APS Public Policy Board: Pulse on Policy Issues	B115-116
8:30 – 11:00 a.m.	● Microbial Genomes Off the Beaten Path	B113-114
8:30 – 11:00 a.m.	● Perceptions of Risk, Risk Aversion, and Barriers to Adoption of Decision Support Systems and IPM	B117-119
8:30 – 11:00 a.m.	● Perplexing Potato Problems	B110-112
9:00 – 11:00 a.m.	Poster Take-down	Exhibit Hall A

SPECIAL SESSIONS – WEDNESDAY MORNING
Listed in alphabetical order by title.

The APS Public Policy Board: Pulse on Policy Issues
8:30 – 10:45 a.m.; B115-116
Section: Professionalism/Outreach
Organizer/Moderator: Jacqueline Fletcher, Oklahoma State University, Stillwater, OK, U.S.A.
Sponsoring Committees: Public Policy Board; Office of Public Relations & Outreach

Learn how APS members can understand and inform public policy. Highlights will include policy issues of priority to APS, including the future of education in plant pathology, building sustainable microbial culture resources, genomics of plant pathogens, and roles for plant pathology in food safety initiatives. Insights from the APS Public Policy early career intern.

8:30 a.m. S-160. APS and public policy. K. EVERSOLE (1). (1) Eversole Associates, Bethesda, MD, U.S.A.

8:45 a.m. S-161. The APS early career internship. A. RECORDS (1). (1) Texas A&M University, College Station, TX, U.S.A.

9:00 a.m. S-162. The future of plant pathology education. J. MACDONALD (1). (1) University of California, Davis, Davis, CA, U.S.A.

9:15 a.m. S-163. The culture collection resource of the future. S. GOLD (1). (1) University of Georgia, Athens, GA, U.S.A.

9:30 a.m. S-164. Plant pathology contributions to food safety. J. BARAK (1). (1) University Wisconsin, Madison, WI, U.S.A.

9:45 a.m. S-165. Perspectives from the APS-OSTP fellow. J. L. SHERWOOD (1). (1) University of Georgia, Athens, GA, U.S.A.

10:00 a.m. S-166. Reflections from the early career PPB intern. M. ABRIL (1). (1) Louisiana State University, Baton Rouge, LA, U.S.A.
10:15 a.m. Open forum discussion

Microbial Genomes Off the Beaten Path
8:30 – 11:00 a.m.; B113-114
Section: Molecular/Cellular/Plant-Microbe Interactions
Organizers: Won-Bo Shim, Texas A&M University, College Station, TX, U.S.A.; Thomas Mitchell, Ohio State University, Columbus, OH, U.S.A.
Moderator: Burton Bluhm, University of Arkansas, Fayetteville, AK, U.S.A.
Sponsoring Committees: Molecular and Cellular Phytopathology; Bacteriology

With the advent of genomics, several model systems have been characterized extensively. However, genomic resources for most agronomically important pathogens are just emerging. This session will highlight pathogens whose genomes are in various stages of sequencing and assembly. More importantly, the speakers will discuss how genomic technologies enabled them to better understand the biology of these fastidious phytopathogens and the challenges/benefits of working on difficult pathosystems with smaller communities.

8:30 a.m. S-167. Genome plasticity in the genus *Mycosphaerella*. S. GOODWIN (1). (1) USDA-ARS, West Lafayette, IN, U.S.A.
9:00 a.m. S-168. Why is *Ralstonia solanacearum* race 3 cold tolerant? Using post-genomic analysis to explore strain-specific traits. C. ALLEN (1). (1) University of Wisconsin, Madison, WI, U.S.A.
9:30 a.m. S-169. *Rhizoctonia solani* genome project: Providing insight into a link between beneficial and plant-pathogenic fungi. M. CUBETA (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
10:00 a.m. S-170. *Streptomyces* find the path to plant pathogenicity: A genomics story. R. LORIA (1). (1) Cornell University, Ithaca, NY, U.S.A.
10:30 a.m. S-171. Evolutionary relationship of enteric plant-pathogenic bacteria. M. D. P. MARQUEZ VILLAVICENCIO (1), A. Charkowski (1). (1) University of Wisconsin, Madison, WI, U.S.A.

Perceptions of Risk, Risk Aversion, and Barriers to Adoption of Decision Support Systems and IPM
8:30 – 11:00 a.m.; B117-119
Section: Plant Disease Management
Organizer/Moderator: David H. Gent, USDA-ARS, Corvallis, OR, U.S.A.
Sponsoring Committees: Crop Loss Assessment and Risk Evaluation; Integrated Plant Disease Management; Epidemiology

Tremendous efforts and resources are expended to develop decision support systems as IPM tools, although many of these systems have not been adopted as tools to inform management decisions at the farm level. The intent of this session is to present current information from multiple perspectives on why decision support systems, and IPM in general, are or are not adopted. Speakers will present information on risk from sociological, economic, and practical grower perspectives within a context of agricultural systems in developed and developing countries. Case studies will be presented to emphasize strategies that should be considered when designing decision support tools to improve their value to and adoption by stakeholders.

8:30 a.m. S-172. A brief history of plant disease risk assessment: Successes and challenges. E. DE WOLF (1). (1) Kansas State University, Manhattan, KS, U.S.A.
8:45 a.m. S-173. Barriers to IPM adoption in developed and developing countries. P. JEPSON (1). (1) Oregon State University, Corvallis, OR, U.S.A.
9:15 a.m. S-174. The sociology of uncertainty, risk, and change. N. MCROBERTS (1), C. Hall (1). (1) Scottish Agricultural College, Edinburgh, United Kingdom
9:45 a.m. S-175. The cost of making decisions in plant disease management. L. V. MADDEN (1), N. McRoberts (2), G. Hughes (3). (1) Ohio State University, Wooster, OH, U.S.A.; (2) Scottish Agricultural College, Edinburgh, United Kingdom; (3) University of Edinburgh, Edinburgh, United Kingdom
10:15 a.m. S-176. The challenge of assessing uncertainty and risk in weather-based decision support tools. W. PFENDER (1), D. H. Gent (1), C. Thomas (2), W. F. Mahaffee (1), L. B. Coop (3), Alan Fox (4). (1) USDA-ARS, Corvallis, OR, U.S.A.; (2) National Plant Diagnostic Network, Davis, CA, U.S.A.; (3) Oregon State University, Corvallis, OR, U.S.A.; (4) Fox Weather, LLC, Fortuna, CA, U.S.A.
10:45 a.m. S-177. Development of management strategies for ray blight of pyrethrum: A case study of successful diffusion. S. PETHYBRIDGE (1), F. Hay (2), D. Gent (3), P. Esker (4), F. Nutter, Jr. (5), C. Wilson (2), T. Groom (1). (1) Botanical Resources Australia, Ulverstone, Tasmania, Australia; (2) Tasmanian

Institute of Agricultural Research University of Tasmania, Tasmania, Australia; (3) USDA-ARS, Corvallis, OR, U.S.A.; (4) University of Wisconsin, Madison, WI, U.S.A.; (5) Iowa State University, Ames, IA, U.S.A.

Perplexing Potato Problems
8:30 – 11:00 a.m.; B110-112
Section: Disease of Plants
Organizers: Susan Meyer, USDA ARS Nematology Laboratory, Beltsville, MD, U.S.A.; Tamra Jackson, University of Nebraska-Lincoln, NE, U.S.A.
Moderators: Dennis Johnson, Washington State University, Pullman, WA, U.S.A.; Susan Meyer, USDA ARS Nematology Laboratory, Beltsville, MD, U.S.A.; Tamra Jackson, University of Nebraska-Lincoln, NE, U.S.A.
Sponsoring Committees: Nematology; Soil Microbiology and Root Diseases

This session will highlight potato diseases and interactions among soilborne pathogens. Presentations will include research results on diseases caused by nematodes, fungi, and viruses. The session will conclude with a panel discussion on "Societal and economic ramifications of potato diseases." This will encompass various pathogens and will also feature discussion of sampling procedures for potato cyst nematode.

8:30 a.m. S-178. Potato early dying. A. MCGUIDWIN (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.
9:00 a.m. S-179. Impact of nematodes on potato quality. R. E. INGHAM (1), N. L. David (2), B. A. Charlton (3), P. B. Hamm (4). (1) Oregon State University, Corvallis, OR, U.S.A.; (2) North Dakota State University, Fargo, ND, U.S.A.; (3) Oregon State University, Klamath Falls, OR, U.S.A.; (4) Oregon State University, Hermiston, OR, U.S.A.
9:30 a.m. S-180. Important soilborne fungal diseases of potato. P. B. HAMM (1). (1) Hermiston Agricultural Research & Extension Center, Hermiston, OR, U.S.A.
10:00 a.m. S-181. Detection and control of infestation foci of potato cyst nematodes (*Globodera rostochiensis* and *G. pallida*). C. SCHOMAKER (1), T. H. Been (1). (1) Plant Research International, Wageningen, The Netherlands
10:30 a.m. Discussion: Societal and economic ramifications of potato diseases

ORAL TECHNICAL SESSIONS – WEDNESDAY MORNING
Listed in alphabetical order by title.

Biological Control
8:30 – 11:00 a.m.; A106
Section: Plant Disease Management
Moderators: Brantlee Spakes Richter, North Carolina State University, Raleigh, NC, U.S.A.; Malvika Chaudhary, Bio-Control Research Laboratories, Bangalore, India

8:30 a.m. O-208. Screening antagonistic microbes and study on its controlling effect to Phytophthora blight of pepper. Y. LIU (1), Z. Chen (1), M. Li (1), F. Lu (1), Y. Liu (1), C. Luo (1), Y. Nie (1). (1) Institute of Plant Protection, Jiangsu Academy of Agricultural Science, Nanjing, PRC Peoples Republic of China
8:45 a.m. O-209. Suppression of *Phytophthora capsici* and *Pythium ultimum* by the fungal-feeding nematode *Aphelenchus avenae.* M. GARRISON (1), R. Qi (1), S. Hu (1), D. Shew (1). (1) North Carolina State University, Raleigh, NC, U.S.A.
9:00 a.m. O-210. Cellulase enzymes as a biocontrol mechanism for *Phytophthora cinnamomi* in mulching systems. B. SPAKES RICHTER (1), D. M. Benson (1), K. Ivors (2). (1) North Carolina State University, Raleigh, NC, U.S.A.; (2) North Carolina State University, Fletcher, NC, U.S.A.
9:15 a.m. O-211. Efficacy of new formulations of Milsana®, conventional and organic Regalia™, in controlling cucumber powdery mildew (*Sphaerotheca fuliginea*). H. SU (1), C. Morgan (1), B. Campbell (1), H. Huang (1), J. Hernandez (1), M. E. Koivunen (1), P. G. Marrone (1). (1) Marrone Bio Innovations, Inc., U.S.A.
9:30 a.m. O-212. Antifungal activity of a new broad spectrum bio-fungicide in the controlling of plant diseases. Y. VARDI (1), M. Reuveni (2). (1) Biomor Israel Ltd., Katzrin, Israel; (2) University of Haifa, Israel
9:45 a.m. O-213. BioIntensive management of collar rot affecting tropical sugar beet with biopesticides NIPROT (*Trichoderma viride*) and Su-Mona (*Pseudomonas fluorescens*). M. CHAUDHARY (1). (1) Bio-Control Research Laboratories, Bangalore, India
10:00 a.m. BREAK

10:15 a.m. O-214. A new potent bio-fungicide for the control of banana black sigatoka. E. E. MARTILLO (1), M. Reuveni (2). (1) Agripac S.A., Guayaquil, Guayas, Ecuador, emartill@agripac.com.ec; (2) University of Haifa, Katzrin, Israel

10:30 a.m. O-215. Contans®, a fungal mycoparasite for control of *Sclerotinia* spp. in the soil from SipcamAdvan and Prophyta Biologischer Pflanzenschutz GmbH. K. SCHWARTAU (1), P. Leuth (2), S. Peterson (3), G. Stallings (3). (1) SipcamAdvan, Davis, CA, U.S.A.; (2) Prophyta Biologischer Pflanzenschutz GmbH, Malchow, Germany; (3) SipcamAdvan, Boise, ID, U.S.A.

10:45 a.m. O-216. A new tea tree oil-based organic fungicide for the control of grape powdery and downy mildews. M. REUVENI (1), C. J. Arroyo (2), J. L. Henriquez (3). (1) Golan Research Inst,, University of Haifa, Kazrin, Israel; (2) MAGAN, Las Condes, Chile; (3) University of Chile, Santiago, Chile

Molecular Biology of Bacteria and Nematodes

8:30 – 11:30 a.m.; C120-122

Section: Molecular/Cellular/Plant-Microbe Interactions

Moderators: Amy Roplogle, University of Missouri, Columbia, MO, U.S.A.; Timothy McNellis, Penn State University, University Park, PA, U.S.A.

8:30 a.m. O-217. Selection of molecular aptamers for identification of live cells of *Ralstonia solanacearum*: A new method in plant pathology. P. G. CHAMPOISEAU (1), J. B. Jones (1), K. Sefah (2), W. Tan (2). (1) University of Florida, Department of Plant Pathology, Gainesville, FL, U.S.A.; (2) University of Florida, Department of Chemistry, Gainesville, FL, U.S.A.

8:45 a.m. O-218. An OmpA family outer membrane protein is required for both disease symptom development and sugarcane stalk colonization by *Xanthomonas albilineans*. P. C. Rott (1), L. FLEITES (2), G. Marlow (2), M. Royer (1), D. W. Gabriel (2). (1) CIRAD, UMR BGPI, Montpellier, France; (2) University of Florida, Plant Pathology Department, Gainesville, FL, U.S.A.

9:00 a.m. O-219. Two separate phage genomes appear associated with citrus greening (huanglongbing). D. W. GABRIEL (1), S. Zhang (1). (1) University of Florida, Gainesville, FL, U.S.A.

9:15 a.m. O-220. An intact cuticle in distal tissues is essential for the induction of systemic acquired resistance in plants. Q. Gao (1), Y. Xia (1), K. Yu (1), L. Lapchyk (1), D. Navarre (2), D. Hildebrand (1), P. Kachroo (1), A. KACHROO (1). (1) University of Kentucky, Lexington, KY, U.S.A.; (2) USDA-ARS, Prosser, WA, U.S.A.

9:30 a.m. O-221. The *galU* gene is required for survival of *Xanthomonas axonopodis* pv. *citri* in planta and its pathogenicity. Y. GUO (1), U. S. Sagaram (2), 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.

9:45 a.m. O-222. Genetic diversity of citrus huanglongbing bacterium '*Candidatus* Liberibacter asiaticus'. L. ZHOU (1). (1) Horticulture Researsh Laboratory, USDA-ARS, Fort Pierce, FL, U.S.A.

10:00 a.m. BREAK

10:15 a.m. O-223. Analysis of apple (*Malus*) responses to bacterial pathogens using an oligo microarray. A. BOCSANCZY (1), J. L. Norelli (2), J. G. Phillips (3), C. D. Dardick (4), S. S. Korban (5), C. L. Bassett (2), M. E. Wisniewski (2). (1) MREC/IFAS University of Florida, Apopka, FL, U.S.A.; (2) USDA-ARS Appalachian Fruit Research Station, Kearneysville, WV, U.S.A.; (3) USDA-ARS North Atlantic Area, Wyndmoor, PA, U.S.A.; (4) USDA-ARS Appalachian Fruit Research Station, FL, U.S.A.; (5) Department of Natural Resources & Environmental Sciences, University of Illinois, Champaign, IL, U.S.A.

10:30 a.m. O-224. Structure-function analysis of the flagellin receptor *Arabidopsis* FLS2: Glycosylation, cysteine pairs and FLS2-FLS2 association. W. SUN (1), K. Jansen (2), P. Bittel (3), T. Boller (3), A. Bent (2). (1) China Agricultural University, Beijing, PRC Peoples Republic of China; Department of Plant Pathology, University of Wisconsin-Madison, Madison, WI, U.S.A.; (2) Department of Plant Pathology, University of Wisconsin-Madison, Madison, WI, U.S.A.; (3) Botanisches Institut der Universität Basel, Switzerland

10:45 a.m. O-225. Apple trees deficient in Fibrillin 6 are sensitive to biotic and abiotic stresses and exhibit decreased plastoglobule osmiophilicity. D. K. Singh (1), S. Maximova (1), T. MCNELLIS (1). (1) Penn State University, University Park, PA, U.S.A.

11:00 a.m. O-226. Monitoring host responses to zebra complex disease on potatoes. V. ALVARADO (1), H. B. Scholthof (1). (1) Texas A&M University, College Station, TX, U.S.A.

11:15 a.m. O-227. Perception of CLE peptides in Arabidopsis during cyst nematode pathogenesis. A. REPLOGLE (1), J. Wang (1), M. G. Mitchum (1). (1) Division of Plant Sciences and Bond Life Sciences Center, University of Missouri, Columbia, MO, U.S.A.

Pathogen-Vector Interactions.
8:30 – 11:15 a.m.; A105
Section: Epidemiology/Ecology/Environmental Biology
Moderators: William Turechek, USDA ARS, U.S. Horticultural Research Lab, Fort Pierce, FL, U.S.A.; Susan Sim, University of California, Davis, CA, U.S.A.

8:30 a.m. O-228. Spatial colonization of *Xylella fastidiosa* in the foregut of glassy-winged sharpshooter supports two types of egestion in the inoculation mechanism. E. A. BACKUS (1). (1) USDA Agricultural Research Service, Parlier, CA, U.S.A.

8:45 a.m. O-229. Role of '*Candidatus* Liberibacter'-infected seed tubers in epidemiology of potato zebra chip. D. HENNE (1), F. Workneh (1), N. Gudmestad (2), C. Rush (1). (1) Texas AgriLife Research, Amarillo, TX, U.S.A.; (2) Department of Plant Pathology, North Dakota State University, Fargo, ND, U.S.A.

9:00 a.m. O-230. Detection of potential reservoirs of *Tomato spotted wilt virus* by PCR analysis of crushed western flower thrips (*Frankliniella occidentalis*). C. NISCHWITZ (1), S. Mullis (2), K. Lewis (2), R. Gitaitis (2). (1) University of Arizona, Tucson, AZ, U.S.A.; (2) University of Georgia, Department of Plant Pathology, Coastal Plain Experiment Station, Tifton, GA, U.S.A.

9:15 a.m. O-231. Lack of *Pythium aphanidermatum* transmission by adult fungus gnats (*Bradysia impatiens*) and investigation of larval vectoring capacity. S. E. BRAUN (1), L. A. Castrillo (1), J. P. Sanderson (1), M. L. Daughtrey (2), S. P. Wraight (3). (1) Department of Entomology, Cornell University, Ithaca, NY, U.S.A.; (2) Department of Plant Pathology and Plant-Microbe Biology, Cornell University, Ithaca, NY, U.S.A.; (3) USDA-ARS, Robert W. Holley Center for Agriculture & Health, Ithaca, NY, U.S.A.

9:30 a.m. O-232. Survey of barley yellow dwarf vectors in Alabama and the Panhandle of Florida. B. A. HADI (1), K. Flanders (1), J. Murphy (1), K. Bowen (1). (1) Auburn University, Auburn, AL, U.S.A.

9:45 a.m. O-233. Epidemiological analysis of multi-virus infections of watermelon in experimental fields in southwest Florida. W. W. TURECHEK (1), S. Adkins (1), C. S. Kousik (2), C. G. Webster (1), P. A. Stansly (3), P. D. Roberts (3). (1) USDA ARS, U.S. Horticultural Research Lab, Fort Pierce, FL, U.S.A.; (2) USDA-ARS, U.S. Vegetable Lab, Charleston, SC, U.S.A.; (3) University of Florida, SWFREC, Immokalee, FL, U.S.A.

10:00 a.m. BREAK

10:15 a.m. O-234. Investigation of the southern green stink bug (*Nezara viridula* L.) vector potential using bacterial and fungal cotton pathogens. E. G. MEDRANO (1), J. F. Esquivel (1), A. A. Bell (1). (1) USDA ARS SPARC, College Station, TX, U.S.A.

10:30 a.m. O-235. *Beet black scorch virus* in Iran is more diverse than anywhere. M. MERHVAR (1), C. Bragard (2). (1) Université catholique de Louvain, Unité de phytopathologie, Louvain-la-Neuve, Belgium & Ferdowsi University of Mashhad, Mashhad, Iran; (2) Université catholique de Louvain, Unité de phytopathologie, Louvain-la-Neuve, Belgium

10:45 a.m. O-236. Rapid spread of leafroll disease in Cabernet Sauvignon grapevines in Napa Valley, California. D. A. GOLINO (1), E. Weber (1), S. T. Sim (1), A. Rowhani (1). (1) University of California, Davis, CA, U.S.A.

11:00 a.m. O-237. Transmission ecology of *Grapevine leafroll-associated virus 3*. C. TSAI (1), K. M. Daane (2), D. Bosco (3), R. P. Almeida (2). (1) University of California, Berkeley, CA, U.S.A. and National Taiwan University, Taipei, Taiwan; (2) University of California, Berkeley, CA, U.S.A.; (3) Univ degli Studi di Torino, Grugliasco (TO), Italy

Turf, Ornamental, & Fruit Diseases
8:30 – 11:30 a.m.; C123
Section: Diseases of Plants
Moderators: Dilip Kumar Lakshman, USDA ARS, Beltsville, MD, U.S.A.; Christie Almeyda, Washington State University, Pullman, WA, U.S.A.

8:30 a.m. O-238. Development of a chitinase assay for tall fescue challenged with *Rhizoctonia solani*. M. A. CUTULLE (1), B. Horvath (1), D. McCall (1), J. Derr (2). (1) Virginia Tech, Ellicott City, MD, U.S.A.; (2) Virginia Tech, Virginia Beach, VA, U.S.A.

8:45 a.m. O-239. A new *Rhizoctonia* sp. pathogenic to seashore paspalum turfgrass. S. KAMMERER (1), P. F. Harmon (2). (1) University of Florida, Saint Augustine, FL, U.S.A.; (2) University of Florida, Gainesville, FL, U.S.A.

9:00 a.m. O-240. Analysis of ribosomal DNA-ITS region for grouping of *Rhizoctonia* species isolated from turfgrass in Maryland and Virginia. B. S. AMARADASA (1), B. Horvath (1), D. K. Lakshman (2), S.

E. Warnke (2). (1) Virginia Tech., Blacksburg, VA, U.S.A.; (2) USDA-ARS FNPRU, Beltsville, MD, U.S.A.

9:15 a.m. O-241. Multilocus sequence analysis of *Sclerotinia homoeocarpa* populations from turfgrasses. T. A. TAYLOR (1), I. Carbone (1), L. P. Tredway (1). (1) North Carolina State University, Raleigh, NC, U.S.A.

9:30 a.m. O-242. Effects of soil temperature on *Sclerotinia homoeocarpa* growth, survival, and pathogenicity. C. WILSON (1), J. Kerns (1). (1) University of Wisconsin-Madison, Madison, WI, U.S.A.

9:45 a.m. O-243. Genetic diversity of endogenous plant pararetorival sequences associated with dahlia mosaic from geographically diverse sources of dahlia. C. V. ALMEYDA (1), K. L. Druffel (1), M. Samuitiene (2), H. R. Pappu (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) Vilnius University, Vilnius, Lithuania

10:00 a.m. BREAK

10:15 a.m. O-244. Para-retroviral sequences in wild *Dahlia* spp. in natural habitats from the Mexican mountain ranges. S. EID (1), K. Druffel (1), D. Saar (2), H. Pappu (1). (1) Washington State University, Pullman, WA, U.S.A.; (2) Department of Biological Sciences, Murray State University, Murray, KY, U.S.A.

10:30 a.m. O-245. Molecular variability of *Grapevine fanleaf virus* in Washington State vineyards. L. R. GUTHA (1), T. A. Mekuria (1), R. R. Martin (2), N. A. Rayapati (1). (1) Washington State University, Prosser, WA, U.S.A.; (2) USDA-ARS Horticulture Crops Research Laboratory, Corvallis, OR, U.S.A.

11:00 a.m. O-246. Prevalence and severity of *Tomato ringspot nepovirus* in a commercial apple orchard in York County, Pennsylvania. W. MSIKITA (1), A. Jacob (2), F. Fofanah (2). (1) Pennsylvania Department of Agric, Harrisburg, PA, U.S.A.; (2) Harrisburg University of Science and Technology, Harrisburg, PA, U.S.A.

11:15 a.m. O-247. Sequence analysis of the genes of two isolates of grapevine leafroll-associated viruses from Liaoning Province in China. M. Wang (1), F. Fei (1), T. Zhou (2), Y. CHENG (3), Z. Fan (2). (1) Department of Pomology, China Agricultural University, Beijing, China; (2) Department of Plant Pathology, China Agricultural University, Beijing, China; (3) China Agricultural University, Beijing, Peoples Rep of China

HOT TOPIC SESSION – WEDNESDAY MORNING

The Use Of Fungicides to Promote Plant Physiological Benefits in Crops
Wednesday, 8:30 – 11:30 a.m.; A107-109
Organizer/Moderator: James P. Mueller, Dow AgroSciences, Brentwood, CA, U.S.A.
Sponsoring Committees: Public Policy Board; Office of Industry Relations

Strobilurin fungicides are registered in maize and soybeans for yield enhancement in the absence of significant foliar diseases. Large-scale commercial testing across multiple locations provides evidence of yield benefits. Smaller scale, replicated field trials intended to document these effects have been inconclusive. Yield responses are attributed to the cumulative effect of managing multiple secondary pathogens and to direct effects on plant metabolism such as changes in photosynthetic efficiency and transpiration rate. Some researchers have expressed concern about potential unintended consequences such as selection for fungicide resistant pathogens or suppression of beneficial fungi. This session will review the data and provide a balanced discussion representing both sides of the topic.

8:30 a.m. Introduction: Plant metabolic effects of fungicides and insecticides. J. MUELLER (1). Dow AgroSciences, Brentwood, CA, U.S.A.

8:35 a.m. Plant physiological responses to strobilurin fungicides. E. TEDFORD (1). Syngenta Crop Protection , Greensboro, NC, U.S.A.

8:55 a.m. Overview of small scale field testing results. P. VINCELLI (1). University of Kentucky, Lexington, KY, U.S.A.

9:15 a.m. Large scale field trials and statistical considerations. P. ESKER, University of Wisconsin, Madison, WI, U.S.A.

9:35 a.m. Pyraclostrobin: Effect on plant physiological processes and benefit analysis. N. FASSLER (1). BASF, Research Park Triangle, NC, U.S.A.

10:00 a.m. Break

10:15 a.m. Open forum discussion